Received: 22 March 2022 | Accepted: 23 May 2023

DOI: 10.1111/jora.12868

JOURNAL OF Research on Adolescence

EMPIRICAL ARTICLE

Within-family linkages between parental monitoring and adolescents externalizing problems with autonomy support as a moderator

Paula Vrolijk[1] | **Caspar J. Van Lissa**[2] | **Susan Branje**[3] | **Wim H. J. Meeus**[3] | **Renske Keizer**[1]

[1]Department of Public Administration and Sociology, Erasmus University Rotterdam, Rotterdam, The Netherlands

[2]Department of Methodology and Statistics, Tilburg University, Tilburg, The Netherlands

[3]Department of Youth and Family, Utrecht University, Utrecht, The Netherlands

Correspondence
Paula Vrolijk, Department of Public Administration and Sociology, Erasmus University Rotterdam, P.O. Box 1738, 3000 DR Rotterdam, The Netherlands.
Email: vrolijk@essb.eur.nl

Funding information
H2020 European Research Council, Grant/Award Number: 757210 and 773023; Nederlandse Organisatie voor Wetenschappelijk Onderzoek, Grant/Award Number: 191 G.090 and 452-17-005

Abstract

Parents' monitoring efforts are thought to be effective in reducing children's future externalizing problems. Empirical evidence for this claim, however, is limited, as only few studies have unraveled the temporal ordering of these constructs. The present six-wave longitudinal study contributed to the existing literature by examining within-family linkages between monitoring efforts (behavioral control and solicitation) and adolescents' externalizing behaviors while controlling for between-family differences. In addition, it was assessed whether these associations differed when using child versus parent reports, differed for less versus more autonomy-supportive parents, and differed for fathers' versus mothers' monitoring efforts. Longitudinal data (six annual waves) of 497 adolescents (56.9% boys, M_{age} at $T_1 = 13.03$, SD = 0.46), their mothers ($N = 495$, M_{age} at $T_1 = 44.41$, SD = 4.45), and their fathers ($N = 446$, M_{age} at $T_1 = 46.74$, SD = 5.10) of the Dutch study Research on Adolescent Development and Relationships (RADAR) were used. Results showed no evidence for the claim that parents' monitoring efforts predict future externalizing problems. In contrast, we found some evidence for the idea that parents' monitoring efforts change in reaction to changes in externalizing problems; when adolescents reported higher levels of externalizing problems than usual in 1 year, this predicted less behavioral control from mothers in the next year. Linkages between monitoring efforts and externalizing problems did not differ between less or more autonomy-supportive parents. Overall, our findings suggest that monitoring efforts are not effective, but also not damaging, in relation to adolescents' externalizing problems.

KEYWORDS
autonomy support, externalizing problems, longitudinal, parental monitoring, within-family linkages

INTRODUCTION

During adolescence, parent–child relationships transform from being hierarchical to relatively more egalitarian (Branje, 2018). Adolescents become more independent and spend more time without parental supervision (Larson et al., 1996). Nevertheless, parents may still track and control their children's whereabouts, activities, and adaptations using so-called monitoring behaviors. Early research operationalized monitoring primarily in terms of *parental knowledge* of their children's activities and showed that monitoring was negatively associated with adolescent externalizing problems (e.g., delinquency; Dishion & McMahon, 1998). This operationalization may have led to an overestimation of the beneficial effects of monitoring as parental knowledge, above all, is an outcome of adolescents' own disclosure instead of a result of parenting practices (Kerr et al., 2010). In contrast, research that examined parents' *active efforts* to

track and control the activities and behaviors of their children (see for a review Racz & McMahon, 2011) has found mixed evidence for the existence and directionality of links between parents' actual monitoring efforts and adolescent externalizing problems (e.g., Janssen et al., 2016; Kerr et al., 2010; Rekker et al., 2017; Stavrinides et al., 2010).

Most of these studies merely examined *between-family* associations between monitoring efforts and adolescent externalizing problems. Consequently, these studies were unable to unravel the temporal ordering of these constructs. To inform interventions about efficient parenting practices, it is important to understand whether monitoring efforts indeed lead to changes in future problem behaviors, or whether changes in problems evoke certain monitoring efforts. The overall aim of this study is to clarify these *within-family* bidirectional linkages. More specifically, we investigate whether parents who display relatively higher levels of monitoring efforts than usual at one time-point have children who show less (or more) externalizing problems than usual in the next time-point (or vice versa). We differentiate between two aspects of monitoring, namely, behavioral control and solicitation (Kerr & Stattin, 2000), and examined their individual relations with adolescent externalizing problems. In addition, we used child versus parent reports, analyzed whether associations between monitoring efforts and externalizing problems varied for more autonomy-supportive versus less autonomy-supportive parents, and finally, we examined whether linkages between monitoring efforts and externalizing problems differed when investigating fathering versus mothering.

Linkages between parents' monitoring efforts and adolescent externalizing problems

The monitoring literature distinguishes different types of monitoring efforts in which parents obtain information about their children's whereabouts. Whereas *behavioral control* is a form of monitoring in which parents require their children to keep them informed, and ask permission, about their unsupervised leisure time, without parents necessarily giving additional guidance or feedback to their children, *solicitation* is a form of monitoring, which involves parents asking, or starting conversations with, their children about their activities (Kerr & Stattin, 2000). Behavioral control and solicitation can be considered to be less invasive than other parenting strategies used to regulate children's behaviors, such as snooping or psychological control (e.g., Hawk et al., 2016; Van Petegem et al., 2015). Parental monitoring efforts may reduce future externalizing problems in adolescence because they allow parents to better regulate adolescents' activities. Monitoring efforts may facilitate the development of children's self-regulation, thereby in turn reducing the risk for delinquent behaviors (Gottfredson & Hirschi, 1990). Also, it may steer adolescents away from bad influences, such as spending time with deviant peers, which in turn limits the opportunities to engage in problem behaviors (Janssen et al., 2016). Many interventions are therefore targeting parents' monitoring behaviors in adolescence, often coupled with a focus on other aspects of family functioning (e.g., Burke et al., 2012). Some of these, indeed, have found to be effective in preventing adolescent problem behavior (Dishion et al., 2003; Henderson et al., 2009; Huey et al., 2000). However, it is important to determine whether changes in parental monitoring efforts are the main reason that these interventions reduce the risk of future developing problem behaviors (Racz & McMahon, 2011).

On the other hand, monitoring may result in coercive interactions (Hayes et al., 2003). So, in contrast to the idea that parental monitoring efforts may reduce future externalizing problems, such efforts might also evoke more problems, in particular in the developmental stage of adolescence. An important task in adolescence is to develop more independence. As a result, the parent–child relationship moves toward a more egalitarian relationship and parental authority is renegotiated (Branje, 2018). Due to adolescents' increasing needs for privacy and autonomy, there is a normative decline in parental monitoring efforts and children's own disclosure from middle childhood to early adolescence (Lionetti et al., 2019; Smetana, 2011). In line with this, parental behavioral control is indeed found to decrease over the course of adolescence according to both parent and child perspectives (Mastrotheodoros et al., 2019). *Reactance theory* (Brehm, 1966) posits that perceived parental overreach may be threatening to adolescents, and can lead to an increase in oppositional defiance, and by extension, in externalizing problems. Especially monitoring efforts in which parents require their children to keep them informed (i.e., behavioral control) might become decreasingly effective and increasingly counterproductive, as adolescents may perceive these monitoring efforts more easily as overcontrolling (e.g., privacy invasive and overprotective, Keijsers et al., 2012; Van Petegem et al., 2015). On the other hand, monitoring efforts that involve starting conversations with their children about their activities (i.e., solicitation) may increase future problem behaviors to a lesser extent, although oppositional defiance can occur when adolescents perceive solicitation as "over-solicitation", when parents ask for more information over and above what adolescents are willing to disclose (e.g., Rekker et al., 2017; Willoughby & Hamza, 2011).

According to the *transactional view* of parent–child relationships, parents and children reciprocally influence each other (Kerr et al., 2012). In addition to parent-driven processes, in which adolescents' externalizing problems are shaped by parents' monitoring efforts, child-evoked processes may explain associations between monitoring efforts and externalizing problems. Thus, adolescents' externalizing problems might also evoke certain monitoring efforts from parents and such "child-evoked effects" increase in adolescence (Meeus, 2016; Soenens et al., 2019). Studies indeed have shown that more externalizing behaviors of adolescents lead to less monitoring efforts by parents (Kerr et al., 2008; Kerr & Stattin, 2003; Willoughby & Hamza, 2011). It has been suggested that when adolescents display more problem

behavior, parents may try to avoid conflict by becoming less controlling and asking less questions about their whereabouts (Kerr & Stattin, 2003).

Although linkages between monitoring efforts and externalizing problems have been frequently studied, there is still no clarity about the existence and directionality of such a relation (e.g., Keijsers et al., 2010; Racz & McMahon, 2011; Willoughby & Hamza, 2011). Most previous studies only examined between-family differences, meaning that they investigated the co-variation in rank order positions of families (as addressed by Keijsers, 2016). Three previous papers on associations between monitoring efforts and externalizing problems used the same sample as the one used in the current paper (Crocetti et al., 2016; Delforterie et al., 2016; Rekker et al., 2017). Two of these papers had a between-family design and focused on relations with substance use and antisocial behavior in middle to late adolescence (Crocetti et al., 2016; Delforterie et al., 2016). They found a conditional relation between solicitation and antisocial behavior (depending on adolescent empathy; Crocetti et al., 2016), and a negative relation between behavioral control and alcohol use (Delforterie et al., 2016). Whereas these two papers only examined how families differed from each other, the third paper like ours focused on changes *within* the family, that is over-time fluctuations in monitoring efforts and externalizing problems (Rekker et al., 2017). While this study found no evidence for a relation between behavioral control and delinquency on the between-family level, it did find a positive within-family association (Rekker et al., 2017). So, adolescents were found to experience more control than usual during periods in which they committed more offenses than usual. Unfortunately, the methods the authors used did not enable them to distinguish between parent-driven effects (i.e., from monitoring to externalizing problems) and child-evoked effects (i.e., from externalizing problems to monitoring) over longer time periods. We know of only two studies that have unraveled the temporal ordering of associations between monitoring efforts and problem behaviors by investigating within-family effects of changes over time while taking into account structural differences between families (Kapetanovic et al., 2019; Keijsers, 2016). One study found a parent-driven effect, whereby increases in behavioral control predicted future decreases in delinquency, and not the other way around (Kapetanovic et al., 2019). No other within-family effects over time were found in either study.

