

# Revisiting Parental Monitoring: Evidence that Parental Solicitation Can be Effective When Needed Most

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**Abstract** Studies using valid measures of monitoring activities have not found the anticipated main effects linking greater monitoring activity with fewer behavioral problems. This study focused on two contexts in which monitoring activities may be particularly influential. Early adolescents ( $n = 218$ ,  $M$  age = 11.5 years, 51% female, 49% European American, 47% African American) reported their unsupervised time, beliefs about the legitimacy of their parents' authority, and their own involvement in antisocial behavior. Mothers and adolescents reported their perceptions of adolescent disclosure and parental solicitation and control. Adolescents' perceptions of greater parental solicitation at age 11 were associated with less antisocial behavior at age 12 (when controlling for age 11 antisocial behavior) among adolescents reporting large amounts of unsupervised time and weak legitimacy beliefs. Perceived parental solicitation may be an effective deterrent of antisocial behavior when adolescents spend a lot of time unsupervised and for adolescents who are likely to challenge the legitimacy of their parents' authority.

**Keywords** Monitoring · Antisocial behavior · Supervision · Legitimacy beliefs

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## Introduction

Numerous studies have reported a negative association between parental monitoring and various maladaptive behaviors (see Crouter and Head 2002; Dishion and McMahon 1998). However, the great majority of these studies measured parents' knowledge of their children's whereabouts and activities rather than parents' monitoring behaviors (Stattin and Kerr 2000). In reinterpreting the parental monitoring literature, Stattin and Kerr (2000) differentiated among control, solicitation, and disclosure as potential sources of parents' knowledge of their children's whereabouts and activities. Control refers to parent-initiated efforts to control their adolescents' behavior through the use of rules and restrictions (i.e., behavioral as compared to psychological control, see Barber et al. 1994), and solicitation refers to parents' active efforts to obtain information from their adolescents. Together solicitation and control describe parents' tracking and surveillance behaviors that can be considered monitoring activities. Disclosure, in contrast, refers to the children's willingness to provide truthful information to their parents and is not appropriately considered a monitoring activity (Stattin and Kerr 2000). Studies using valid measures of monitoring behaviors are needed to better understand the association between parental monitoring and behavioral problems.

In their original cross-sectional studies, Kerr and Stattin (2000) showed that parents' knowledge, which was previously assumed to result from parents' monitoring efforts, was more strongly and consistently associated with disclosure than with solicitation or control. Likewise, disclosure rather than solicitation or control was the strongest and most consistent predictor of delinquent behavior. Two recent studies have replicated key findings from Stattin and Kerr's critique using longitudinal data. Specifically, these

studies found that more disclosure, but not more solicitation or control, predicted less delinquent behavior and that more delinquent behavior predicted less disclosure (Keijsers et al. 2009a; Kerr et al. 2009). Stattin and Kerr's (2000) critique of the monitoring literature raised doubts as to whether parents' monitoring activities serve to curtail adolescents' misbehavior. Recent longitudinal studies reinforce the conclusion that monitoring activities are not the primary source of parents' knowledge and that disclosure is a better predictor of delinquent behavior in community samples than are monitoring activities.

Whereas previous studies have found no, or only very limited, evidence of main effects of monitoring activities as predictors of delinquent behavior, the current study focuses on two specific situations in which monitoring activities are hypothesized to be particularly influential. It may be the case that monitoring activities are not necessary, or that their effects are overshadowed by disclosure, in many families. Not all adolescents spend time in situations or activities outside of adult supervision where monitoring is most needed. Moreover, it is likely that not all adolescents will be inclined to acquiesce to their parents' authority, abide by their parents' rules, or disclose their misbehavior or rule-breaking without close supervision or monitoring. We propose that monitoring activities will be most effective in those situations or families where parental monitoring is most needed to encourage appropriate behavior. More specifically, we propose that monitoring will be more effective when adolescents regularly spend time outside of adult supervision and when adolescents question or challenge parental authority. Therefore, the current study focuses on adolescents' unsupervised time and beliefs regarding the legitimacy of parents' authority as potential moderators of the associations between monitoring activities and antisocial behavior in an effort to test the effectiveness of monitoring activities in two situations where monitoring may be most needed.

