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Mother–adolescent monitoring dynamics and the legitimacy of parental authority



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ABSTRACT

This multi-informant longitudinal study aimed to understand whether the family dynamics that underlie adolescent voluntary disclosure regarding their leisure time behavior differs when adolescents strongly or weakly endorse the legitimacy of parental authority. Longitudinal linkages between parental monitoring behaviors and adolescents' secrecy and disclosure were tested among youths with strong and weak legitimacy beliefs. The sample included 197 adolescents (51% female, *M* age 12 years) and their mothers. Mothers reported on several of their own monitoring efforts (i.e., solicitation, active involvement, observing and listening, and obtaining information from spouses, siblings, and others). Adolescents reported their disclosure, secrecy, and legitimacy beliefs. Only among youths reporting strong legitimacy beliefs, more mother engagement and supervision (indexed by mother-reported active involvement and observing and listening) predicted more adolescent disclosure and less secrecy over time, and more mother solicitation predicted less secrecy.

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With adolescents spending an increasing amount of time outside the direct supervision and presence of their parents (Larson, Richards, Moneta, Holmbeck, & Duckett, 1996), keeping track of and monitoring adolescents' leisure time activities is a challenge for parents. Although the knowledge-acquisition process may begin with parents asking questions (Crouter & Head, 2002; Dishion & McMahon, 1998), it is the adolescents' decision to reveal or conceal information that is the most proximal determinant of whether or not parents know what is happening when children are away from home and when their children are unsupervised at home (e.g., Keijsers, Branje, Van der Valk, & Meeus, 2010; Marshall, Tilton-Weaver, & Bosdet, 2005; Soenens, Vansteenkiste, Luyckx, & Goossens, 2006; Stattin & Kerr, 2000). Adolescents' perceptions of the legitimacy of parents' monitoring behaviors may alter these parent-child dynamics. Adolescents' who more strongly endorse the legitimacy of parents' monitoring attempts may be more likely to reveal information when asked. The current multi-informant longitudinal study aims to understand the mother-child dynamics linking parents' monitoring efforts with adolescents' information management strategies in families in which adolescents, in general, more or less strongly endorse the legitimacy of parents' authority to impose rules regulating the adolescents' free time activities.

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Conceptualization of parental monitoring and adolescent information management

The monitoring literature has long been plagued by conceptual confusion (review: [Racz & McMahon, 2011](#)). Parental monitoring is defined as behaviors of parents aimed at both structuring the child's home, school, and community environments and tracking the child's behavior in those environments ([Dishion & McMahon, 1998](#)). One example of the conceptual confusion in the literature is the inconsistent distinction between knowledge versus active monitoring strategies in empirical attempts to operationalize parental monitoring. [Stattin and Kerr \(2000\)](#) argued that many studies had operationalized monitoring using measures of parents' knowledge rather than parents' monitoring behavior, and they encouraged researchers to measure monitoring behavior more directly. [Stattin and Kerr \(2000\)](#) offered measures of parental solicitation (i.e., parents directly asking adolescents for information) and control through rules (i.e., parents imposing rules requiring adolescents to keep parents informed) as more direct monitoring behaviors. Although solicitation and control through rules are consistent with previous conceptualization of monitoring ([Dishion & McMahon, 1998](#)), the two behaviors do not capture the full range of parents' monitoring activities, because both are attempts to find out about the child's leisure activities that take place elsewhere, typically outside of parental supervision and often in presence of peers (e.g., going out, a Saturday night, a day at school).

In [Dishion and McMahon's \(1998\)](#) conceptual formulation, parental monitoring activities are not limited to setting rules or solicitation, but encompasses a wide variety of strategies aiming at acquiring information regarding the activities of a child from early childhood to late adolescence. In this framework, parents potentially monitor all behaviors and activities and thus parents' supervision of adolescents' activities is also considered to be a monitoring strategy. Following this line of conceptual reasoning, [Waizenhofer, Buchanan, and Jackson-Newsom \(2004\)](#) and [Crouter, Bumpus, Davis, and McHale \(2005\)](#) assess a broader range of methods of obtaining knowledge. Parents may also obtain information by observing and listening to their children. These two forms of active involvement involve direct supervision but are consistent with [Dishion and McMahon's \(1998\)](#) broad conceptualization of monitoring. Additionally, the social worlds of adolescents extend beyond the parent–child dyad, and involve other members of the family system as well as broader social contexts such as schools ([Bronfenbrenner, 1986](#)). Some of the information parents obtain about the adolescents' activities in the broader social context may come from knowledgeable others (e.g., sibling or teacher). It may be more difficult to keep a secret or only disclose partially, when adolescents know their parents have access to additional sources of information. Adolescents report more disclosure when parents frequently obtain information from knowledgeable others ([Waizenhofer et al., 2004](#)). Therefore, this full range of monitoring activities, including supervision and receiving information through others, were assessed in the current study.