The three previous within-family studies, however, only focused on *child*-reported delinquency. Besides taking into account between-family differences, we considered both parents' and adolescents' perspectives in order to obtain a more complete picture of bidirectional linkages between monitoring and externalizing problems. Research showed that parents' and children's perspectives on parenting and adolescent functioning differ from each other (De Los Reyes et al., 2015; Hou et al., 2020; Van Lissa et al., 2015). When investigating the dynamic interplay between parent and child, it is therefore important to take both perspectives into account. Another reason why it is important to consider both perspectives is that people act on what they perceive (Kuczynski & Mol, 2015). When deciding how to respond to the actions of others, a person first needs to interpret these actions. Then, based on this interpretation and the meaning and feelings attributed to it, the person decides on their response. For instance, to investigate parents' reactions to changes in adolescents' behavior, the so-called child-evoked effects, it may be especially relevant to consider parents' perceptions of adolescent externalizing problems. Although adolescents may have a different perspective on the same behavior, it is parents' interpretation that eventually determines how parents will act in future interactions. As the two studies so far that focused on the temporal ordering of monitoring efforts and externalizing problems only included adolescents' reports of their own problem behavior and parenting practices (Kapetanovic et al., 2019; Keijsers, 2016), they might have missed potential child-evoked effects in parents' perspective. Vice versa, it has been argued that adolescent's appraisals of parenting determine how children cope with these behaviors (see Soenens et al., 2015). So, to investigate adolescents' responses to changes in monitoring, so called "parent-driven effects", it is important to consider adolescents' perception of their parents' monitoring efforts since adolescents' then act on the parenting they perceive.

Depending on the reporter, one may thus observe different over-time associations between parenting and adolescent adjustment (Keijsers et al., 2009; Van Lissa & Keizer, 2020). The previous within-family study that used the same data as the current one checked whether associations with child-reported delinquency differed depending on who reported on monitoring efforts (Rekker et al., 2017). Specifically, the positive within-family association between behavioral control and delinquency was only significant when parents reported on their own behavioral control. It is, however, unknown whether these associations can be interpreted as parent-driven or child-evoked processes and what within-family relations there are with parents' perceptions on externalizing problems. Based on these considerations, we used models in which parents reported on parenting and externalizing problems, and models in which adolescents reported on parenting and externalizing problems to get a more complete view of parent-driven and child-evoked processes.

The role of autonomy-supportive parenting

Parents' general parenting style provides a context in which socialization occurs and is likely to affect the relation between monitoring efforts and adolescents' externalizing problems (Darling & Steinberg, 1993). Parenting styles create an emotional climate in which parenting practices are expressed by parents and interpreted by children. An important aim of monitoring is socializing children, which involves children's internalization of societal norms and values (Van Petegem, Vansteenkiste, et al., 2017). For internalization to take place, it is important that children perceive their parents as

having legitimate authority to set limits and receive information about their whereabouts (Grusec & Goodnow, 1994). Adolescents are more likely to perceive parental authority as legitimate when their parents support their autonomy by acknowledging their perspectives, accepting their feelings, and facilitating their self-endorsed actions (Deci & Ryan, 2000). So, the effectiveness of monitoring may be affected by parents' use of an autonomy-supportive style (Van Petegem, Zimmer-Gembeck, et al., 2017). Parents who display monitoring efforts and who are autonomy-supportive may set limits to their children's behaviors, but are simultaneously more likely to explain the reasoning behind rules, and involve their children in decision-making (Joussemet et al., 2008). As such, in high autonomy-supportive families, adolescents may interpret parents' monitoring as a sign of parental interest (e.g., Baudat et al., 2020). In low autonomy-supportive families, by contrast, adolescents may perceive monitoring behaviors as a sign of distrust and challenging to their independence, resulting in more problem behaviors. In line with this reasoning, some studies found that parental monitoring was most effective, or less damaging for adolescent adjustment, in a supportive environment (Kapetanovic & Skoog, 2021; LaFleur et al., 2016; Rodríguez-Meirinhos et al., 2020).

The present study examines whether changes in parental monitoring efforts predict changes in future externalizing problems on the within-family level, and whether this effect varies by parents' autonomy-supportive style. To rule out that the impact runs into a different direction, we will also explore whether parents' autonomy support moderates other within-family associations between monitoring efforts and externalizing problems, such as the effect of externalizing problems on future monitoring efforts.

Fathers versus mothers

Relations between monitoring efforts, autonomy support, and adolescent externalizing problems may differ for fathers and mothers. In line with the *father-activation relationship theory* (Paquette, 2004), it may be especially important for fathers to display age-appropriate levels of behavioral control. According to this theory, mothers typically tend to play a more important role in meeting children's need to be calmed and secured, whereas fathers play a more important role in encouraging children to open up to the outside world while setting appropriate limits. Through stimulation and control, fathers are argued to promote their children's self-regulation and obedience (Paquette, 2004), and therefore lower the risk on externalizing problems. In other words, showing appropriate behavioral control may be especially relevant in the father–child relationship. In line with this idea, research showed that in lower support families with somewhat higher levels of adolescent delinquency, but not in higher support families, a weaker decline in father-reported behavioral control was associated with a weaker increase in delinquency while this was not true for mother-reported behavioral control (Keijsers et al., 2009). Within families, fathers may tend to increase behavioral control when adolescents show higher levels of problem behaviors than usual, to promote self-regulation and obedience and lower the risk for externalizing problems. For instance, research showed that when adolescents displayed lower levels of emotion regulation than usual, adolescents perceived higher levels of behavioral control by fathers 1 year later, whereas this effect was not found for mothers' behavioral control (Van Lissa et al., 2019).

With regard to solicitation, fathers tend to receive information via their spouses to a greater extent than mothers (Waizenhofer et al., 2004). Since fathers are more likely to gain their knowledge from mothers' solicitation than the other way around, this may indicate that solicitation plays a more important role in the mother–child relationship compared to the father–child relationship. So, especially mothers' solicitation may be related to adolescent externalizing problems. On the other hand, adolescents may also interpret increases in mothers' solicitation less positively than that of fathers because they view the former more quickly as "over-solicitation" (Crouter et al., 2005).

Prior research using the same sample as the one in the present study showed no differences between fathers and mothers in the positive within-family relation between parent-reported behavioral control and child-reported delinquency (Rekker et al., 2017). However, since child reports on mothers and fathers were combined, it is not clear whether results would differ for child-reported behavioral control from fathers and mothers. In light of the above-mentioned contributions that the current paper attempted to make to the literature (e.g., clarify bidirectional linkages using different reporters), the present study aimed to investigate over-time linkages between behavioral control, solicitation, and adolescent externalizing problems separately for parenting by fathers and mothers. To investigate individual contributions of fathers' and mothers' parenting to adolescent externalizing problems and to compare these associations, fathers and mothers were analyzed within the same models.

Present study

The present study aimed to contribute to the literature on linkages between two aspects of parental monitoring, namely, behavioral control and solicitation, and adolescents' externalizing problems. Our main objective was to unravel the temporal ordering of associations between these constructs by testing parent-driven processes (i.e., from monitoring to problems) and child-evoked processes (i.e., from problems to monitoring) at the within-family level while taking into account differences between families. In addition, both child-reported and parent-reported models were tested. Child-evoked processes may be detected more easily in parent-reported models, whereas parent-driven processes may be detected more easily when using child-reported models. The first research question is therefore: Are there child-evoked and parent-driven

processes between parental monitoring efforts and adolescent externalizing problems when parents or adolescents report on these constructs (RQ1)? Second, this study examined to what extent the effect of monitoring efforts on externalizing problems depends on the level of parental autonomy support. In cases of autonomy-supportive parenting, monitoring efforts may be especially beneficial in reducing future externalizing problems. We also explored whether a moderation effect appears on other within-family associations, such as the within-family effect of externalizing problems on future monitoring efforts. So, the second research question is: To what extent do within-family processes differ between more versus less autonomy-supportive parents (RQ2)? Finally, by including monitoring efforts of mothers and fathers in the same model we were able to investigate fathers' and mothers' individual contributions to externalizing problems and to explore whether linkages differed in strength between fathers and mothers. The final research question is: Are between- and within-family linkages different for fathers and mothers (RQ3)?

METHOD

Participants

Data were drawn from the first six annual measurement waves of the ongoing longitudinal study Research on Adolescent Development And Relationships (RADAR)-Young (Branje & Meeus, 2018). The sample consisted of 497 adolescents (56.9% boys, M_{age} at $T_1 = 13.03$, SD = 0.46), their mothers ($N = 495$, M_{age} at $T_1 = 44.41$, SD = 4.45), and their fathers ($N = 446$, M_{age} at $T_1 = 46.74$, SD = 5.10). Nearly all adolescents were of Indigenous Dutch ethnicity (95%), lived with both parents (86%), and answered questions about their biological mother (99%) and father (89%). In addition, most adolescents came from families classified as having a medium or high socioeconomic status (90%) meaning that at least one parent held a medium- or high-skilled job. In approximately a quarter of these middle-to-high SES families, only one parent had a medium- or high-skilled job. This indicates that families had a higher average SES than the general population of the Netherlands (CBS, 2021).

We used data from questionnaires that were completed during home visits in the first six measurement waves separated by one-year intervals. Adolescents, mothers, and fathers reported on parental monitoring efforts, adolescent externalizing problems, and parental autonomy support. Since monitoring efforts were not assessed during the first wave, we used information on both monitoring efforts and externalizing problems from Wave 2 to Wave 6. Information on parental autonomy support was available for all six waves. Approximately 94% of the families participated in the second wave, and 88% of the families participated in all six waves. Jamshidan and Jalal's nonparametric MCAR test failed to reject the null hypothesis that data were Missing Completely at Random ($p = .748$), indicating that there was no association between observed values and missingness. Missing data (14.5%) were imputed on scale level using the *missForest*-package in R. This random forest-based approach tends to outperform multiple imputation and does not make any distributional assumptions, which means it easily handles (multivariate) non-normal data and complex interaction and nonlinear relations among data (Stekhoven & Bühlmann, 2012). All analyses were conducted in R version 4.0.2 (R Core Team, 2020). All code, output, Appendices S1 and S2, and preregistration are available on the Open Science Framework at https://osf.io/zhku5/. The dataset is available upon request in the DANS repository under the title Research on Adolescent Development Relationships (RADAR; young cohort): https://doi.org/10.17026/dans-zrb-v5wp.