### Unsupervised Time

Monitoring activities may be more important for adolescents who spend a lot of time away from adult supervision. Kerr et al. (2009) note that there has been speculation among researchers that there may be a sub-group of adolescents who spend most of their free time at home or with their parents. Presumably, these adolescents have few opportunities to misbehave and their parents are very knowledgeable about their whereabouts and activities. Keijsers et al. (2009a) measured how much time their adolescent participants spent with parents and peers but found that the longitudinal associations among disclosure, solicitation, and delinquent behavior were not reduced when they controlled for time spent with parents and peers.

Keijsers et al. (2009a) concluded that individual differences in time spent with parents and peers does not explain why disclosure is associated with delinquent behavior. In contrast to Keijsers et al. (2009a) who hypothesized that time spent with parents and peers accounts for associations between monitoring activities and antisocial behavior, we hypothesize that spent time with parents and peers will moderate the associations. Specifically, we propose that monitoring activities are less important, and therefore less strongly associated with antisocial behavior, among adolescents who spend most of their time supervised by their parents or other adults. For these adolescents, supervision or a lack of interest in, or opportunities for, out of home activities may inhibit involvement in antisocial behavior. Adolescents who spend more time unsupervised would presumably have more opportunities for involvement in antisocial behavior as well as more opportunities to hide their whereabouts and activities. Therefore, monitoring activities should be more important, and more strongly associated with antisocial behavior, among adolescents who spend more of their free time outside of adult supervision.

Two previous studies have tested interaction effects that could reveal whether more monitoring activities are more strongly linked with less misbehavior among adolescents spending more, rather than less, time away from adult supervision. Stattin and Kerr (2000) dichotomized a single-item measure of time spent hanging out on the streets. They found that children's perceptions of parental control were more strongly associated with less normbreaking among children who often hung out on the streets in comparison to children who rarely did so. Thus, findings from adolescents' reports of control are consistent with our expectations. However, parents' reports of solicitation were more strongly, and positively, associated with normbreaking among children who often hung out in the streets in comparison to children who rarely did so. While this latter finding is in direct contrast to our expectation, Stattin and Kerr (2000) suggest that the discrepancy may result from the inability to differentiate the direction of effects in cross-sectional work. Specifically, they interpret the positive correlation between solicitation and normbreaking as evidence of parents' reactions leading parents to make a more concerted effort to obtain information when children are out in the evenings and already getting into trouble. One other study tested a similar interaction but used less precise measures. Pettit et al. (1999) used a measure that combined knowledge, monitoring activities, and adult supervision and found that this measure of monitoring/supervision was more strongly related to externalizing behavior problems for adolescents living in high risk neighborhoods who spent large amounts of time unsupervised with peers than for adolescents in low risk neighborhoods or who spent little time unsupervised with peers. This pattern is consistent with our expectations but

interpretation is hindered by the use of a measure that combined knowledge, monitoring activities, and supervision. Findings from these two studies provide some support for our hypothesis that links between monitoring activities and antisocial behavior will be moderated by the amount of time adolescents spend outside of direct adult supervision, with stronger negative associations found between monitoring activities and antisocial behavior among adolescents spending more time unsupervised as compared to less time unsupervised. However, the previous studies are limited by their cross-sectional designs and imprecise operationalization of monitoring activities. We will replicate and extend findings from these earlier studies by using valid measures of monitoring activities and a longitudinal design.

### Legitimacy Beliefs

Findings from Stattin and Kerr's (2000) earlier work as well as the two recent longitudinal studies (Keijsers et al. 2009a; Kerr et al. 2009) are most consistent with a youth-driven process in which well-behaved adolescents keep their parents informed. However, the extensive focus on main effects in these studies means that results from these studies cannot tell us whether parents' monitoring efforts are effective for the sub-set of adolescents who are inclined to challenge, rather than respect, their parents' authority. For this reason, we propose that adolescents' beliefs regarding the legitimacy of their parents' authority to impose rules governing the adolescents' behavior should be tested as a potential moderator of associations between monitoring activities and antisocial behavior. Adolescents differ in their beliefs about the legitimacy of parents' authority to impose rules (Smetana and Daddis 2002) and stronger legitimacy beliefs are associated with more parental knowledge (Smetana and Daddis 2002), and with stronger obligations to disclose behavior and misbehavior to parents (Smetana et al. 2006). Furthermore, adolescents are more likely to obey parents' rules and restrictions when they believe that the rules are legitimate and when the adolescents feel an obligation to obey (Darling et al. 2007). Conversely, weaker legitimacy and obligation beliefs may be a sign that adolescents are challenging their parents' legitimacy and possibly reducing parents' authority through misbehavior and intimidation (Kerr and Stattin 2003). We propose that adolescents' beliefs regarding the legitimacy of parents' authority and adolescents' own obligations to disclose violations of parents' rules will moderate associations between monitoring activities and antisocial behavior. Weak legitimacy beliefs suggest that adolescents feel little obligation to keep their parents informed and have little motivation to comply with parents' rules in the absence of consistent monitoring. Thus, it would seem that monitoring is most needed by, and may