As adolescents become more autonomous and independent, they make their own decisions whether to share or restrict information about daily activities, whereabouts and friendships ([Keijsers & Poulin, 2013](#); [Marshall et al., 2005](#)). Although adolescents may employ a range of different strategies ([Cumsille, Darling, & Martinez, 2010](#); [Marshall et al., 2005](#)), previous work suggests that information management strategies can be classified efficiently as concealing strategies or revealing strategies (e.g., [Frijns, Keijsers, Branje, & Meeus, 2010](#); [Laird & Marrero, 2010](#)). Concealing and revealing are not two opposite ends of the same continuum ([Frijns et al., 2010](#); [Larson & Chastain, 1990](#)), but represent distinct types of strategies, with their own outcomes and precursors ([Cumsille et al., 2010](#); [Laird & Marrero, 2010](#); [Marshall et al., 2005](#); [Tilton-Weaver et al., 2010](#)). Therefore, both disclosure (a revealing strategy) and secrecy (a concealing strategy) were assessed in the current study.

Bidirectional links between parental monitoring and adolescent information management

Monitoring is not a unidirectional phenomenon, but is theorized to be a reciprocal, dynamic process involving parents' monitoring behaviors and adolescents' efforts to manage the information provided to their parents ([Hayes, Hudson, & Matthews, 2004](#)). The theoretical model describes both how parents may influence adolescents and how adolescents' behaviors may trigger parents to adjust their monitoring.

As part of the theorized process ([Hayes et al., 2004](#)), parents' monitoring behaviors should promote disclosure and minimize secrecy. Recent longitudinal research provides evidence of an effect in this direction. Specifically, some (e.g., [Keijsers, Branje, Frijns, Finkenauer, & Meeus, 2010](#); [Willoughby & Hamza, 2010](#)), but not all ([Kerr, Stattin, & Burk, 2010](#)) studies have found that parents' solicitation predicts more subsequent disclosure by adolescents. Additionally, shared family activities and parental active involvement in adolescent activities also have been found to precede more subsequent disclosure ([Willoughby & Hamza, 2010](#)). To the best of our knowledge, no studies have directly assessed the links between monitoring through others and adolescents' disclosure. Likewise, no prior study has examined associations across a broad range of monitoring behaviors in a single sample.

As part of the theorized reciprocal and dynamic monitoring process, adolescents' information management should also influence parents' subsequent monitoring behaviors ([Hayes et al., 2004](#)). For instance, greater use of revealing strategies such as disclosure is hypothesized to increase subsequent monitoring activities ([Hayes et al., 2004](#)). In general, parents' involvement in monitoring activities is higher in families characterized by higher quality parent–child relationships (e.g., [Keijsers, Frijns, Branje, & Meeus, 2009](#)) and empirical findings link more disclosure with more parental emotional involvement, and understanding, and with higher quality parent–adolescent relationships ([Finkenauer, Engels, & Kubacka, 2008](#); [Smetana, Metzger, Gettman, & Campione-Barr, 2006](#)). Also, adolescent disclosure is strongly tied to parents' perceptions that they can trust their child, and greater trust is linked to a more positive parenting climate ([Kerr, Stattin, & Trost, 1999](#)), of which parental monitoring may be one aspect. In contrast, greater use of concealing strategies such as secrecy may reduce parents'

monitoring activities in the long run. The limited empirical data on links from information management to monitoring behaviors are consistent with this pattern and provide evidence that more adolescent disclosure and less secrecy predict more subsequent solicitation (Hamza & Willoughby, 2011; Keijsers, Branje, Van der Valk, et al., 2010; Kerr et al., 2010; Willoughby & Hamza, 2010) and more family activities (Willoughby & Hamza, 2010). Links from information management to other monitoring behaviors have not been evaluated longitudinally.

Adolescent legitimacy beliefs as a moderator of bidirectional linkages

Adolescents differ in the extent to which they believe that parents have legitimate authority to monitor or restrict adolescents' leisure time behavior (Kuhn & Laird, 2011; Smetana, 2011) and such beliefs may enhance or hinder the reciprocal monitoring process. Youth who more strongly endorse the legitimacy of parents' authority typically believe they should comply with parents' monitoring efforts and that they are obligated to disclose information about their activities (Cumsille et al., 2010). When adolescents strongly endorse parental legitimacy, parents' monitoring efforts may be particularly likely to elicit disclosure, and adolescent openness may in turn encourage parents to ask more questions. In contrast, in families where adolescents feel that parental authority is not legitimate, monitoring efforts may be unlikely to elicit disclosure and may promote greater secret keeping because adolescents find monitoring activities to be intrusive and restrict information to reinforce privacy boundaries (Hawk, Hale, Raaijmakers, & Meeus, 2008; Hawk, Keijsers, Frijns, Hale, Branje, & Meeus, 2013). A pattern of responding to monitoring attempts with secrecy may, over time, result in fewer parental monitoring attempts.

To date, only one study examined whether the monitoring process may differ for youths with varying levels of authority beliefs. Tilton-Weaver (2013) tested whether links between monitoring and information management were moderated by adolescents' legitimacy beliefs in a sample of Swedish middle adolescents. An omnibus test of four interaction terms was not significant suggesting that associations linking solicitation and control with disclosure and secrecy are not moderated by legitimacy beliefs. However, Tilton-Weaver (2013) relied on a single informant for all of the data, operationalized monitoring only using solicitation and control through rules, and assessed legitimacy beliefs in terms of broad socio-moral domains rather than in reference to the imposition of more monitoring-relevant restrictions.

The present study & hypotheses

The current study aims to increase our understanding of monitoring dynamics within families, involving reciprocal linkages between parents attempts to monitor and adolescent's willingness to disclose. It adds to previous studies by testing bi-directional dynamics between parental monitoring and adolescent information management, employing multi-informant data and testing a broader range of monitoring behaviors. Moreover, the current study operationalized legitimacy beliefs in terms of adolescents' beliefs regarding the legitimacy of parents' efforts to regulate adolescents leisure time behavior, or in other words, in terms of the legitimacy of monitoring-relevant parenting.