Measurements

Parental monitoring behaviors

To assess parental monitoring, fathers, mothers, and adolescents completed the Dutch version of the monitoring scales developed by Kerr and Stattin (2000) and Stattin and Kerr (2000). Adolescents rated perceived parenting practices for mothers and fathers separately, and fathers and mothers reported on their own parenting practices from the second wave onwards. Respondents could answer on a five-point scale, ranging from (1) *never* to (5) *always*. Behavioral control was measured by five items, for example: "Does your child need to have your permission to stay out late on a weekday evening?" or "If you have been out very late one night, does your mother/father require that you explain what you did and whom you were with?". Solicitation was measured by three items, for example: "During the past month, how often have you started a conversation with your child about his/her free time?" or "How often does your mother/father initiate a conversation about things that happened during a normal day at school?". Scales were created by averaging the item scores. Reliabilities were good. Cronbach's alpha's for each reporter across waves ranged from $\alpha = .82$ to $\alpha = .91$ for behavioral control. For solicitation, the reliability for each reporter across waves ranged from $\alpha = .62$ to $\alpha = .82$. The reliability of adolescent-reported maternal and paternal solicitation and father-reported paternal solicitation was fairly high ($\alpha = .71$ to $\alpha = .82$). Reliability of mother-reported solicitation was somewhat lower compared to the other reporters, but still acceptable (reliability of mother-reported solicitation was $\alpha_{w2} = .71$, $\alpha_{w3} = .62$, $\alpha_{w4} = .68$, $\alpha_{w5} = .72$, $\alpha_{w6} = .67$) across waves (see the Appendix S1: Table A1 for all Cronbach's alpha's). Previous work has demonstrated the validity of these scales (Hawk et al., 2008). Concurrent correlations show that relations between adolescent and father reports on paternal monitoring ($r = .19$ to $r = .39$,

$p < .001$), and between adolescent and mother reports on maternal monitoring ($r = .19$ to $r = .43$, $p < .001$) were weak to moderate.

Parental autonomy support

Autonomy support was measured by the seven-item "balanced relatedness" scale, which describes tolerance of mother and father regarding differing opinions and ideas (Shulman et al., 1997). It taps into the extent to which parents accepted the opinions, wishes, and needs of their child. Fathers and mothers reported on their behavior toward their child, and adolescents reported on their father and mother separately. Respondents could answer on a four-point scale, ranging from (1) *absolutely disagree* to (4) *absolutely agree*. An example item is: "I respect the ideas of my child" or "My father/mother considers my opinion." The sum score of the seven items, in which missing values were replaced with the mean of the nonmissing items, was computed to assess self-reported and child-perceived autonomy support, separately for fathers and mothers. Previous studies showed evidence for construct validity, convergent validity, and test–retest reliability (Shulman et al., 1997; Van der Giessen et al., 2013). The scale had a good reliability for every reporter on each wave, Cronbach's alpha's for each reporter across waves were ranging from $\alpha = .84$ to $\alpha = .90$. There were weak concurrent correlations between adolescents' and fathers' reports on paternal autonomy support ($r = .18$ to $r = .26$, $p < .001$) and between adolescents' and mothers' reports on maternal autonomy support ($r = .12$ to $r = .22$, $p < .05$).

Adolescent externalizing behaviors

Parents reported on adolescents' externalizing problems using the Child Behavior Checklist (CBCL; Achenbach, 1991a) and adolescents reported about their own externalizing problems using the Youth Self-Report (YSR; Achenbach, 1991b). Both questionnaires consist of a list of behaviors and respondents were asked to indicate whether adolescents displayed these behaviors within the past 6 months. Respondents could answer on a three-point scale: (0) *almost never*, (1) *sometimes*, and (2), *often*. At each measurement wave, mothers and fathers reported on the Dutch version of the CBL (Verhulst et al., 1996), consisting of 13 items on delinquent behavior (such as "My child hangs around with others who get in trouble") and 20 items on aggressive behavior (such as "Destroys his/her things"). Adolescents reported on the Dutch version of the YSR (Verhulst et al., 1997), consisting of 11 items on delinquent behaviors (such as "I steal at home") and 19 items on aggressive behavior (such as "I get in many fights"). Both subscales were summed to get a total scale of externalizing problems, again missing values were replaced with the mean of the nonmissing items. Reliabilities were high for every reporter on each wave and ranged from $\alpha = .88$ to $\alpha = .92$. There were weak to moderate concurrent associations between adolescent and father reports ($r = .18$ to $r = .36$, $p < .001$), somewhat stronger concurrent relations between adolescent and mother reports ($r = .28$ to $r = .50$, $p < .001$), and strong concurrent relations between father and mother reports ($r = .54$ to $.65$, $p < .001$). Since fathers' and mothers' reports were strongly related, we included one overall score for parent-reported externalizing problems in the parent-reported models instead of two separate scores for fathers and mothers. To this end, the average between fathers' and mothers' reports was calculated. *SEMtools* (Jorgensen et al., 2021) was used to test for weak and strong measurement invariance. More restricted models were deemed acceptable since RMSEA, CFI, and TLI showed little change (see Appendix S1: Table A2), indicating that the same construct was measured across mothers and fathers. Fathers reported more externalizing problems compared to mothers during the fifth ($\Delta M = 0.53$, $p = .038$) and final wave ($\Delta M = 0.61$, $p = .022$). Therefore, fathers' and mothers' scores were grand mean centered (individual score minus overall mean fathers or mothers across the five waves) before averaging.

Analyses

Our main research questions were answered using two Random Intercept Cross-Lagged Panel Models (RI-CLPM; Hamaker et al., 2015): one parent-reported and one child-reported model. The models were estimated using the R-package *Lavaan* (Rosseel, 2012). The RI-CLPM differentiates between two variance components, the between-family part and the within-family part. The between-family part of a construct represents stable differences between families and is specified by a latent random intercept in which all factor loadings of the repeated measurements are fixed to 1 (e.g., mean level of parental solicitation). Next, the within-family part represents within-family fluctuations. More specifically, these are the differences between a person's observed score during one wave and the persons expected score (individuals' deviation from their own average scores on parental solicitation). To the extent that (unobserved) time-invariant confounders affect the observed variables, we can expect their effect on the within-person residuals to be screened off by controlling for the random intercept on the between-family level. Each model included between-family associations and within-family associations between parental behavioral control, parental solicitation, and adolescent externalizing problems from Wave 2 to Wave 6 (see Figure 1). A separate model was used for parent-reported parenting and parent-reported externalizing problems, and for child-reported parenting and child-reported externalizing problems. Fathers' and mothers' parenting were analyzed within the same model.

Intraclass Correlation Coefficients (ICC's) showed that most of the variance in child-reported (63%) and parent-reported (77%) externalizing problems was due to differences at the between-family level. The remainder of the

JOURNAL OF Research on Adolescence

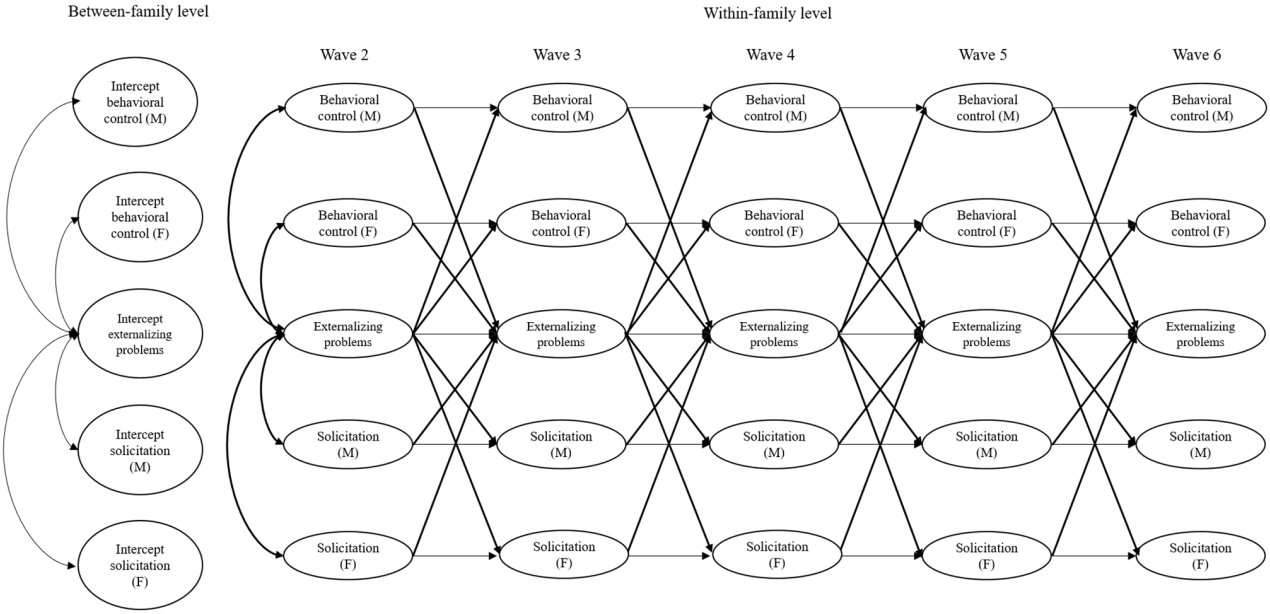

FIGURE 1 Simplified representation of the RI-CLPMs. *Note*: Since monitoring efforts were measured from the second wave on, we used information from Wave 2 to Wave 6 for our main analyses. Only between-level and cross-lagged relations between monitoring efforts and externalizing problems are shown. For reasons of simplicity, relations between fathers' and mothers' monitoring efforts are estimated, but not represented in this figure. Within-family associations tested for differences between more autonomy-supportive versus less autonomy-supportive parents are represented by bold lines. F, Father; M, Mother.

variance was due to fluctuations at the within-family level or residual variance. Less than half of the variance in child-reported paternal behavioral control (43%), father-reported behavioral control (35%), child-reported maternal behavioral control (39%), and mother-reported behavioral control (35%) was explained by differences between families. Finally, with regard to parental solicitation, approximately half of the variance was due to differences between families for adolescent reports on fathers (52%), father reports (58%), adolescent reports on mothers (52%), and mother reports (53%). These ICC's indicate that it is relevant to account for between-family differences in order to examine bidirectional associations between monitoring efforts and externalizing problems.

We fitted two RI-CLPMs in which, for reasons of parsimony, all within-time correlations, stability pathways, and cross-lagged coefficients over time were constrained (see Table 1 for the model-building process and model fits). Model fit indices showed that these constraints were defensible; the Satorra-Bentler Scalded Chi-Squared difference test was not significant, AIC and BIC declined, TLI was comparable, and CFI increased when comparing the models without to the models with constraints. Since eight tests were used for each hypothesis, a corrected significance equal to $\alpha = .05/8 = .006$ (two-sided) was applied. For example, to test for the parent-driven effect of monitoring efforts on externalizing problems (RQ1), we used two models (parent vs child reports), differentiated between two monitoring efforts (solicitation vs behavioral control), and we examined monitoring efforts from two parents (fathers vs mothers).

To test the moderating effect of autonomy support on the linkages between monitoring efforts and externalizing problems (RQ2), parents were divided into less autonomy-supportive groups (with lower intercepts) and more autonomy-supportive groups (with higher intercepts) using the most likely posterior class probability resulting from Latent Class Growth Analyses (LCGA), estimated using the *tidySEM* R-package (Van Lissa, 2019). LCGA were conducted for each reporter separately. The entropy of all latent class solutions was high, $S \in [.91, .96]$, which indicates high-class separability and suggests that it is defensible to treat class as an observed variable for the moderator analyses. Information about the class-specific intercepts, slopes, and sample sizes can be found in Table 2. Further information on these analyses is presented in the Appendix S2.