be most effective for, adolescents with weak legitimacy beliefs. Therefore, we propose that more monitoring activities will be more strongly associated with less antisocial behavior among adolescents reporting weak, as compared to strong, legitimacy beliefs.

### Hypotheses

The current study was conducted to determine whether parents' monitoring activities are associated with low levels or reductions in antisocial behavior in two situations where monitoring is most relevant and needed. Specifically, this study tested unsupervised time and legitimacy beliefs as potential moderators of the associations between monitoring activities and antisocial behavior. Adolescents who spend more time outside of direct adult supervision have more opportunities to engage in antisocial behavior. Therefore, we hypothesize that more monitoring activities will be more strongly associated with less antisocial behavior among adolescents spending more time unsupervised as compared to less time unsupervised. Adolescents reporting weak legitimacy beliefs are more likely to challenge their parents' authority and may be more likely to misbehave when given the opportunity. Therefore, we hypothesize that more monitoring activities will be more strongly associated with less antisocial behavior among adolescents reporting weak, as compared to strong, legitimacy beliefs. These hypotheses will be tested using a longitudinal, multi-informant design. The longitudinal design will provide an opportunity to determine whether monitoring activities are effective at preventing future antisocial behavior and the multi-informant design will provide an opportunity to test the replication of results across parents' and adolescents' perspectives and interpretations of parents' monitoring activities.

### Method

#### Participants

Data were provided by a sample of 218 participants and their mothers who were first interviewed during the summer following the adolescents' 5th grade school year. Most adolescent participants were 11 years old at the time of the interview ( $M$  age = 11.5 years,  $SD$  = .51; Range = 10 years, 7 months–13 years, 9 months). The sample was 51% female and 73% of the adolescents lived in a two-parent home when the data were collected. 49.1% of the adolescents were European American, non-Hispanic, 47.2% were African American, 2.8% were Asian, and 1% were Hispanic. Mother education level varied with 2.8% not having

completed high school, 10.1% having a high school diploma, 39.4% having attended college or technical school, 27.5% having a bachelor's degree, and 19.7% having a graduate degree. The demographic characteristics of the sample generally correspond to those of the community and schools from which they were recruited. Specifically, Census 2000 data show that 68% of the households in the community with children 6–17 years old were headed by married couples, and enrolment figures from the National Center for Educational Statistics indicate that the great majority of students in the schools are of European American (47.2%) or African American (49.6%) background.

The sample was re-interviewed 1 year later at age 12 ( $n = 184$ ). Attrition (16%) was primarily due to residential mobility. Ongoing participants did not differ from dropouts on any of the age 11 measures,  $t(216)s = .52$ – $1.4$ ,  $p$ 's = .60 to .16, or sex,  $\chi^2(1) = .30$ ,  $p = .58$ . However, the retention rate was lower for African American participants (76%) than for European American (90%) or other (92%) participants,  $\chi^2(2) = 7.53$ ,  $p = .02$ .

## Procedure

Participating families were recruited from a public school system serving citizens of a mid-sized city in the southern United States (population about 400,000). Information letters were distributed to students at school in the late spring. Interested parents returned a postcard to the researchers or a form to the adolescents' school indicating their willingness to participate and were contacted to schedule a home interview. Each participant was compensated \$25 for completing the age 11 interview and \$35 for completing the age 12 interview.