Among youth with strong legitimacy beliefs, monitoring behaviors were expected to be linked to rank-order increases in disclosure and decreases in secrecy; more disclosure and less secrecy were expected to predict more subsequent monitoring efforts. Among adolescents with weak legitimacy beliefs, monitoring behaviors were expected to predict decreases in disclosure and increases in secrecy; less disclosure and more secrecy from the parents were expected to predict less monitoring one year later.

Method

Sample

The current study used data provided by 197 adolescents and their mothers. Participants were interviewed during the summers following the adolescents' 6th ($n = 182$, M age = 12.4, $SD = 1.01$) and 7th ($n = 163$, M age = 13.4 $SD = 1.07$) grade school years. Adolescents and mothers self-identified their ethnicity as white, non-Hispanic (47.4%, for both adolescents and mothers), African-American (46.7% & 39.6%, for adolescents and mothers, respectively), or other (6.1% & 13.3%, respectively). Mothers' educational level varied with 3.1% not having completed high school, 10.2% having a high school diploma, 37.8% having attended college or technical school, 30.1% having a bachelor's degree, and 18.9% having a graduate degree.

Data were part of a larger longitudinal study of 218 families that started one year earlier (see Laird & Marrero, 2010; Laird, Marrero, & Sentse, 2010). Data from the second and third measurement waves were used in the current study ($n = 197$), because several constructs of interest were not assessed at the first measurement wave. Per study variable, a maximum 16.8% of the values were missing. For every pair of variables, at least 74.6% of the data was covered. Because missing data points appeared to be missing completely at random (Little MCAR test $\chi^2 = 83.39$, $df = 61$, $\chi^2/df = 1.37$), all data could be used for the model estimations using a FIML procedure.

Procedure

Participating families were recruited from a public school system serving the citizens of Baton Rouge, LA in the southern United States (population about 400,000). Information letters were distributed to students through schools in the late spring.

Postcards or forms were returned by the families of 20% of the fifth-grade students enrolled in the schools, and interviews were completed with 94% of the families contacted via telephone. Compensation was \$70 per family at age 12 and \$90 per family at age 13. Families were provided an overview of the interview procedure before mothers provided informed consent and adolescents provided written assent. The adolescents were then interviewed in a private location within the home. To ensure privacy and reduce social desirability bias, adolescents privately recorded their responses on an answer sheet. The structured interviews took about 45 min.

Measures

Adolescent information management

To assess adolescent disclosure to mothers, adolescents responded to six items (e.g., “How often do you talk at home about how you are doing in different subjects in school?”) using a five-point scale (*never* = 0 to *almost every day* = 4). Items are from [Stattin and Kerr \(2000\)](#), [Kerr and Stattin \(2000\)](#) but were modified to make the items appropriate for our early adolescent sample (see [Laird & Marrero, 2011](#)). We did not include the two items that tapped adolescent secrecy because [Frijns et al. \(2010\)](#) demonstrated that the disclosure and secrecy items loaded onto different factors (see also a Canadian study [Almas, Grusec, & Tackett, 2011](#)). Mean scores were used ($\alpha_{\text{age}12} = .83$; $\alpha_{\text{age}13} = .87$).

Adolescent secrecy from their mothers was assessed using [Larson and Chastain's \(1990\)](#) 10-item Self-Concealment Scale supplemented with 3 additional items from [Bristol and Mangleburg \(2005\)](#). All items (e.g., “There are lots of things about me that I keep from my mother”) were re-worded to refer to concealment or secrecy from parents. Adolescents reported the extent to which they agreed with each statement using a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*). The mean of the 13 items indexes secrecy ($\alpha_{\text{age}12} = .91$; $\alpha_{\text{age}13} = .90$). The secrecy measure correlated strongly with the two secrecy items from [Stattin and Kerr's \(2000\)](#) disclosure scale ($r_{\text{age}12} = .59$, $r_{\text{age}13} = .57$, both $ps < .001$).

Confirmatory factor analyses on the separate disclosure and secrecy scales, revealed a marginal to acceptable fit within waves (Age 12: $n = 182$ and Age 13: $n = 163$; CFI from .84 to .97, TLI .81 to .95, SRMR .03 to .07; rules of thumb in [Kline, 2010](#)) and acceptably high factor loadings (from .46 to .80). Details regarding these analyses, and all other confirmatory factor models in the remainder of the method section, will be provided by the authors upon request.

Parents' monitoring efforts

Six different monitoring efforts were assessed. Mothers' solicitation was measured using three items from [Stattin and Kerr \(2000\)](#) and two items from [Kerr and Stattin \(2000\)](#). All five items assess parents' efforts to initiate conversations with their own children (e.g., “How often do you ask your son or daughter about what happened during his or her free time?”). [Stattin and Kerr's \(2000\)](#) items assessing soliciting information from friends and parents of friends were not used (see [Hawk et al., 2008](#)). Mean scores were used ($\alpha_{\text{age}12} = .70$; $\alpha_{\text{age}13} = .68$). Confirmatory factor models showed an acceptable to good fit per wave (CFI $\geq .98$, TLI $\geq .93$, SRMR $\leq .04$) and moderately low to high factor loading (between .21 and .80). In this study, the other monitoring strategy noted by [Stattin and Kerr \(2000\)](#), control through rules, was also assessed, but the psychometric properties were insufficient to use it in longitudinal models with this sample.