To examine the moderating role of autonomy support (RQ2), we estimated four multiple-group RI-CLPM's (Mulder & Hamaker, 2021) with latent class membership as a moderator. The child-reported and parent-reported models were tested twice, once for father autonomy support and once for mother autonomy support. In these models, all paths were constrained to be equal across groups. Next, autonomy support was explored as a possible moderator by freeing each within-level association between monitoring efforts and externalizing problems one by one and by calculating Wald-tests. See Figure 1 for a visual representation of

TABLE 1 Model fit indices for child- and parent-reported models.

Model	χ^2	df	Scf	AIC	BIC	RMSEA	CFI	TLI	$\Delta\chi^2$ *p*
Child-reported									
1a. CLPM	519.66	150	1.15	36621.63	37463.34	0.08	0.94	0.89	
1b. RI-CLPM	190.26	135	1.10	36265.40	37170.25	0.03	0.99	0.98	<.001
1c. Constrained RI-CLPM	315.64	240	1.17	36214.35	36677.30	0.03	0.99	0.99	.072
1d. Multigroup RI-CLPM fathers (constrained)	701.41	533	1.14	36085.26	36788.09	0.04	0.97	0.97	
1e. Multigroup RI-CLPM mother (constrained)	665.79	535	1.14	36104.24	36798.65	0.03	0.98	0.98	
Parent-reported									
2a. CLPM	792.30	150	1.10	32522.38	33364.09	0.10	0.91	0.81	
2b. RI-CLPM	276.28	135	1.02	31963.26	32868.49	0.05	0.98	0.96	<.001
2c. RI-CLPM constrained	396.13	240	1.11	31914.23	32377.17	0.04	0.98	0.97	.052
2d. Multigroup RI-CLPM fathers (constrained)	753.07	535	1.09	31777.64	35472.06	0.04	0.97	0.96	
2e. Multigroup RI-CLPM mothers (constrained)	709.42	535	1.09	31908.29	32602.71	0.04	0.98	0.97	

Note: Model fit indices for Child- and Parent-Reported Models.

Abbreviations: AIC, Akaike information criterion; BIC, Bayesian information criterion; CFI, comparative fit index; CLPM, Cross-Lagged Panel Model; Constrained RI-CLPM, all within-time correlations, stability pathways, and cross-lagged coefficients over time were constrained; Multigroup, Multigroup analysis with autonomy support as categorical grouping variable and parameters were constrained to be equal across both groups; RI-CLPM, Random Intercept Cross-Lagged Panel Model; RMSEA, root-mean-square error of approximation; TLI, Tucker-Lewis index; $\Delta\chi^2 p$, Satorra-Bentler Scaled Chi-Square difference.

the tested paths. Finally, we also calculated Wald tests to test whether between- and within-family linkages between monitoring efforts differed between fathers and mothers (RQ3).

RESULTS

Descriptive statistics of monitoring efforts and externalizing problems from Wave 2 to Wave 6 are presented in Table 3. Correlations between all observed variables during the second wave can be found in Table 4, and correlations during the remaining waves are presented in Appendix S1: Table A3. These correlations show small to moderate associations between solicitation and behavioral control. So, when respondents reported higher levels of behavioral control, they also reported higher levels of solicitation. Correlations between monitoring efforts and externalizing problems were inconsistent. Finally, correlations between parental autonomy support and externalizing problems were small to moderate, indicating that higher levels of parental autonomy support were associated with lower levels of externalizing problems.

TABLE 2 Mean intercepts and slopes for 2-class solution latent class growth analysis across six waves.

Model	Classes (percentage of sample in this class)	Intercept (SE)	Slope (SE)
Child about father	Class 1 (27%)	21.30 (0.07)	−0.08 (0.02)***
	Class 2 (73%)	23.00 (0.12)	−0.18 (0.04)***
Child about mother	Class 1 (36%)	21.31 (0.07)	−0.07 (0.02)**
	Class 2 (64%)	23.48 (0.13)	−0.15 (0.04)***
Father self-report	Class 1 (50%)	21.28 (0.04)	0.04 (0.01)***
	Class 2 (50%)	23.90 (0.12)	0.03 (0.04)
Mother self-report	Class 1 (67%)	23.68 (0.10)	0.26 (0.03)***
	Class 2 (33%)	21.17 (0.05)	0.05 (0.02)**

Note: ***$p < .001$, **$p < .01$, *$p < .05$.

Abbreviation: SE, Standard Error.

Child-reported model

First, we examined associations between monitoring efforts and adolescent externalizing problems using the child-reported models. All final models (Model 1c, 1d, and 1e) had a good model fit (see Table 1 for model fit statistics and Table 5 for parameter estimates). In the child-reported multigroup models (Model 1d and 1e), we tested whether within-family linkages between monitoring efforts and externalizing problems were different for less autonomy-supportive parents versus more autonomy-supportive parents by freeing parameters one by one, and by calculating Wald tests (RQ2). For both fathers and

JOURNAL OF Research on Adolescence

TABLE 3 Means and standard deviations of observed variables across time from Wave 2 to Wave 6.

	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
	M (SD)	*M* (SD)	*M* (SD)	*M* (SD)	*M* (SD)
Externalizing problems					
Child-reported	9.55 (8.15)	10.21 (7.99)	10.55 (7.85)	9.92 (7.41)	9.13 (7.12)
Father-reported	8.92 (7.52)	8.84 (7.82)	8.48 (7.34)	7.72 (7.54)	6.95 (7.17)
Mother-reported	9.09 (8.05)	8.64 (8.14)	8.52 (8.46)	7.60 (7.78)	6.70 (6.78)
Behavioral control					
Child-reported about father	3.18 (1.06)	3.02 (1.04)	2.89 (1.05)	2.64 (1.04)	2.28 (1.00)
Father self-reported	4.19 (0.90)	3.97 (0.93)	3.67 (1.02)	3.23 (1.05)	2.77 (1.03)
Child-reported about mother	3.59 (1.01)	3.39 (1.03)	3.27 (1.09)	2.91 (1.14)	2.58 (1.15)
Mother self-reported	4.41 (0.81)	4.16 (0.94)	3.83 (1.06)	3.31 (1.12)	2.85 (1.11)
Solicitation					
Child-reported about father	2.73 (0.86)	2.57 (0.82)	2.64 (0.85)	2.68 (0.90)	2.66 (0.89)
Father self-reported	3.53 (0.66)	3.47 (0.66)	3.40 (0.70)	3.34 (0.68)	3.28 (0.70)
Child-reported about mother	3.10 (0.84)	2.98 (0.86)	3.07 (0.90)	3.07 (0.94)	3.02 (0.92)
Mother self-reported	3.99 (0.63)	3.83 (0.62)	3.83 (0.65)	3.80 (0.67)	3.68 (0.69)

Note: Since monitoring behaviors were measured from the second wave on, information of the observed variables is presented from Wave 2 to Wave 6. Information from these waves was used for the main analyses.

TABLE 4 Concurrent correlations at Wave 2.

	1	2	3	4	5	6	7	8	9	10
1. Externalizing (A)										
2. Externalizing (F)	0.36**									
3. Externalizing (M)	0.50**	0.64**								
4. Behavioral control (AF)	−0.02	−0.02	−0.06							
5. Behavioral control (F)	0.06	0.05	0.05	0.19**						
6. Behavioral control (AM)	−0.06	−0.06	−0.06	0.65**	0.14*					
7. Behavioral control (M)	0.07	0.02	0.07	0.17**	0.17**	0.19**				
8. Solicitation (AF)	−0.15*	−0.13*	−0.17**	0.31**	0.08	0.18**	0.03			
9. Solicitation (F)	−0.06	−0.14*	−0.09	0.09	0.19**	0.05	0.04	0.29**		
10. Solicitation (AM)	−0.07	−0.05	−0.08	0.25**	0.11*	0.31**	0.06	0.57**	0.15*	
11. Solicitation (M)	−0.06	−0.01	−0.05	0.05	0.11*	0.06	0.16**	0.05	0.18**	0.20**

Note: Since monitoring behaviors were measured from the second wave on, correlations are shown for this wave, ***$p < .001$, **$p < .01$, *$p < .05$.
Abbreviations: A, Adolescent-reported; AF, Adolescent about Father; AM, Adolescent about Mother; F, Father-reported; M, Mother-reported.

mothers, there were no significant differences between the less autonomy-supportive group and the more autonomy-supportive group in these within-family associations, nor in the between-family associations. It was therefore sufficient to use the single-group model (Model 1c) to examine bidirectional linkages between parents' monitoring efforts and adolescent externalizing problems. This model showed no significant correlations between random intercepts of monitoring efforts and externalizing problems. So, adolescents who reported on average more monitoring efforts, did not have more or less externalizing problems compared to other adolescents.

Within-family linkages between parents' monitoring efforts and adolescent externalizing problems

To examine parent-driven and child-evoked processes (RQ1), we examined within-family cross-lagged effects between monitoring efforts and externalizing problems in the child-reported single-group RI-CLPM (Model 1c). With regard to the associations between monitoring efforts and externalizing problems on the within-family level, only one out of eight over-time associations was significant. When adolescents reported higher levels of

TABLE 5 Parameter estimates final single-group models testing bi-directional relationships between monitoring efforts and externalizing problems.