Families were provided an overview of the interview procedure before mothers provided informed consent and adolescents provided written assent. Following the consent discussion, the adolescents and mothers were interviewed in separate private locations within the home. To ensure privacy and reduce social desirability bias, participants privately recorded their responses to the questions on an answer sheet. The structured interviews took about 45 min and focused primarily on parent-adolescent interactions and relationships.

## Measures

### *Disclosure and Monitoring Activities*

Adolescents and mothers responded to the disclosure and monitoring activities items at age 11. The solicitation, control, and disclosure processes described by Stattin and Kerr (2000) were assessed after slightly modifying their original items to make the items appropriate for our early

adolescent sample. Modifications included changing items that asked about adolescents' activities at night to ask about the adolescents' free time.

*Child disclosure.* To assess child disclosure, adolescents and mothers responded to eight items (e.g., "How often do you talk at home about how you are doing in different subjects in school?") using a six-point scale from "never" (scored 0) to "almost every day" (scored 5). The mean of the eight responses indexes adolescent *disclosure* ( $\alpha$ 's = .74 & .84, for adolescents' and mothers' reports, respectively).

*Parental solicitation.* To assess parental solicitation, adolescents and mothers responded to five items (e.g., "During the past month, how often has your mother started a conversation with you about your free time?") using the same six-point scale. The mean of the five responses indexes parental *solicitation* ( $\alpha$ 's = .81 & .67).

*Parental control.* To assess parental control through rules, adolescents and mothers responded to six items (e.g., "How often do you need to have your mother's permission to stay out later than usual?") scored on a five-point scale from "never" (scored 0) to "always" (scored 4). The mean of the six responses indexes parental *control* ( $\alpha$ 's = .71 & .70).

### *Unsupervised Time*

Adolescents reported how much time they spend outside of adult supervision using six items newly developed for this study. The items were developed for the age 12 interviews based on staff members' recommendations following informal conversations with participants when completing the age 11 interviews. As such, unsupervised time was measured 1 year after the disclosure and monitoring activities but concurrent with age 12 antisocial behavior. The items asked how often the adolescent watched TV or movies or listened to music with no adult around, stayed at home when no adult was there, hung out at a friend's house and in the neighborhood when no adult was around, hung out at home in a place where no adult could bother them, and spent time on-line with no adult around. Adolescents responded to each item using a five-point response scale ranging from "never" (scored 0) to "every day" (scored 4). An *unsupervised time* score was computed as the mean of the six items ( $\alpha = .69$ ).

### *Legitimacy Beliefs*

Adolescents reported their legitimacy beliefs at age 11. Items, response methods, and scoring were modeled on the assessment of legitimacy and obligation beliefs developed by Smetana et al. (2006). However, new items were generated to assess beliefs regarding parents' regulation of peer relationships (e.g., "what pre-teens can or cannot do with

friends, who pre-teens can and cannot be friends with”) and free time activities (e.g., “how pre-teens spend their free time, the types of movies pre-teens watch or music pre-teens listen to, hanging out at a friends’ house when no adult is there”) instead of the broad array of domain-oriented items typically used by researchers to study legitimacy beliefs. For each of the five topics, adolescents were asked a legitimacy (i.e., whether it is “OK” for parents to make a rule about the particular issue) and an obligation question (i.e., whether adolescents have a duty or obligation to tell their parents when they break the rule). A *legitimacy beliefs* score was computed by counting the number of affirmative responses and dividing by 5 ( $\alpha = .74$ ).

*Antisocial Behavior*

Adolescents reported the frequency of their involvement in antisocial behavior at ages 11 and 12. The Problem Behavior Frequency Scale (Farrell et al. 2000) assesses physical and non-physical aggression, delinquency, and drug use using a total of 26 items. The Teen Conflict Survey (Bosworth and Espelage 1995) measures rule-breaking behavior at home, school, and in other contexts using six items. All items were scored on a five-point scale from “never” (scored 0) to “7 or more times” (scored 4) in the past 30 days. The mean of the 32 items was computed to index *antisocial behavior* ( $\alpha$ 's = .91 & .93, for ages 11 and 12, respectively).