Additional monitoring efforts were measured using items and procedures developed by [Waizenhofer et al. \(2004\)](#). For four monitoring-relevant topics (i.e. when your child has misbehaved, how your child has been spending his or her free time, your child's homework assignments, and what your child does when he or she is with friends) mothers reported how often they obtained information by observing and listening, through active involvement in the child's activities, by receiving information from spouses, by receiving information from siblings, and by receiving information from individuals outside the family. Mothers reported how often they engaged in each strategy using 4-point scales (1 = *never* to 4 = *always*). Mean scores were computed across the topics to assess mothers' monitoring efforts (observe/listen: $\alpha_{\text{age}12} = .78$; $\alpha_{\text{age}13} = .84$; active involvement: $\alpha_{\text{age}12} = .75$; $\alpha_{\text{age}13} = .83$; through spouse: $\alpha_{\text{age}12} = .90$; $\alpha_{\text{age}13} = .88$; through sibling $\alpha_{\text{age}12} = .83$; $\alpha_{\text{age}13} = .82$; through individuals outside the family $\alpha_{\text{age}12} = .82$; $\alpha_{\text{age}13} = .81$).

Because no existing factor structure was known, we tested whether the five scales should be considered separate constructs, or whether they could be more succinctly represented by one or more latent factors. Exploratory factor analysis with oblique rotation on age 12 data showed two underlying factors with eigenvalues of 2.41 (48.2%) and 1.17 (23.4%). The three scales referencing monitoring through others loaded on the first factor and had standardized factor loading above .83. The observe/listen and active involvement scores loaded on the second factor and had loadings above .58. The factors were moderately strongly associated ($r = .41$). A Confirmatory Factor Model, with the same configuration, yielded acceptable fit (CFI $> .98$; TLI $> .95$, RMSEA $< .09$) and factor loadings (between .54 and .90) at both ages. The first latent construct was labeled supervision/engagement (i.e., active involvement in child activities and observing and listening to child) to indicate that these activities involve presence of parents. The second was labeled monitoring through others (i.e., spouse, sibling, someone outside family).

Adolescents' legitimacy beliefs

Adolescents reported their legitimacy beliefs at age 12. This scale was based on the assessment of legitimacy and obligation beliefs developed by [Smetana and colleagues \(Smetana & Daddis, 2002; Smetana et al., 2006\)](#), but items were written to focus on parental restriction of unsupervised activities and peer relationship experiences ([Kuhn & Laird, 2011](#)). For five topics (e.g., being at a friend's house when no adult is there), adolescents reported whether it is “OK” for parents to make a

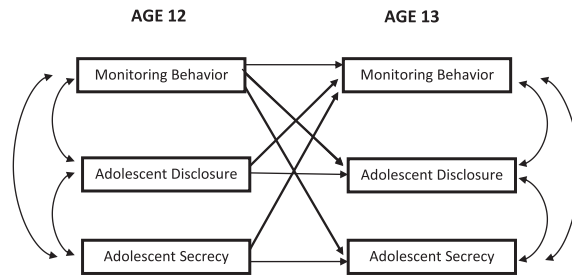


Fig. 1. Multi-informant cross-lagged panel models. *Note.* Bold lines indicate hypothesized paths. All models controlled for adolescent sex. Parameter estimates can be found in Tables 2–4.

rule about the particular issue (coded 0 = no, 1 = yes). A *legitimacy beliefs* score was computed by summing the number of affirmative responses ($\alpha = .66$). Longitudinal associations were tested separately for adolescents reporting strong and weak legitimacy beliefs. Group membership was identified using a 2 class mixture model ($n_{\text{weak}} = 99$, $M = 2.16$, $SD = .88$, $n_{\text{strong}} = 83$, $M = 4.59$, $SD = .49$, $n_{\text{missing}} = 15$) at age 12.

Strategy of analyses

To answer our research questions we used these multi-informant data to fit a series of multi-group (strong vs. weak legitimacy beliefs), two-wave, cross-lagged panel models in *Mplus* (displayed in Fig. 1; one model per monitoring strategy). We report analyses using observed monitoring scores because not all models using latent scores converged. Because girls reported higher levels of disclosure to mothers than did boys at ages 12 and 13, the age 12 constructs were regressed on adolescent sex in all models. Doing so also helped to model missing data. When a significant cross-lagged path was found in one or both of the legitimacy belief groups, we tested whether legitimacy beliefs moderated the association by comparing the chi-square fit of models with and without a constraint equating the cross-lagged path across the two legitimacy belief groups.

Results

Descriptive statistics

The two legitimacy beliefs groups did not differ in mean levels of mothers' monitoring efforts (see Table 1). However, compared to adolescents with weaker legitimacy beliefs, adolescents with stronger legitimacy beliefs reported more disclosure at ages 12 and 13 (Weak: $M_s = 3.02$ & 2.98 , $SD_s = .90$ & $.91$; Strong: $M = 3.58$ & 3.40 , $SD_s = .80$ & $.94$; $t_s = 3.94$ & 2.96 ; $d_f_s = 138$ & 110 ; both $p_s < .01$) and less secrecy at ages 12 and 13 (Weak: $M = 2.48$ & 2.69 , both $SD_s = .88$; Strong: $M = 1.83$ & 2.06 , $SD_s = .68$ & $.85$; $t_s = 4.92$ & 3.87 $d_f_s = 138$ & 110 ; both $p_s < .01$).