	Model 1c. Child-reported single-group model			Model 2c. Parent-reported single-group model		
Parameter	***B* (SE)**	***p***	***β***	***B* (SE)**	***p***	***β***
Between-family level						
Control F ↔ Problems	−0.15 (0.28)	.588	−.05	−0.01 (0.21)	.952	−.00
Control M ↔ Problems	−0.21 (0.30)	.483	−.07	0.15 (0.20)	.466	.06
Solicitation F ↔ Problems	−0.53 (0.20)	.009	−.17	−0.31 (0.14)	.033	−.12
Solicitation M ↔ Problems	−0.54 (0.21)	.011	−.17	−0.02 (0.15)	.881	−.01
Control F ↔ Control M	**0.23 (0.05)**	**<.001**	**.74**	0.07 (0.03)	.027	.26
Solicitation F ↔ Solicitation M	**0.28 (0.03)**	**<.001**	**.81**	**0.04 (0.01)**	**<.001**	**.20**
Control F ↔ Solicitation F	**0.14 (0.03)**	**<.001**	**.43**	**0.09 (0.02)**	**<.001**	**.36**
Control M ↔ Solicitation M	**0.17 (0.03)**	**<.001**	**.52**	0.04 (0.02)	.054	.16
Control F ↔ Solicitation M	**0.12 (0.03)**	**<.001**	**.37**	0.04 (0.02)	.027	.15
Solicitation F ↔ Control M	**0.11 (0.03)**	**<.001**	**.34**	0.02 (0.02)	.230	.10
Within-family level: Concurrent						
Control F W2 ↔ Problems W2	0.16 (0.31)	.595	.03	0.26 (0.18)	.134	.10
Control M W2 ↔ Problems W2	−0.11 (0.33)	.743	−.02	0.21 (0.16)	.207	.09
Solicitation F W2 ↔ Problems W2	−0.47 (0.22)	.030	−.12	−0.07 (0.11)	.496	−.05
Solicitation M W2 ↔ Problems W2	−0.06 (0.20)	.765	−.02	−0.04 (0.10)	.686	−.02
Control F W2 ↔ Control M W2	**0.46 (0.05)**	**<.001**	**.63**	0.02 (0.03)	.455	.06
Solicitation F W2 ↔ Solicitation M W2	**0.16 (0.03)**	**<.001**	**.42**	0.02 (0.01)	.006	.14
Control F W2 ↔ Solicitation F W2	**0.15 (0.03)**	**<.001**	**.27**	0.02 (0.02)	.474	.05
Control M W2 ↔ Solicitation M W2	**0.12 (0.03)**	**<.001**	**.23**	0.04 (0.02)	.687	.14
Control F W2 ↔ Solicitation M W2	**0.10 (0.03)**	**.002**	**.19**	0.02 (0.02)	.247	.07
Control M W2 ↔ Solicitation F W2	0.09 (0.03)	.007	.16	−0.01 (0.02)	.687	−.03
Control F W3–6 ↔ Problems W3–6	0.03 (0.11)	.812	.01 to .01	0.04 (0.07)	.623	.02 to .02
Control M W3–6 ↔ Problems W3–6	−0.06 (0.13)	.630	−.02 to −.02	**0.23 (0.07)**	**.001**	**.09 to .12**
Solicitation F W3–6 ↔ Problems W3–6	0.08 (0.08)	.281	.03 to .04	0.04 (0.05)	.402	.03 to .03
Solicitation M W3–6 ↔ Problems W3–6	0.13 (0.09)	.177	.04 to .05	0.08 (0.05)	.076	.06 to .06
Control F W3–6 ↔ Control M W3–6	**0.32 (0.03)**	**<.001**	**.55 to .64**	**0.13 (0.01)**	**<.001**	**.24 to .27**
Solicitation F W3–6 ↔ Solicitation M W3–6	**0.09 (0.01)**	**<.001**	**.27 to .30**	0.01 (0.01)	.222	.04 to .04
Control F W3–6 ↔ Solicitation F W3–6	**0.07 (0.01)**	**<.001**	**.18 to .19**	**0.03 (0.01)**	**<.001**	**.11 to .13**
Control M W3–6 ↔ Solicitation M W3–6	**0.09 (0.02)**	**<.001**	**.19 to .21**	**0.05 (0.01)**	**<.001**	**.16 to .17**
Control F W3–6 ↔ Solicitation F W3–6	**0.06 (0.01)**	**<.001**	**.14 to .15**	0.01 (0.01)	.188	.04 to .04
Control M W3–6 ↔ Solicitation F W3–6	0.01 (0.01)	.391	.03 to .03	0.02 (0.01)	.057	.06 to .06
Within-family level: Over time						
Control F → Problems	0.12 (0.25)	.647	.02 to .02	−0.03 (0.17)	.878	−.01 to −.01
Control M → Problems	−0.26 (0.24)	.264	−.04 to −.05	0.14 (0.14)	.303	.02 to .04
Solicitation F → Problems	−0.13 (0.27)	.617	−.02 to −.02	−0.01 (0.29)	.977	−.00 to −.00
Solicitation M → Problems	0.01 (0.25)	.957	.00 to .01	0.04 (0.26)	.866	.00 to .01
Problems → Control F	−0.00 (0.01)	.549	−.02 to −.03	−0.01 (0.01)	.064	−.07 to −.07
Problems → Control M	**−0.02 (0.01)**	**.004**	**−.10 to −.14**	0.00 (0.01)	.619	.01 to .02
Problems → Solicitation F	0.00 (0.00)	.670	.01 to .02	0.00 (0.00)	.848	.01 to .01
Problems → Solicitation M	0.00 (0.00)	.769	.01 to .01	−0.00 (0.00)	.838	−.01 to −.01
Control F → Control M	**0.20 (0.05)**	**<.001**	**.18 to .20**	**0.19 (0.04)**	**<.001**	**.15 to .16**
Control M → Control F	**0.15 (0.04)**	**<.001**	**.16 to .17**	**0.19 (0.03)**	**<.001**	**.16 to .24**
Solicitation F → Solicitation M	−0.01 (0.04)	.777	−.01 to −.01	0.02 (0.03)	.867	.02 to .03

JOURNAL OF Research on Adolescence

TABLE 5 (Continued)

Parameter	Model 1c. Child-reported single-group model			Model 2c. Parent-reported single-group model		
	B (SE)	*p*	*β*	*B* (SE)	*p*	*β*
Solicitation M → Solicitation F	0.02 (0.03)	.608	.02 to .02	−0.02 (0.03)	.462	−.02 to −.03
Control F → Solicitation F	0.04 (0.03)	.209	.05 to .06	0.04 (0.02)	.047	.07 to .08
Solicitation F → Control F	−0.03 (0.04)	.487	−.20 to −.20	0.07 (0.06)	.261	.03 to .04
Control M → Solicitation M	0.03 (0.04)	.416	.04 to .04	**0.09 (0.02)**	**<.001**	**.13 to .17**
Solicitation M → Control M	0.00 (0.05)	.969	.00 to .00	0.07 (0.06)	.249	.03 to .04
Control F → Solicitation M	0.03 (0.03)	.376	.04 to .04	0.02 (0.02)	.471	.03 to .03
Solicitation M → Control F	−0.02 (0.04)	.606	−.02 to −.02	−0.04 (0.06)	.549	−.02 to −.02
Solicitation F → Control M	−0.09 (0.05)	.049	−.06 to −.07	0.09 (0.06)	.163	.04 to .05
Control M → Solicitation F	0.00 (0.03)	.986	.00 to .00	0.04 (0.02)	.547	.07 to .09
Within-family level: Stability						
Control F	**0.32 (0.06)**	**<.001**	**.32 to .34**	**0.36 (0.05)**	**<.001**	**.33 to .39**
Control M	**0.28 (0.05)**	**<.001**	**.27 to .28**	**0.53 (0.04)**	**<.001**	**.40 to .54**
Solicitation F	0.09 (0.04)	.016	.09 to .11	0.05 (0.04)	.206	.04 to .05
Solicitation M	0.12 (0.05)	.015	.11 to .12	0.11 (0.04)	.008	.10 to .12
Problems	**0.33 (0.09)**	**<.001**	**.33 to .44**	**0.52 (0.06)**	**<.001**	**.51 to .56**

Note: Boldface coefficients: $p < .006$ (significance after correction).

Abbreviations: Control F, Paternal behavioral control; Control M, Maternal behavioral control; Problems, Externalizing problems; Solicitation F, Paternal solicitation; Solicitation M, Maternal solicitation; W2 ↔ W2, Within-family correlations between variances on the first time-point; W3–6, Constrained within-family correlations between residual variances within Wave 3 to Wave 6.

externalizing problems than they usually did, they subsequently reported less behavioral control from their mother 1 year later. This effect was not significant for fathers' behavioral control. To examine whether this association differed significantly between fathers and mothers (RQ3), we calculated a Wald test. This test showed that the difference between fathers and mothers in the strength of this estimate was significant, also after correcting for multiple testing ($\Delta\beta = .11$, $p = .003$). So, we found evidence for one child-evoked effect in the child-reported model, albeit only for mothers' behavioral control.

Parent-reported model

Next, we examined associations between parent-reported monitoring efforts and parent-reported externalizing problems. These models (Model 2c, 2d, and 2e) had a good model fit (see Table 1 for model fit statistics and Table 5 for parameter estimates). To examine whether less and more autonomy-supportive parents differed in linkages between monitoring efforts and externalizing problems (RQ2), we turned to the parent-reported multigroup models (Model 2d and 2e). These models showed no significant differences between the less and more autonomy-supportive groups in these within-family associations, nor in the between-family associations. Therefore, we used the single-group model (Model 2c) to investigate bidirectional linkages between monitoring efforts and externalizing problems. Again, there was no significant correlation on the between-family level; the random intercepts of monitoring efforts were not related to the random intercept of externalizing problems.

Within-family linkages between parents' monitoring efforts and adolescent externalizing problems

To test whether there are parent-driven and/or child-evoked processes between monitoring efforts and externalizing problems (RQ1), we used the parent-reported single-group model (Model 2c). With regard to the parent-reported single-group model, there was a concurrent positive within-family correlation between mothers' behavioral control and externalizing problems. This implies that at times when mothers reported higher levels of behavioral control than usual, parents also reported higher levels of adolescent externalizing problems. This relation was not significant for fathers' behavioral control, and to check whether this correlation differed between fathers and mothers (RQ3), we calculated a Wald test. This difference between fathers and mothers was not significant after correcting for multiple testing ($\Delta\beta = -.08$, $p = .038$). There were no significant within-family effects over time. So, the parent-reported model provided no evidence for child-evoked nor parent-driven processes.

Sensitivity analyses

To examine whether results were robust, we checked whether substantive conclusions about our findings were the same when (1) fathers and mothers were analyzed separately, (2) when behavioral control and solicitation were analyzed separately, and (3) when nonimputed data were used. The results derived from these analyses did

not differ substantially from our original analyses. We also conducted additional analyses using a multilevel approach, which included an interaction between continuous autonomy support (instead of latent class membership) and monitoring efforts. These results were consistent with our original analyses and showed that the interaction effects were not significant. The models demonstrated that autonomy support did not moderate the association between monitoring efforts and externalizing problems on the within-, nor on the between-family level. Noteworthy, a close look at the main effects of autonomy support and monitoring efforts showed that autonomy support was more clearly associated with reduced externalizing problems on both the between- and within-family level compared to monitoring efforts (see Appendix S1: Table A4).

DISCUSSION

To obtain a clearer view on bidirectional associations between parental monitoring efforts and adolescent externalizing problems, the present study separated between-versus within-family relations. This way, it was possible to examine whether when parents displayed more (or less) monitoring behaviors than usual, their children subsequently showed less (or more) externalizing problems than usual (or vice versa). Overall, we found few associations between monitoring efforts and externalizing problems. After considering between-family differences in monitoring efforts and externalizing problems, results demonstrate that changes in monitoring efforts did not predict changes in future externalizing problems. With regard to behavioral control, we found one child-evoked effect on the within-family level; higher levels of child-reported problems predicted less child-reported maternal behavioral control over time. In addition, during waves when parents reported higher levels of externalizing problems, mothers also reported relatively higher levels of behavioral control than usual. Regarding parental solicitation, we did not find any within-family associations with externalizing problems. None of the associations was different for more versus less autonomy-supportive parents.