Analysis Plan

First, descriptive statistics and bivariate correlations among the study variables were computed. Next, a series of regression analyses was conducted to determine whether

solicitation, control, and disclosure are associated with antisocial behavior and whether legitimacy beliefs and unsupervised time moderate associations between antisocial behavior and the monitoring activity variables. Regressions were conducted using MPlus 5.2 (Muthén and Muthén 2007) with full information maximum likelihood estimation to utilize all available data (Schafer and Graham 2002). Moderation was tested using multiplicative interaction terms computed from centered variables and simple slopes were calculated according to procedures described by Cohen et al. (2003). The regression models were just-identified and provide a perfect fit to the data.

Results

Descriptive statistics and bivariate correlations are shown in Table 1. Adolescents’ and mothers’ reports of adolescent disclosure were positively associated with one another, but adolescents’ and mothers’ reports of solicitation and control were not associated with one another. Adolescents’ reports of disclosure, solicitation, and control were consistently associated with stronger legitimacy beliefs, less unsupervised time, and less antisocial behavior. Mothers’ reports of disclosure, solicitation, and control were not associated with legitimacy beliefs and unsupervised time, but mothers’ reports of solicitation and control were associated with more age 12 antisocial behavior. Stronger legitimacy beliefs and less unsupervised time also were associated with less antisocial behavior. Males reported less disclosure, less control, and more antisocial behavior than females. African American participants reported weaker legitimacy beliefs and more antisocial behavior than did European American participants.

**Table 1** Descriptive statistics and bivariate correlations

Variable	M (SD)	1	2	3	4	5	6	7	8	9	10	11
1. AR disclosure	3.87 (.70)											
2. MR disclosure	4.23 (.63)	.21**										
3. AR solicitation	3.32 (.92)	.66***	.18**									
4. MR solicitation	3.91 (.63)	-.06	.26***	.03								
5. AR control	4.12 (.72)	.53***	.17**	.57***	-.07							
6. MR control	4.50 (.63)	.09	.19**	.08	.33***	.08						
7. Legitimacy beliefs	1.44 (.46)	.46***	.04	.36***	-.02	.30***	-.01					
8. Unsupervised time	2.40 (.74)	-.26***	.01	-.17**	.09	-.21**	-.01	-.35***				
9. Age 11 antisocial behavior	1.39 (.39)	-.34***	-.09	-.30***	.07	-.30***	.08	-.42***	.35***			
10. Age 12 antisocial behavior	1.44 (.45)	-.30***	-.01	-.26***	.13*	-.17*	.13*	-.39***	.43***	.67***		
11. Sex (female = 0, male = 1)	49% male	-.23***	-.30***	-.10	-.01	-.17**	.09	-.02	.03	.21***	.17*	
12. Ethnicity (EA = 0, AA = 1)	49% AA	.01	.18**	-.03	.01	-.05	.12*	-.19**	.07	.17**	.22**	.04

AR adolescent-reported, MR mother-reported, EA European American, AA African American

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ , two-tailed (pair-wise  $ns = 173-218$ )

## Adolescent-Reported Disclosure and Monitoring Activities

Results from the regression analyses using adolescents' reports of disclosure, solicitation, and control are shown in Table 2. In the first analysis, age 12 antisocial behavior was regressed on age 11 antisocial behavior, ethnicity, sex, solicitation, control, disclosure, unsupervised time and three interaction terms (unsupervised time  $\times$  solicitation, unsupervised time  $\times$  control, unsupervised time  $\times$  disclosure; sex and ethnicity interactions were tested but not found to be significant and thus are not included in the final models). Unsupervised time was not used to predict age 11 antisocial behavior because unsupervised time was measured at age 12. More control and more unsupervised time were associated with increased antisocial behavior at age 12. The unsupervised time  $\times$  solicitation interaction was significant. Simple slopes indicated that more solicitation was associated with decreased antisocial behavior among adolescents reporting large amounts of unsupervised time ( $b = -.13$ ,  $SE = .05$ ,  $p = .005$ ), but not among adolescents reporting small amounts of unsupervised time ( $b = .02$ ,  $SE = .05$ ,  $p = .72$ ).