Longitudinal models

Each monitoring behavior was tested in a separate longitudinal model as presented in Tables 2–4. Among adolescents reporting strong legitimacy beliefs, four paths linking parental monitoring and information management were statistically

Table 1
Descriptive statistics and correlations.

Variable	Age 12		Age 13		Correlations				
	Mean	SD	Mean	SD	1	2	3	4	5
Parents' monitoring									
1 Solicitation	3.95 _a	.61	3.86 _b	.53	.48**	.44**	.17*	.21**	-.15
2 Supervision/Engagement	3.33	.51	3.29	.59	.29**	.54**	.38**	.16*	-.14
3 Monitoring through others	2.35	.64	2.33	.64	.15*	.40**	.69**	.13	-.09
Adolescent information management									
4 Disclosure	3.36 _a	.86	3.23 _b	.93	.09	.13	-.02	.67**	-.38**
5 Secrecy	2.08 _a	.80	2.29 _b	.85	-.09	-.12	.01	-.35**	.59**

Note. Different subscripts within rows indicate significant mean level changes over time. Maternal solicitation decreased from age 12 to age 13, $F(1, 147) = 7.61$, $p < .01$, $\eta^2 = .05$. No significant mean-level changes over time were found for other monitoring efforts. Adolescent disclosure marginally decreased, $F(1, 147) = 2.99$, $p = .09$, $\eta^2 = .02$, and adolescent secrecy increased, $F(1, 147) = 9.60$, $p < .01$, $\eta^2 = .06$, from age 12 to age 13. Age 12 correlations are presented below the diagonal, and age 13 correlations above the diagonal. Correlations between the age 12 and age 13 reports of each variable are presented along the diagonal.

* $p < .05$. ** $p < .01$.

Table 2

Two-wave structural path model for testing longitudinal associations between solicitation by mothers and adolescent information management.

Model: Solicitation Parameter	Weak legitimacy beliefs			Strong legitimacy beliefs		
	<i>Unst</i>	<i>SE</i>	<i>St</i>	<i>Unst</i>	<i>SE</i>	<i>St</i>
Correlations						
Age 12: Solicitation ↔ Adolescent disclosure	.01	.05	.03	.08	.04	.16
Age 12: Solicitation ↔ Adolescent secrecy	-.08	.05	-.16	.02	.04	.04
Age 12: Adolescent Secrecy ↔ Adolescent disclosure	-.18	.07	-.25**	-.19	.06	-.35**
Age 13: Solicitation ↔ Adolescent disclosure	.07	.03	.16*	.05	.05	.11
Age 13: Solicitation ↔ Adolescent secrecy	-.01	.04	-.02	.00	.04	.01
Age 13: Adolescent secrecy ↔ Adolescent disclosure	-.06	.05	-.08	-.16	.07	-.21*
Stability paths Age 12 → Age 13						
Solicitation	.37	.09	.42***	.47	.10	.52***
Adolescent Disclosure	.68	.08	.69***	.66	.12	.57***
Adolescent Secrecy	.52	.09	.52***	.67	.12	.57***
Cross-lagged effects Age 12 → Age 13						
Solicitation → Adolescent disclosure	-.03	.11	-.02	.13	.17	.08
Solicitation → Adolescent secrecy	-.11	.12	-.09	-.33	.15	-.24*
Adolescent disclosure → Solicitation	.04	.06	.06	-.03	.08	-.04
Adolescent secrecy → Solicitation	-.07	.06	-.10	-.03	.09	-.04

Note. Model fit: $\chi^2(10) = 16.28$; CFI = .97; TLI = .89; RMSEA = .08; CI_{RMSEA} = .00–.15.

95% confidence interval of $B = B \pm 1.96 \times SE$. * $p < .05$. ** $p < .01$. *** $p < .001$.

significant in the hypothesized direction. More age 12 parental solicitation and supervision/engagement were associated with less age 13 secrecy, and more age 12 supervision/engagement was associated with more age 13 disclosure. Monitoring through others at age 12 was not associated with secrecy or disclosure at age 13. More adolescent disclosure at age 12 was associated with more parental supervision/engagement at age 13, but not with more solicitation or monitoring through others. Adolescent secrecy at age 12 was not associated with any form of monitoring at age 13.

Among adolescents reporting weak legitimacy beliefs, only one path was statistically significant in the hypothesized direction. More adolescent secrecy at age 12 was associated with less parental supervision/engagement at age 13, but not with less solicitation or monitoring through others. Adolescent disclosure at age 12 was not associated with any form of monitoring at age 13 and no form of monitoring at age 12 was associated with disclosure or secrecy at age 13.