Linkages between parents' monitoring efforts and adolescent externalizing problems

We did not find evidence for between-family relations between monitoring efforts and externalizing problems, which contrasts with results from previous studies considering both between- and within-family associations (Kapetanovic et al., 2019; Keijsers, 2016). Differences between our results and the findings of these previous studies may be explained by our conservative p-value correction method. Our results demonstrate that children who on average reported more parental solicitation also reported fewer externalizing problems. Effect sizes for these associations were comparable to previous findings (Kapetanovic et al., 2019), or would also not be significant when applying the same *p*-value correction for multiple testing (Keijsers, 2016). Evidence for within-family associations between behavioral control and externalizing problems was also limited, as only two out of 32 possible concurrent and cross-lagged associations were significant. First, when adolescents reported higher levels of externalizing problems than usual in 1 year, this predicted less child-reported maternal behavioral control in the next year. So, with regard to RQ1 that taps into the child-evoked and parent-driven processes between parental monitoring efforts and adolescent externalizing problems, we can conclude that there was one child-evoked effect for maternal behavioral control, but only when adolescents reported on parenting and problem behaviors. This is in line with previous research showing that externalizing problems lead to less monitoring efforts (Kerr et al., 2008; Kerr & Stattin, 2003; Willoughby & Hamza, 2011), and it has been suggested that parents may do this to avoid conflicts (Kerr & Stattin, 2003). This might explain why we only found this child-evoked effect for behavioral control and not for solicitation since the former is a much more explicit form of monitoring and therefore more likely to lead to parent–child conflicts compared to solicitation.

It is important to note, however, that we found this child-evoked effect of behavioral control in the child-reported model and not in the parent-reported model. This is in contrast with our expectation that child-evoked processes are more easily detectable in parent-reported models, because "people act on what they perceive" (Kuczynski & Mol, 2015). It might be that adolescents have a more accurate picture of their externalizing problems compared to their parents. Discrepancies in perceptions between parents and adolescents on problem behaviors may be the result of adolescents showing problem behaviors increasingly outside of the parental home (e.g., school, neighborhood; De Los Reyes et al., 2015). In line with this, adolescents in our sample report more externalizing problems compared to their parents. There might be no change in mothers' parenting, but adolescents perceive less control because they notice they get away with more than they originally thought (as suggested by Janssen et al., 2016).

Next to the negative child-evoked effect in the child-reported model, we found a positive concurrent within-family correlation between mothers' behavioral control and externalizing problems in the parent-reported model. This finding indicates that during waves when parents reported more externalizing problems than usual, mothers also reported more behavioral control than usual. This is in line with previous research (Rekker et al., 2017), and our study showed that this concurrent correlation was also true when parents reported on externalizing problems, albeit only for mother-reported behavioral control.

With regard to solicitation, there were no within-family associations with externalizing problems. Reflecting on differences in our findings on behavioral control and solicitation, behavioral control might be, more than solicitation, a reactive tool that parents use in order to change

adolescent problem behavior, or to avoid conflicts and defiant reactions from their children. Alternatively, parental solicitation is predicted by other kinds of adolescent behavior, such as internalizing problems. For instance, previous research showed that only solicitation, and not behavioral control, was negatively predicted by depressive symptoms, maybe to avoid uncomfortable conversations (Hamza & Willoughby, 2011). Since most literature on monitoring efforts has been directed at examining associations with externalizing problems, future studies are encouraged to examine linkages between monitoring efforts and internalizing problems as well. This might be of particular importance because research on interventions suggests that *less* parental behavioral control may be beneficial in reducing anxiety (Forehand et al., 2013).

Whereas we found evidence for adolescent's influence on maternal behavioral control, our results did not demonstrate any parent-driven processes: behavioral control did not predict future externalizing problems. This is in line with the study of Keijsers (2016), but in contrast to the study of Kapetanovic et al. (2019), who found a negative within-family effect of parental behavioral control on future adolescent delinquency. Nevertheless, Kapetanovic et al. (2019) stated that this lagged effect was small and should be interpreted with caution.

The role of autonomy-supportive parenting

There was no moderating effect of autonomy support on the associations between monitoring efforts and externalizing problems indicating that there were no differences in within-family processes for more versus less autonomy-supportive parents (RQ2). So, all previously discussed associations were alike for more and less autonomy-supportive parents. One possible reason for the lack of significant findings is that our sample consisted of relatively well-functioning families. There might thus be a ceiling effect: On average, respondents in the less autonomy-supportive groups still agreed with the seven statements tapping into parental autonomy support. Consequently, the less autonomy-supportive parents were not very low in autonomy support. We recommend future studies to assess moderating effects of autonomy support in a more diverse sample with larger variations in autonomy support. Alternatively, future studies testing the moderating effect of autonomy-supportive environments may take into account psychological control. This parenting practice taps into controlling and manipulative techniques that parents use to make their child comply with their expectations. Although autonomy support and psychological control are strongly negatively related, they are likely to present distinct constructs (Cheung et al., 2016). Monitoring efforts may increase future externalizing problems only for adolescents with parents who are low in autonomy support *and* high in psychologically controlling behaviors. Importantly, although we did not find a moderating effect of autonomy support, findings suggest autonomy support is relevant to consider in relation to externalizing problems. While considering the effects of monitoring efforts, our sensitivity analyses revealed a clear negative association between autonomy support and externalizing problems, which is in line with previous research (e.g., Rodríguez-Meirinhos et al., 2020; Vrolijk et al., 2020). These findings suggest that autonomy support plays a more prominent role in adolescents' externalizing problems than monitoring efforts do.

Fathers versus mothers

With regard to the final research question (RQ3) about differences by parents' sex in the associations between monitoring efforts and adolescents' externalizing problems, the two significant within-family associations were only found for mothers. So, behavioral control seems to play a larger role in the mother–child relationship compared to the father–child relationship. Compared to fathers, mothers are generally more involved in childrearing; overall, they communicate more often with their adolescents, and they are often more knowledgeable about their adolescents' whereabouts (Parke & Cookston, 2019; Waizenhofer et al., 2004). This suggests that mothers might adjust their behaviors earlier than fathers do because they notice changes in their children's behaviors and communication styles sooner. In sum, our findings highlight that it is important to take both fathers and mothers into account since their monitoring efforts may be differently related to externalizing problems.

Limitations and future directions

By taking into account between-family differences, the present study provided a fuller picture of bidirectional within-family associations between monitoring efforts and externalizing problems in adolescence. Another strength of this study is that both the perspective of the parent and child were used. Next, it was tested whether associations differed between parents showing less and parents showing more autonomy-supportive parenting. Finally, fathers and mothers were analyzed within the same models to examine their individual associations with adolescent problem behaviors. Apart from this study's strengths, a number of limitations should be acknowledged. First, our community sample consisted of well-functioning, middle-to-high SES families, with on average relatively low levels of adolescent externalizing symptoms, which limits generalizability. In addition, most of the variance in externalizing problems was located on the between-family level representing differences between families, and not on the within-family level. This overall lack of variability in externalizing problems may partly explain why we found only few significant within-family linkages with monitoring efforts. Although previous research found no moderating effect of adolescent clinical status on the associations between monitoring-autonomy parenting profiles and adolescents' adjustment (Rodríguez-Meirinhos

et al., 2020), future studies, with more diverse samples, are needed to examine whether our findings are generalizable to other parenting contexts, such as families in high-risk neighborhoods.

Second, it is possible that our yearly time interval was too large to differentiate between child-evoked and parent-driven processes because these processes may take place at shorter time intervals (Keijsers & Van Roekel, 2018). Future studies are therefore encouraged to use shorter time intervals (e.g., daily or weekly) or Experience Sampling Methods. That said, the fact that we found few concurrent associations, may point to the possibility that these constructs are also not related on a daily level.

Third, our measurement of monitoring efforts might not have captured all possible monitoring strategies (as proposed by Kerr et al., 2010). Parents may also solicit information from others instead of directly asking their children questions about their whereabouts. For example, research showed that fathers receive most information about their children from their spouses (Waizenhofer et al., 2004). In addition, in line with *social domain theory* (Nucci, 2001), research showed that parents' and adolescents' beliefs about legitimate parental authority can vary by conceptual domain (Smetana et al., 2005). Therefore, future research may include questions about monitoring efforts that tap into various domains, such as the personal domain, friendship domain or moral domain.

Overall, our results highlight that there is no evidence for parent-driven effects; monitoring efforts did not reduce, nor increase, future externalizing problems. This lack of significant effects suggests that within-family changes in parenting do not play an influential role in within-family changes in future adolescent externalizing problems. In general, this is consistent with the pattern found in recent empirical work. The few studies that assessed reciprocal within-family associations often find no or few over-time effects between parenting and adolescent functioning (see for a review Boele et al., 2019). An explanation for not finding any parent-driven effects could be that other factors, such as peers, have a larger impact on children's problem behavior in adolescence, whereas parents are more influential in childhood. Alternatively, other parenting characteristics, such as facilitating peer interactions or advising about peer relationships, could be more important to consider when investigating parenting and child outcomes in adolescence.

The negative child-evoked effect we found for behavioral control in combination with the lack of significant parent-driven effects implies that adolescents have a greater impact on their parents' parenting practices than the other way around. Our findings suggest that the negative associations between child-reported behavioral control and externalizing problems found in cross-sectional studies (see for a review Pinquart, 2017) must not be mistaken for potential beneficial effects of within-family increases in monitoring efforts. Our results suggest that behavioral control is not effective in lowering future externalizing problems, but instead, parents lower their control as a response to more externalizing problems. As such, our results suggest that practitioners, when working with adolescents and their parents, should move beyond a focus on parenting monitoring efforts when attempting to reduce adolescent externalizing problems. In sum, although more research is needed to rule out heterogeneity in associations, results of the current study suggest that asking more questions or demanding more information from one's children about their whereabouts has no effect on one's offspring's future problem behaviors in adolescence.

CONCLUSION

This study examined bidirectional within-family linkages between monitoring efforts and problem behaviors by including perspectives from adolescents, mothers and fathers on parental behavioral control, parental solicitation, parental autonomy support, and adolescent externalizing problems. Our findings suggest that, in adolescence, there is little evidence that parental monitoring efforts are either protective, or harmful, in relation to future externalizing problems, irrespectively of whether parents are more or less autonomy supportive. In contrast, we found evidence for one child-evoked effect; when adolescents reported higher levels of externalizing problems, this predicted reduced perceived maternal behavioral control. Whereas solicitation was not related to externalizing problems, behavioral control may be viewed as a parenting practice mostly used by mothers as a reactive tool towards changes in adolescent problem behaviors. Given our and similar findings in other studies, we might have to reconsider the questions: To what extent are parents really shaping adolescent development on the within-family level? Might they be mainly adapting their parenting practices to it?