Age 11 antisocial behavior served as the dependent variable in the second analysis and legitimacy beliefs replaced unsupervised time. Boys reported more antisocial behavior than girls and stronger legitimacy beliefs were associated with less antisocial behavior. The legitimacy

beliefs  $\times$  solicitation and legitimacy beliefs  $\times$  disclosure interactions were significant. Simple slopes indicated that more solicitation was associated with less antisocial behavior among adolescents reporting weak legitimacy beliefs ( $b = -.13$ ,  $SE = .05$ ,  $p = .004$ ), but not among adolescents reporting strong legitimacy beliefs ( $b = .07$ ,  $SE = .05$ ,  $p = .11$ ). Greater disclosure was associated with less antisocial behavior among adolescents reporting strong legitimacy beliefs ( $b = -.17$ ,  $SE = .04$ ,  $p = .001$ ), and with more antisocial behavior among adolescents reporting weak legitimacy beliefs ( $b = .12$ ,  $SE = .04$ ,  $p = .007$ ).

Age 12 antisocial behavior served as the dependent variable in the third analysis with age 11 antisocial behavior serving as a covariate. The legitimacy  $\times$  solicitation interaction remained significant in the longitudinal analysis. Simple slopes indicated that more solicitation was associated with decreased antisocial behavior among adolescents reporting weak legitimacy beliefs ( $b = -.14$ ,  $SE = .05$ ,  $p = .004$ ), but not among adolescents reporting strong legitimacy beliefs ( $b = .05$ ,  $SE = .05$ ,  $p = .27$ ).

The fourth analysis is not shown in Table 2, but included unsupervised time, legitimacy beliefs, and all six interactions as predictors of age 12 antisocial behavior. Only the legitimacy beliefs  $\times$  solicitation interaction remained significant ( $b = .17$ ,  $SE = .08$ ,  $\beta = .17$ ,  $p < .05$ ). Simple slopes indicated that more solicitation was marginally associated with decreased antisocial behavior among adolescents reporting weak legitimacy beliefs ( $b = -.13$ ,

**Table 2** Adolescents' reports of solicitation, control, and disclosure predicting antisocial behavior at ages 11 and 12

Predictor	Unsupervised time			Legitimacy beliefs					
	Age 12			Age 11			Age 12		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
Age 11 antisocial behavior	.695	.074	.58***				.730	.078	.61***
AA ethnicity	.067	.050	.07	.057	.046	.07	.065	.052	.07
Male sex	.042	.048	.05	.120	.046	.16**	.034	.050	.04
Solicitation	-.057	.036	-.11	-.030	.034	-.07	-.044	.037	-.09
Control	.084	.042	.13*	-.043	.039	-.08	.082	.043	.13
Disclosure	.003	.049	.01	-.025	.047	-.05	-.013	.053	-.02
Unsupervised time (UT)	.129	.035	.21***						
UT $\times$ solicitation	-.100	.048	-.18*						
UT $\times$ control	.021	.062	.02						
UT $\times$ disclosure	.126	.070	.15						
Legitimacy beliefs (LB)				-.285	.058	-.34***	-.068	.068	-.07
LB $\times$ solicitation				.224	.074	.26**	.209	.078	.21**
LB $\times$ control				.076	.084	.07	-.033	.089	-.03
LB $\times$ disclosure				-.318	.102	-.27**	-.122	.112	-.09
<i>R</i> <sup>2</sup>			.55***			.30***			.52***

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

SE = .07,  $p = .067$ ), but not among adolescents reporting strong legitimacy beliefs ( $b = .03$ , SE = .07,  $p = .72$ ).

Mother-Reported Disclosure and Monitoring Activities

Results from the regression analyses using mothers’ reports of disclosure, solicitation, and control are shown in Table 3. In the age 12 unsupervised time analysis, more unsupervised time was associated with more antisocial behavior. The unsupervised time  $\times$  disclosure interaction was significant. Simple slopes indicated that more disclosure was associated with decreased antisocial behavior among adolescents reporting small amounts of unsupervised time ( $b = -.086$ , SE = .060,  $p = .15$ ), but with increased antisocial behavior among adolescents reporting large amounts of unsupervised time ( $b = .092$ , SE = .060,  $p = .13$ ), although the simple effects were not statistically significant.

In the age 11 legitimacy beliefs analysis, boys reported more antisocial behavior than girls and stronger legitimacy beliefs were associated with less antisocial behavior. The legitimacy beliefs  $\times$  solicitation interaction was significant. Simple slopes indicated that more solicitation was associated with less antisocial behavior among adolescents reporting weak legitimacy beliefs ( $b = .16$ , SE = .06,  $p = .008$ ), but not among adolescents reporting strong legitimacy beliefs ( $b = -.02$ , SE = .06,  $p = .67$ ). In the age 12 legitimacy beliefs analysis, stronger legitimacy beliefs were associated with less antisocial behavior. No other main effects or interactions were significant.