A total of five cross-lagged paths were statistically significant in one group but not the other. Tests of decrements in model fit following the imposition of equality constraints revealed that the paths from disclosure to supervision/engagement and secrecy to supervision/engagement differed significantly across the strong and weak legitimacy beliefs groups, $\Delta\chi^2(N = 182, df = 1) = 5.53$ & 4.38 , $ps = .02$ & $.04$. Disclosure predicted more subsequent supervision/engagement only in the strong legitimacy beliefs group and secrecy predicted less subsequent supervision/engagement only in the weak legitimacy beliefs group. The paths from supervision/engagement to disclosure differed marginally, $\Delta\chi^2(N = 182, df = 1) = 3.46$, $p = .06$. Supervision/engagement marginally predicted more subsequent disclosure in the strong legitimacy beliefs group. Although

Table 3

Two-wave structural path model for testing longitudinal associations between supervision/engagement by mothers and adolescent information management.

Model: Supervision/Engagement Parameter	Weak legitimacy beliefs			Strong legitimacy beliefs		
	<i>Unst</i>	<i>SE</i>	<i>St</i>	<i>Unst</i>	<i>SE</i>	<i>St</i>
Correlations						
Age 12: Supervision/Engagement ↔ Adolescent disclosure	-.02	.04	.04	.05	.04	.12
Age 12: Supervision/Engagement ↔ Adolescent secrecy	-.07	.04	-.16	.01	.04	.03
Age 12: Adolescent secrecy ↔ Adolescent disclosure	-.18	.07	-.25**	-.19	.06	-.35**
Age 13: Supervision/Engagement ↔ Adolescent Disclosure	-.02	.04	-.01	.03	.04	.06
Age 13: Supervision/Engagement ↔ Adolescent secrecy	.01	.04	.04	.03	.03	.06
Age 13: Adolescent secrecy ↔ Adolescent disclosure	-.05	.05	-.07	-.13	.06	-.17*
Stability paths Age 12 → Age 13						
Supervision/Engagement	.51	.10	.45***	.67	.11	.58***
Adolescent disclosure	.68	.08	.68***	.64	.12	.55***
Adolescent secrecy	.53	.09	.52***	.70	.12	.58***
Cross-lagged effects Age 12 → Age 13						
Supervision/Engagement → Adolescent disclosure	.06 _c	.12	.04	.48 _d	.19	.24*
Supervision/Engagement → Adolescent secrecy	-.14	.14	-.09	-.40	.17	-.23*
Adolescent disclosure → Supervision/Engagement	-.03 _a	.07	-.05	.20 _b	.07	.29**
Adolescent secrecy → Supervision/Engagement	-.15 _a	.07	-.21*	.08 _b	.08	.10

Note. Different subscripts (ab) for the cross-lagged effects indicate significant differences between adolescents with strong and weak legitimacy beliefs. Subscript (cd) indicates a meaningful not significant difference ($p \leq .06$). Model fit: $\chi^2(10) = 12.58$; CFI = .99; TLI = .96; RMSEA = .05; CI_{RMSEA} = .00–.13. 95% confidence interval of $B = B \pm 1.96 \times SE$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4

Two-wave structural path model for testing longitudinal associations between monitoring through others by mothers and adolescent information management.

Model: Monitoring through others Parameter	Weak legitimacy beliefs			Strong legitimacy beliefs		
	<i>Unst</i>	<i>SE</i>	<i>St</i>	<i>Unst</i>	<i>SE</i>	<i>St</i>
Correlations						
Age 12: Monitoring through others ↔ Adolescent disclosure	-.04	.05	-.08	.03	.06	.06
Age 12: Monitoring through others ↔ Adolescent secrecy	.03	.05	.06	.01	.05	.01
Age 12: Adolescent secrecy ↔ Adolescent disclosure	-.18	.07	-.25**	-.19	.06	-.35**
Age 13: Monitoring through others ↔ Adolescent disclosure	.00	.03	.01	.02	.05	.04
Age 13: Monitoring through Others ↔ Adolescent secrecy	-.00	.03	-.00	-.01	.04	-.02
Age 13: Adolescent secrecy ↔ Adolescent disclosure				-.17	.07	-.23*
Stability paths Age 12 → Age 13						
Monitoring through others	.65	.08	.67***	.70	.09	.69***
Adolescent disclosure	.69	.08	.69***	.64	.12	.56***
Adolescent secrecy	.54	.09	.54***	.69	.12	.57***
Cross-lagged effects Age 12 → Age 13						
Monitoring through others → Adolescent disclosure	.09	.11	.07	.17	.14	.12
Monitoring through others → Adolescent secrecy	-.18	.12	-.14	-.06	.13	-.04
Adolescent disclosure → Monitoring through others	-.05	.06	-.07	-.00	.09	-.00
Adolescent secrecy → Monitoring through others	.04	.07	.05	-.17	.10	-.17

Note. Model fit: $\chi^2(10) = 14.60$; CFI = .98; TLI = .93; RMSEA = .07; $CI_{RMSEA} = .00-.14$. 95% confidence interval of *Unst* = *Unst* ± 1.96 × *SE*.

p* < .05. *p* < .01. ****p* < .001.

solicitation and supervision/engagement predicted less secrecy only in the strong legitimacy beliefs group, the paths did not differ significantly from the weak legitimacy beliefs group, $\Delta\chi^2(N = 182, df = 1) = 1.30$ & $1.51, ps = .25$ & $.22$.

In sum, although the hypothesized associations were more apparent in among adolescents reporting strong legitimacy beliefs than among adolescents reporting weak legitimacy beliefs, only paths from information management to subsequent monitoring behavior differed significantly across the two groups. In the [Appendix A](#) we present post-hoc models to test the robustness of the findings.