ACKNOWLEDGMENTS

The preparation of this manuscript was supported by grants from the Netherlands Organisation for Scientific Research to R.K. (NWO MaGW VIDI; grant no. 452-17-005) and C.v.L (NWO MaGW VENI; number 191 G.090) and by grants from the European Research Council to R.K. (ERC StG; grant no. 757210) and S.B. (ERC-2017-CoG-773023 INTRANSITION). Data of the RADAR (Research on Adolescent Development And Relationships) study were used (https://doi.org/10.17026/dans-zrb-v5wp). RADAR has been financially supported by main grants from the Netherlands Organisation for Scientific Research (GB-MAGW 480-03-005, GB-MAGW 480-08-006), Stichting Achmea Slachtoffer en Samenleving (SASS), the Netherlands Organisation for Scientific Research to the Consortium Individual Development (CID; 024.001.003), a grant of the European Research Council (ERC-2017-CoG-773023 INTRANSITION), and various other grants from the Netherlands Organisation for Scientific Research, VU University Amsterdam, and Utrecht University. The funders had no role in the study design, data collection and analysis, decision to publish, or preparation of the

manuscript. RADAR was approved by the ethical committee of the University Medical Centre Utrecht. We warmly thank all participating children, parents, and schools.

ORCID

Paula Vrolijk https://orcid.org/0000-0002-3603-2982
Caspar J. Van Lissa https://orcid.org/0000-0002-0808-5024
Susan Branje https://orcid.org/0000-0002-9999-5313
Renske Keizer https://orcid.org/0000-0003-4051-1406

REFERENCES

Achenbach, T. M. (1991a). Manual for the child behavior checklist/4–18 and 1991 profile. https://ci.nii.ac.jp/naid/20001666977/

Achenbach, T. M. (1991b). *Manual for the youth self-report and 1991 profile*. University of Vermont, Department Psychiatry.

Baudat, S., Van Petegem, S., Antonietti, J.-P., & Zimmermann, G. (2020). Parental solicitation and adolescents' information management: The moderating role of autonomy-supportive parenting. *Journal of Child and Family Studies*, *29*, 426–441. https://doi.org/10.1007/s10826-019-01687-z

Boele, S., Denissen, J., Moopen, N., & Keijsers, L. (2019). Over-time fluctuations in parenting and adolescent adaptation within families: A systematic review. *Adolescent Research Review*, *1–23*, 317–339. https://doi.org/10.1007/s40894-019-00127-9

Branje, S. J. T. (2018). Development of parent–adolescent relationships: Conflict interactions as a mechanism of change. *Child Development Perspectives*, *12*, 171–176. https://doi.org/10.1111/cdep.12278

Branje, S. J. T., & Meeus, W. H. J. (2018). Research on adolescent development and relationships (young cohort). https://doi.org/10.17026/dans-zrb-v5wp

Brehm, J. W. (1966). *A theory of psychological reactance*. Academic Press.

Burke, K., Brennan, L., & Cann, W. (2012). Promoting protective factors for young adolescents: ABCD parenting young adolescents program randomized controlled trial. *Journal of Adolescence*, *35*(5), 1315–1328. https://doi.org/10.1016/j.adolescence.2012.05.002

CBS. (2021). *Bevolking; onderwijsniveau en migratieachtergrond 2003–2021*. https://Opendata.Cbs.Nl/Statline/#/CBS/Nl/Dataset/82275NED/Table?Fromstatweb

Cheung, C. S., Pomerantz, E. M., Wang, M., & Qu, Y. (2016). Controlling and autonomy-supportive parenting in the United States and China: Beyond children's reports. *Child Development*, *87*, 1992–2007. https://doi.org/10.1111/cdev.12567

Crocetti, E., van der Graaff, J., Moscatelli, S., Keijsers, L., Koot, H. M., Rubini, M., Meeus, W., & Branje, S. (2016). A longitudinal study on the effects of parental monitoring on adolescent antisocial behaviors: The moderating role of adolescent empathy. *Frontiers in Psychology*, *7*, 1–11. https://doi.org/10.3389/fpsyg.2016.01726

Crouter, A. C., Bumpus, M. F., Davis, K. D., & McHale, S. M. (2005). How do parents learn about adolescents' experiences? Implications for parental knowledge and adolescent risky behavior. *Child Development*, *76*, 869–882. https://doi.org/10.1111/j.1467-8624.2005.00883.x

Darling, N., & Steinberg, L. (1993). Parenting style as context: An integrative model. *Psychological Bulletin*, *113*(3), 487–496. https://doi.org/10.1037/0033-2909.113.3.487

De Los Reyes, A., Augenstein, T. M., Wang, M., Thomas, S. A., Drabick, D. A. G., Burgers, D. E., & Rabinowitz, J. (2015). The validity of the multi-informant approach to assessing child and adolescent mental health. *Psychological Bulletin*, *141*, 858–900. https://doi.org/10.1037/a0038498

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*, 227–268. https://doi.org/10.1207/s15327965pli1104_01

Delforterie, M. J., Verweij, K. J. H., Creemers, H. E., van Lier, P. A. C., Koot, H. M., Branje, S. J. T., & Huizink, A. C. (2016). Parental solicitation, parental control, child disclosure, and substance use: Native and immigrant Dutch adolescents. *Ethnicity and Health*, *21*, 535–550. https://doi.org/10.1080/13557858.2015.1126562

Dishion, T. J., & McMahon, R. J. (1998). Parental monitoring and the prevention of child and adolescent problem behavior: A conceptual and empirical formulation. *Clinical Child and Family Psychology Review*, *1*, 61–75. https://doi.org/10.1023/A:1021800432380

Dishion, T. J., Nelson, S. E., & Kavanagh, K. (2003). The family check-up with high-risk young adolescents: Preventing early-onset substance use by parent monitoring. *Behavior Therapy*, *34*(4), 553–571. https://doi.org/10.1016/S0005-7894(03)80035-7

Forehand, R., Jones, D. J., & Parent, J. (2013). Behavioral parenting interventions for child disruptive behaviors and anxiety: What's different and what's the same. *Clinical Psychology Review*, *33*, 133–145. https://doi.org/10.1016/j.cpr.2012.10.010

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

Grusec, J. E., & Goodnow, J. J. (1994). Impact of parental discipline methods on the child's internalization of values: A reconceptualization of current points of view. *Developmental Psychology*, *30*, 4–19. https://doi.org/10.1037/0012-1649.30.1.4

Hamaker, E. L., Kuiper, R. M., & Grasman, R. P. P. P. (2015). A critique of the cross-lagged panel model. *Psychological Methods*, *20*(1), 102–116. https://doi.org/10.1037/a0038889

Hamza, C. A., & Willoughby, T. (2011). Perceived parental monitoring, adolescent disclosure, and adolescent depressive symptoms: A longitudinal examination. *Journal of Youth and Adolescence*, *40*(7), 902–915. https://doi.org/10.1007/s10964-010-9604-8

Hawk, S. T., Becht, A., & Branje, S. (2016). "Snooping" as a distinct parental monitoring strategy: Comparisons with overt solicitation and control. *Journal of Research on Adolescence*, *26*, 443–458. https://doi.org/10.1111/jora.12204

Hawk, S. T., Hale, W. W., 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. https://doi.org/10.1177/0272431608317611

Hayes, L., Hudson, A., & Matthews, J. (2003). Parental monitoring: A process model of parent-adolescent interaction. *Behaviour Change*, *20*(1), 13–24. https://doi.org/10.1375/bech.20.1.13.24844

Henderson, C. E., Rowe, C. L., Dakof, G. A., Hawes, S. W., & Liddle, H. A. (2009). Parenting practices as mediators of treatment effects in an early-intervention trial of multidimensional family therapy. *American Journal of Drug and Alcohol Abuse*, *35*(4), 220–226. https://doi.org/10.1080/00952990903005890

Hou, Y., Benner, A. D., Kim, S. Y., Chen, S., Spitz, S., Shi, Y., & Beretvas, T. (2020). Discordance in parents' and adolescents' reports of parenting: A meta-analysis and qualitative review. *American Psychologist*, *75*, 329–348. https://doi.org/10.1037/amp0000463

Huey, S. J., Henggeler, S. W., Brondino, M. J., & Pickrel, S. G. (2000). Mechanisms of change in multisystemic therapy: Reducing delinquent behavior through therapist adherence and improved family and peer functioning. *Journal of Consulting and Clinical Psychology*, *68*(3), 451–467. https://doi.org/10.1037/0022-006X.68.3.451

Janssen, H. J., Eichelsheim, V. I., Deković, M., & Bruinsma, G. J. N. (2016). How is parenting related to adolescent delinquency? A between- and within-person analysis of the mediating role of self-control, delinquent attitudes, peer delinquency, and time spent in criminogenic settings. *European Journal of Criminology*, *13*, 169–194. https://doi.org/10.1177/1477370815608881

Jorgensen, T. D., Pornprasertmanit, S., Schoemann, A. M., & Rosseel, Y. (2021). semTools: Useful tools for structural equation modeling. R Package Version 0.5-5.

Joussemet, M., Landry, R., & Koestner, R. (2008). A self-determination theory perspective on parenting. *Canadian Psychology*, *49*, 194–200. https://doi.org/10.1037/a0012754

Kapetanovic, S., Boele, S., & Skoog, T. (2019). Parent-adolescent communication and adolescent delinquency: Unraveling within-family processes from between-family differences. *Journal of*

Youth and Adolescence, *48*, 1707–1723. https://doi.org/10.1007/s10964-019-01043-w

Kapetanovic, S., & Skoog, T. (2021). The role of the family's emotional climate in the links between parent-adolescent communication and adolescent psychosocial functioning. *Research on Child and Adolescent Psychopathology*, *49*, 141–154. https://doi.org/10.1007/s10802-020-00705-9

Keijsers, L. (2016). Parental monitoring and adolescent problem behaviors: How much do we really know? *International Journal of Behavioral Development*, *40*, 271–281. https://doi.org/10.1177/0165025415592515

Keijsers, L., Branje, S., Hawk, S. T., Schwartz, S. J., Frijns, T., Koot, H. M., van Lier, P., & Meeus, W. (2012). Forbidden friends as forbidden fruit: Parental supervision of friendships, contact with deviant peers, and adolescent delinquency. *Child Development*, *83*, 651–666. https://doi.org/10.1111/j.1467-8624.2011.01701.x

Keijsers, L., Branje, S. J. T., VanderValk, I. E., & Meeus, W. (2010). Reciprocal effects between parental solicitation, parental control, adolescent disclosure, and adolescent delinquency. *Journal of Research on Adolescence*, *20*(1), 88–113. https://doi.org/10.1111/j.1532-7795.2009.00631.x

Keijsers, L., Frijns, T., Branje, S. J. T., & Meeus, W. (2009). Developmental links of adolescent disclosure, parental solicitation, and control with delinquency: Moderation by parental support. *Developmental Psychology*, *45*, 1314–1327. https://doi.org/10.1037/a0016693

Keijsers, L., & Van Roekel, E. (2018). Longitudinal methods in adolescent psychology: Where could we go from here? And should we. In L. B. Hendry & M. Kloep (Eds.), *Reframing adolescent research: Tackling challenges and new directions* (pp. 56–77). Routledge.