Discussion

The goals of this study were to determine whether associations between two monitoring activities and adolescent antisocial behavior are moderated by the amount of time adolescents spend outside of adult supervision and by adolescents’ beliefs about the legitimacy of parents’ authority. Results show that adolescents’ perceptions of greater parental solicitation at age 11 are associated with reduced levels of antisocial behavior at age 12 among adolescents spending more, as compared to less, time unsupervised at age 12. Furthermore, results show that greater parental solicitation at age 11 is associated with lower levels of antisocial behavior, both concurrently and longitudinally, among adolescents reporting weaker, as compared to stronger, legitimacy beliefs at age 11. Findings are consistent with our hypotheses but longitudinal findings were limited to adolescents’ perceptions of parental solicitation. All interactions involving adolescents’ perceptions of parental control were non-significant.

Stattin and Kerr (2000) critically evaluated research on parental monitoring and concluded that researchers were making erroneous assumptions that parents’ knowledge of their children’s whereabouts and activities resulted from parental monitoring and that monitoring activities limited misbehavior. Subsequent work by Stattin and Kerr (Kerr et al. 2009) and others (Keijsers et al. 2009a; Kiesner et al. 2009) has consistently failed to find statically significant links between monitoring activities and adolescents’

**Table 3** Mothers’ reports of solicitation, control, and disclosure predicting antisocial behavior at ages 11 and 12

Predictor	Unsupervised time			Legitimacy beliefs					
	Age 12			Age 11			Age 12		
	<i>B</i>	SE	$\beta$	<i>B</i>	SE	$\beta$	<i>B</i>	SE	$\beta$
Age 11 antisocial behavior	.660	.079	.55***				.695	.085	.58***
AA ethnicity	.075	.054	.08	.078	.053	.10	.073	.056	.08
Male sex	.044	.051	.05	.118	.050	.15*	.065	.054	.07
Solicitation	.027	.042	.04	.067	.042	.11	.039	.045	.05
Control	.043	.040	.06	.023	.042	.04	.030	.043	.04
Disclosure	.003	.044	.01	-.056	.044	-.09	.029	.047	.04
Unsupervised time (UT)	.155	.036	.24***						
UT $\times$ solicitation	.080	.052	.08						
UT $\times$ control	-.022	.058	-.02						
UT $\times$ disclosure	.122	.056	.11*						
Legitimacy beliefs (LB)				-.379	.054	-.45***	-.157	.065	-.15*
LB $\times$ solicitation				-.199	.085	-.25***	-.078	.104	-.08
LB $\times$ control				.001	.001	.04	.001	.002	.16
LB $\times$ disclosure				.025	.051	.09	-.014	.088	-.04
$R^2$			.56***			.27***			.51***

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

antisocial behavior in longitudinal analyses. However, this research has focused almost exclusively on main effects between monitoring activities and antisocial behavior and has not sought to identify situations or contexts where monitoring activities may be more or less effective in minimizing antisocial behavior. In contrast, the current study focused on two specific situations in which monitoring activities may be particularly important and influential.

We first sought to determine whether monitoring activities were more important and powerful in families where adolescents spend more time unsupervised. This is important because Kerr et al. (2009) and others (e.g., Dishion and McMahon 1998) have distinguished between monitoring and supervision with monitoring referring to parents' efforts to track children's whereabouts and activities when the parents are not physically present. Supervision, in contrast, refers to the physical presence of parents. Our results demonstrating that adolescents' perceptions of greater solicitation are more strongly associated with lower levels of antisocial behavior among adolescents spending more, as compared to less, time unsupervised is an important finding. The moderation hypothesis we tested is consistent with the conceptual definition of monitoring and our measurement strategy abides by Kerr et al.'s (2009) recommendation to use measures that do not intertwine monitoring and supervision. Thus, we demonstrated a theoretically important association between monitoring and antisocial behavior using a conceptually valid measure of monitoring.