Discussion

Awareness of adolescents' leisure time behavior is essential for parents to prevent their children from engaging in norm-breaking, but how exactly parents obtain such knowledge is not fully understood. The monitoring processes providing information to parents are thought to be dynamic and cyclical processes involving reciprocal linkages between parents' questioning, involvement, or displays of interest in the lives of their adolescents, and the adolescents' own agency and desire to manage information (e.g., conceptual work by [Hayes et al., 2004](#); [Kerr & Stattin, 2003](#)). In this study, we found some evidence that the reciprocal mother-adolescent monitoring dynamics, demonstrated in previous studies (e.g., [Keijsers, Branje, Van der Valk, et al., 2010](#); [Kerr et al., 2010](#); [Laird & Marrero, 2010](#); [Willoughby & Hamza, 2010](#)), vary for youths with strong and weak legitimacy beliefs. This pattern was observed primarily for parental supervision and engagement in the lives of adolescents. Links between other forms of monitoring and information management did not significantly vary as a function of legitimacy beliefs.

Bidirectional dynamics and legitimacy beliefs

Legitimacy beliefs may be crucial for understanding parent-child monitoring dynamics. Previous studies have shown that adolescents' felt obligation to disclose and beliefs in the legitimacy of parental authority are highly correlated, and that felt obligation to disclose is strongly linked to more disclosure and less secrecy ([Darling, Cumsille, Caldwell, & Dowdy, 2006](#); [Laird & Marrero, 2010](#)). Comparisons of group means showed that adolescents reporting strong legitimacy beliefs also reported less secrecy and more disclosure than adolescents reporting weak legitimacy beliefs. These mean-level differences replicate previous findings.

However, the primary goal of the current study was to determine if adolescents with stronger legitimacy beliefs were more likely to respond positively to parents' monitoring efforts. Results for one form of monitoring, which we termed active supervision/engagement, generally supported our hypotheses but results for two other forms of monitoring, solicitation and monitoring through others, replicated [Tilton-Weaver's \(2013\)](#) finding that legitimacy beliefs do not moderate links between monitoring (i.e., solicitation and control) and information management.

A positive cyclical dynamic whereby adolescent disclosure leads to more supervision/engagement and more supervision/engagement leads to more disclosure seems to be present among youth with strong legitimacy beliefs. More specifically, adolescents strongly endorsing parental legitimacy were more forthcoming following parental supervision and engagement efforts. Supervision/engagement, as indexed by active involvement, observing and listening was also higher following periods during which the adolescents openly shared information with their parents. Perhaps parents interpret adolescent openness

as a sign of children's acceptance of the parents' engagement in their lives and as a willingness to be monitored. Among adolescents holding weak legitimacy beliefs, there was some evidence of a negative cyclical dynamic, as illustrated by the finding that more secrecy predicted less subsequent parental supervision and engagement activities.

Results show some evidence that solicitation and engagement are linked to increases in information available to parents, particularly when adolescents endorse parental legitimacy. However, there were no statistically significant links in the opposite direction. More specifically, we did not find any evidence that adolescents, even those reporting weak legitimacy beliefs, respond to attempted monitoring in any form with increased concealment and resistance (Hawk et al., 2008; Hawk, Keijsers, Hale, & Meeus, 2009). In fact, most of the parental monitoring efforts in this study seem either harmless, ineffective, or to contribute to more openness of adolescents (rather than resistance or more secrecy which was expected in youths with low legitimacy beliefs). This may be because we did not test Stattin and Kerr's (2000) monitoring through rules as a monitoring behavior because the measure's psychometric properties were insufficient for our complex longitudinal models. Whereas monitoring by means of asking questions, observing and listening, or being actively involved in activities may be seen as appropriate means of showing interest in adolescents' lives, demanding information or strictly controlling adolescents' leisure time activities may cross adolescent privacy boundaries (Hawk et al., 2008), stretch the limits of parental legitimacy (Smetana, 2011), and may be considered overly and even psychologically controlling (Hawk et al., 2008; Kakiyama & Tilton-Weaver, 2009). However, Tilton-Weaver (2013) also found no evidence that control through rules decreases subsequent disclosure or increases subsequent secrecy. Thus, while there is some evidence that adolescents may view monitoring efforts as intrusive at times, there is no evidence that parents monitoring efforts backfire and lead to long-term reductions in the information available to parents.

This study also demonstrated the need for specifically and broadly operationalizing parental monitoring. Stattin and Kerr (2000) urged researchers to use valid measures of monitoring activities instead of inferring monitoring from levels of parental knowledge. Most studies that have heeded Stattin and Kerr's (2000) advice have also limited their assessments of monitoring activities to solicitation and control through rules (review: Racz & McMahon, 2011). This was the first study to examine longitudinal links between adolescent information management strategies and parental monitoring through supervision/engagement with the adolescent or by obtaining information from others. Results suggest that supervision/engagement may differ in important ways from solicitation and control through rules. Only supervision/engagement was linked bidirectionally with information management and only links between supervision/engagement and information management were significantly moderated by legitimacy beliefs. Monitoring through others is an indirect approach to obtaining information and appears to be less successful at eliciting disclosure and reducing secrecy from adolescents (although it could be a source of parental knowledge: Waizenhofer et al., 2004). Results suggest that supervision/engagement, a parenting strategy more typical for effective parenting in childhood years (Dishion & McMahon, 1998) may be part of an effective monitoring process in the early adolescent years as well, especially for youths who strongly endorse parental authority. However, monitoring through obtaining information from others may not be as effective.