Kerr, M., & Stattin, H. (2003). Parenting of adolescents: Action or reaction? In A. C. Crouter & A. Booth (Eds.), *Children's influence on family dynamics: The neglected side of family relationships* (pp. 121–151). Routledge. https://doi.org/10.4324/9781410607430

Kerr, M., Stattin, H., & Burk, W. J. (2010). A reinterpretation of parental monitoring in longitudinal perspective. *Journal of Research on Adolescence*, *20*, 39–64. https://doi.org/10.1111/j.1532-7795.2009.00623.x

Kerr, M., Stattin, H., & Özdemir, M. (2012). Perceived parenting style and adolescent adjustment: Revisiting directions of effects and the role of parental knowledge. *Developmental Psychology*, *48*, 1540–1552. https://doi.org/10.1037/a0027720

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. https://doi.org/10.1037/0012-1649.36.3.366

Kerr, M., Stattin, H., & Pakalniskiene, V. (2008). Parents react to adolescent problem behaviors by worrying more and monitoring less. In M. Kerr, H. Stattin, & R. C. M. E. Engels (Eds.), *What can parents do?* (pp. 91–112). David Fulton Publishers.

Kuczynski, L., & Mol, J. D. (2015). Dialectical models of socialization. In W. F. Overton, P. C. M. Molenaar, & R. M. Lerner (Eds.), *Handbook of child psychology and developmental science* (pp. 323–368). John Willey & Sons. https://doi.org/10.1002/9781118963418.childpsy109

LaFleur, L. K., Zhao, Y., Zeringue, M. M., & Laird, R. D. (2016). Warmth and legitimacy beliefs contextualize adolescents' negative reactions to parental monitoring. *Journal of Adolescence*, *51*, 58–67. https://doi.org/10.1016/j.adolescence.2016.05.013

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*(4), 744–754. https://doi.org/10.1037/0012-1649.32.4.744

Lionetti, F., Palladino, B. E., Passini, C. M., Casonato, M., Hamzallari, O., Ranta, M., Dellagiulia, A., Casonato, M., Hamzallari, O., Ranta, M., Dellagiulia, A., & The, L. K. (2019). The development of parental monitoring during adolescence: A meta-analysis. *European Journal of Developmental Psychology*, *5629*, 1–28. https://doi.org/10.1080/17405629.2018.1476233

Mastrotheodoros, S., van der Graaff, J., Deković, M., Meeus, W. H. J., & Branje, S. J. T. (2019). Coming closer in adolescence: Convergence in mother, father, and adolescent reports of parenting. *Journal of Research on Adolescence*, *29*(4), 846–862. https://doi.org/10.1111/jora.12417

Meeus, W. (2016). Adolescent psychosocial development: A review of longitudinal models and research. *Developmental Psychology*, *52*, 1969–1993. https://doi.org/10.1037/dev0000243

Mulder, J. D., & Hamaker, E. L. (2021). Three extensions of the random intercept cross-lagged panel model. *Structural Equation Modeling: A Multidisciplinary Journal*, *28*(4), 638–648. https://doi.org/10.1080/10705511.2020.1784738

Nucci, L. P. (2001). *Education in the moral domain*. Cambridge University Press.

Paquette, D. (2004). Theorizing the father-child relationship: Mechanisms and developmental outcomes. *Human Development*, *47*, 193–219. https://doi.org/10.1159/000078723

Parke, R. D., & Cookston, J. T. (2019). Fathers and families. In M. H. Bornstein (Ed.), *Handbook of parenting: The parent* (pp. 64–136). Lawrence Erlbaum Associates Publishers.

Pinquart, M. (2017). Associations of parenting dimensions and styles with externalizing problems of children and adolescents: An updated meta-analysis. *Developmental Psychology*, *53*, 873–932. https://doi.org/10.1037/dev0000295

R Core Team. (2020). *R: A language and environment for statistical computing (4.0.2)*. R Foundation for Statistical Computing.

Racz, S. J., & McMahon, R. J. (2011). The relationship between parental knowledge and monitoring and child and adolescent conduct problems: A 10-year update. *Clinical Child and Family Psychology Review*, *14*, 377–398. https://doi.org/10.1007/s10567-011-0099-y

Rekker, R., Keijsers, L., Branje, S., Koot, H., & Meeus, W. (2017). The interplay of parental monitoring and socioeconomic status in predicting minor delinquency between and within adolescents. *Journal of Adolescence*, *59*, 155–165. https://doi.org/10.1016/j.adolescence.2017.06.001

Rodríguez-Meirinhos, A., Vansteenkiste, M., Soenens, B., Oliva, A., Brenning, K., & Antolín-Suárez, L. (2020). When is parental monitoring effective? A person-centered analysis of the role of autonomy-supportive and psychologically controlling parenting in referred and non-referred adolescents. *Journal of Youth and Adolescence*, *49*(1), 352–368. https://doi.org/10.1007/s10964-019-01151-7

Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, *48*, 1–36.

Shulman, S., Laursen, B., Kalman, Z., & Karpovsky, S. (1997). Adolescent intimacy revisited. *Journal of Youth and Adolescence*, *26*, 597–617. https://doi.org/10.1023/A:1024586006966

Smetana, J. (2011). *Adolescents, families, and social development: How teens construct their worlds*. Wiley-Blackwell.

Smetana, J., Crean, H. F., & Campione-Barr, N. (2005). Adolescents' and parents' changing conceptions of parental authority. *New Directions for Child and Adolescent Development*, *108*, 31–46. https://doi.org/10.1002/cd.126

Soenens, B., Vansteenkiste, M., & Beyers, W. (2019). Parenting adolescents. In M. H. Bornstein (Ed.), *Handbook of parenting: Parenting across the lifespan* (pp. 101–167). Routledge.

Soenens, B., Vansteenkiste, M., & Van Petegem, S. (2015). Let us not throw out the baby with the bathwater: Applying the principle of universalism without uniformity to autonomy-supportive and controlling parenting. *Child Development Perspectives*, *9*, 44–49. https://doi.org/10.1111/cdep.12103

Stattin, H., & Kerr, M. (2000). Parental monitoring: A reinterpretation. *Child Development*, *71*, 1072–1085. https://doi.org/10.1111/1467-8624.00210

Stavrinides, P., Georgiou, S., & Demetriou, A. (2010). Longitudinal associations between adolescent alcohol use and parents'sources of knowledge. *British Journal of Developmental Psychology*, *28*(3), 643–655. https://doi.org/10.1348/026151009X466578

Stekhoven, D. J., & Bühlmann, P. (2012). MissForest–non-parametric missing value imputation for mixed-type data. *Bioinformatics*, *28*, 112–118. https://doi.org/10.1093/bioinformatics/btr597

Van der Giessen, D., Branje, S. J. T., Frijns, T., & Meeus, W. H. J. (2013). Dyadic variability in mother-adolescent interactions: Developmental trajectories and associations with psychosocial functioning. *Journal*

JOURNAL OF Research on Adolescence

of Youth and Adolescence, *42*, 96–108. https://doi.org/10.1007/s10964-012-9790-7

Van Lissa, C. J. (2019). tidySEM: Tidy structural equation modeling. R Package Version 0.2.1. https://github.com/cjvanlissa/tidySEM/

Van Lissa, C. J., Hawk, S. T., Branje, S. J. T., Koot, H. M., van Lier, P. A. C., & Meeus, W. H. J. (2015). Divergence between adolescent and parental perceptions of conflict in relationship to adolescent empathy development. *Journal of Youth and Adolescence*, *44*, 48–61. https://doi.org/10.1007/s10964-014-0152-5

Van Lissa, C. J., & Keizer, R. (2020). Mothers' and fathers' quantitative and qualitative parenting in relation to children's emotional adjustment: A between- and within-family investigation. *Developmental Psychology*, *56*, 1709–1722. https://doi.org/10.1037/dev0001042

Van Lissa, C. J., Keizer, R., Van Lier, P. A. C., Meeus, W. H. J., & Branje, S. (2019). The role of fathers' versus mothers' parenting in emotion-regulation development from mid–late adolescence: Disentangling between-family differences from within. *Developmental Psychology*, *55*, 377–389. https://doi.org/10.1037/dev0000612

Van Petegem, S., Soenens, B., Vansteenkiste, M., & Beyers, W. (2015). Rebels with a cause? Adolescent defiance from the perspective of reactance theory and self-determination theory. *Child Development*, *86*, 903–918. https://doi.org/10.1111/cdev.12355

Van Petegem, S., Vansteenkiste, M., Soenens, B., Zimmermann, G., Antonietti, J.-P., Baudat, S., & Audenaert, E. (2017). When do adolescents accept or defy to maternal prohibitions? The role of social domain and communication style. *Journal of Youth and Adolescence*, *46*, 1022–1037. https://doi.org/10.1007/s10964-016-0562-7

Van Petegem, S., Zimmer-Gembeck, M. J., Soenens, B., Vansteenkiste, M., Brenning, K., Mabbe, E., Vanhalst, J., & Zimmermann, G. (2017). Does general parenting context modify adolescents' appraisals and coping with a situation of parental regulation? The case of autonomy-supportive parenting. *Journal of Child and Family Studies*, *26*, 2623–2639. https://doi.org/10.1007/s10826-017-0758-9

Verhulst, F. C., Van der Ende, J., & Koot, H. M. (1996). *Handleiding voor de CBCL/4-18. [manual for the child behavior checklist/4-18]*. Erasmus University and Department of Child and Adolescent Psychiatry, Sophia Children's Hospital.

Verhulst, F. C., Van der Ende, J., & Koot, H. M. (1997). *Handleiding voor de youth self-report (YSR). [manual for the youth self-report]*. Erasmus University/Sophia Children's Hospital.

Vrolijk, P., Van Lissa, C. J., Branje, S. J. T., Meeus, W. H. J., & Keizer, R. (2020). Longitudinal linkages between father and mother autonomy support and adolescent problem behaviors: Between-family differences and within-family effects. *Journal of Youth and Adolescence*, *49*, 2372–2387. https://doi.org/10.1007/s10964-020-01309-8

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. https://doi.org/10.1037/0893-3200.18.2.348

Willoughby, T., & Hamza, C. A. (2011). A longitudinal examination of the bidirectional associations among perceived parenting behaviors, adolescent disclosure and problem behavior across the high school years. *Journal of Youth and Adolescence*, *40*, 463–478. https://doi.org/10.1007/s10964-010-9567-9

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Vrolijk, P., Van Lissa, C. J., Branje, S., Meeus, W. H. J., & Keizer, R. (2023). Within-family linkages between parental monitoring and adolescents externalizing problems with autonomy support as a moderator. *Journal of Research on Adolescence*, *33*, 1179–1195. https://doi.org/10.1111/jora.12868