Implications for future research

Future research is needed to understand how parents most successfully elicit knowledge about the lives of their adolescent children, that is crucial because it may enable them to prevent problem behaviors in adolescence. The current study has several implications for studies on parent–child monitoring-related communication within families.

First, legitimacy beliefs seem to be an important element of the broader monitoring process with stronger legitimacy beliefs suggesting greater adolescent openness toward and cooperation with parents' monitoring efforts. Given the apparent importance of legitimacy beliefs for understanding whether or not adolescents facilitate parental monitoring efforts, an expansion of current work (e.g., Darling, Cumsille, & Martínez, 2008; Kuhn & Laird, 2011; Smetana & Asquith, 1994) is needed to understand the origins of these individual differences in adolescents' legitimacy beliefs.

Second, studies on links between parental monitoring and adolescent information management often rely on cross-sectional data, and interpretations often focus on effects in only one direction. The current study and other studies (e.g., Keijsers, Branje, Van der Valk, et al., 2010; Kerr et al., 2010; Willoughby & Hamza, 2010) clearly indicate that monitoring of adolescents may involve a bidirectional interactive communication process in which parents' and adolescents' behaviors reinforce one another over time. Future research needs to continue to examine how and why parents adjust their monitoring efforts in response to their adolescents' information management behaviors, and seek to understand the consequences of these adjustments. The time interval between measurements may be crucial in this respect. It is possible that the lack of evidence for the hypothesized patterns stems from an aggregation problem. In any given parent–child exchange, monitoring behaviors likely proceed disclosure (or secrecy), but that does not necessarily imply that frequent or intense monitoring behaviors in a given time-period should lead to more disclosure and less secrecy in a subsequent time period. Short-term and long-term longitudinal data are therefore needed to enhance our understanding.

Third, this study offers suggestions for how parental monitoring could be operationalized in future studies. Monitoring efforts described by Waizenhofer et al. (2004) can be distilled down to two factors, which we have labeled supervision/engagement and monitoring through others. Supervision/engagement and monitoring through others were relatively independent from parental solicitation as indicated by the modest bivariate correlations. More supervision/engagement predicted less adolescent secrecy among adolescents with strong legitimacy beliefs. This finding is important because it demonstrates that a variety of efforts can be important components of the monitoring process.

Strengths and limitations

Despite the multi-informant longitudinal approach (one informant to assess parental monitoring and a different informant to assess adolescent information management) and the assessment of multiple monitoring efforts and information management strategies, results should be interpreted in light of several limitations. First, the sample size was relatively small, and therefore models were fit separately for each monitoring strategy. Moreover, in several instances, effects were significant in one group but not the other although the coefficients did not differ from one another. Also, given the sample size, there were some convergence difficulties when estimating the models with latent factors. Second, fathers were not included in the study design. Although mothers are often considered the primary caregiver, who knows most about the child and who is most involved in monitoring, fathers' monitoring behaviors may be linked with adolescents' information management differently than mothers' monitoring behaviors. Third, global measures for monitoring and information management behaviors were used, rather than direct observations of the reciprocal process in details (see Metzger et al., 2013). Also, the measure we used to tap legitimacy beliefs had a rather poor alpha reliability of 0.66. Fourth, this study tested bidirectional linkages that are expected when cyclical processes are present between parents and adolescents. However, more measurement waves are needed to fully test reciprocal processes. As such, these results are a solid attempt to study these processes, but need to be replicated with a larger sample, with inclusion of father-reported data, with measures that are more ecologically valid and reliable, and with more measurement waves.

Conclusion

Findings provide some evidence of a positive reinforcing monitoring process in families characterized by strong legitimacy beliefs: Parents' efforts to monitor adolescents by observing and listening, and by being actively involved may lead to a more open flow of information, and adolescent disclosures in turn may increase parents' tendencies to be even more engaged. For adolescents with weaker legitimacy beliefs, however, parents seem less likely to be engaged in the lives of their adolescents when adolescents are more secretive, but increased monitoring does not appear to result in higher levels of disclosure or fewer secrets for these youths.

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Appendix A

A potential source of differences in adolescent legitimacy beliefs, is adolescent engagement in norm breaking behaviors, such as shoplifting, vandalism, and graffiti. Adolescents more engaged in problem behaviors consider parental authority less legitimate and also feel less required to obey parents' rules (Darling et al., 2008). Rule breaking behaviors may also set into motion negative communication patterns in families. For instance, norm breaking may motivate adolescents to conceal information from parents and may decrease parents' desire to know how adolescents are behaving (review: Racz & McMahon, 2011). Therefore, we wanted to know whether this third variable may have confounded our results.

A series of post-hoc models were fit to test the robustness of the findings. Analyses were conducted to determine whether the findings could be explained by adolescent rule-breaking. Although the weak legitimacy beliefs group reported more rule-breaking than the strong legitimacy beliefs group ($M_s = 1.13$ & 1.05 , $SD_s = .22$ & 1.56 ; $t = 2.59$ $df = 180$, $p = .01$), adding rule-breaking to the model did not substantively change the cross-lagged associations linking monitoring behaviors and information management. Rule-breaking did not account for any of the significant longitudinal links between monitoring and information management and adding rule-breaking to the model did not alter the conclusions reached from tests of constrained paths.

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