As noted earlier, we were not the first to test the interaction between unsupervised time and monitoring activities. Stattin and Kerr (2000) found that children's perceptions of parental control were more strongly associated with less normbreaking among children who often hung out on the streets in comparison to children who rarely did so. Although this finding is for control instead of solicitation and is based on cross-sectional data, the general pattern is consistent with results from the current study. Likewise, results from the current study are consistent with Pettit et al.'s (1999) finding that monitoring/supervision was more strongly related to externalizing behavior problems for adolescents living in high risk neighborhoods who spent large amounts of time unsupervised with peers than for adolescents in low risk neighborhoods or who spent little time unsupervised with peers. While results of the current study replicate the pattern of findings in two previous studies, the current study was the first to test and to provide evidence of a prospective longitudinal link showing that solicitation may be an effective antisocial behavior deterrent for early adolescents who spend relatively large amounts of time unsupervised. Findings from the current study also converge with results of a longitudinal study testing whether associations between monitoring activities and delinquent behavior are moderated by parental support.

Specifically, Keijsers et al. (2009b) found that in low-support families, more so than in high-support families, smaller decreases over time in parents' control were associated with smaller increases over time in delinquent activities. This finding is consistent with results of the current study, as well as Stattin and Kerr (2000) and Pettit et al. (1999) in showing that monitoring activities can be beneficial in certain situations or circumstances where monitoring may be most needed.

We also sought to determine whether monitoring activities were more important and powerful in families where adolescents may be more likely to challenge the legitimacy of their parents' control efforts and attempt to reduce parents' authority through misbehavior and intimidation. This is important because research focusing on main effects has shown that much of the apparent protective effect of parental knowledge is consistent with a youth-driven process in which well-behaved adolescents keep parents informed (e.g., Stattin and Kerr 2000). Interest in monitoring as a target of prevention and intervention efforts, in contrast, is predicated on monitoring being an effective parenting strategy for responding to and preventing misbehavior among troubled adolescents (Dishion and McMahon 1998). Our results demonstrating that perceptions of parental solicitation are more strongly associated with lower levels of antisocial behavior among adolescents reporting weak legitimacy beliefs provides evidence that solicitation may be an effective strategy for parents when their children are not likely to be cooperative, compliant, and forthcoming in the absence of parental monitoring.

Several evaluations of monitoring-based interventions suggest that encouraging and supporting parental monitoring may be an effective intervention to reduce problem behavior (e.g., Dishion et al. 2003; Stanton et al. 2000). However, correlational descriptive studies have consistently found monitoring activities to be unrelated to behavioral problems when controlling for disclosure (e.g., Keijsers et al. 2009a; Kerr et al. 2009; Kiesner et al. 2009; Stattin and Kerr 2000). There is no logical requirement for consistency between experimental intervention studies and descriptive correlation studies as descriptive studies need not be informative about the most effective way to change behavior via intervention. Nonetheless, findings from the current study may help to reconcile discrepancies between studies reporting the effectiveness of monitoring interventions and studies reporting limited effects of monitoring behaviors on later behavioral problems. Specifically, it appears that disclosure is a much stronger and more consistent contributor of parents' knowledge and is much more strongly associated, particularly concurrently, with antisocial behavior than are monitoring activities. However, the current study suggests that monitoring activities, and parental solicitation in particular, may be effective in two



situations where monitoring is relevant and where child cooperation and disclosure cannot be assumed. Moreover, there is some evidence in the results of the current study that more disclosure is associated with more, rather than less, antisocial behavior when adolescents spend a lot of time unsupervised and that more disclosure is most strongly associated with less antisocial behavior among adolescents with strong legitimacy beliefs (see also Laird and Marrero 2009). Findings from the current study suggest that interventions to increase monitoring behaviors may be effective and findings are consistent with the reported effectiveness of previous interventions. So although the broader literature (e.g., Keijsers et al. 2009a; Kerr et al. 2009) demonstrates that solicitation is not the primary source of knowledge for most well-functioning families and that solicitation does not show robust longitudinal associations with behavioral problems, the current study indicates that perceptions of greater parental solicitation may be an effective deterrent of antisocial behavior when adolescents spend a lot of time unsupervised and in families where adolescents hold weak legitimacy beliefs. In other words, findings from the current study suggest that it is precisely those adolescents that one would expect to benefit from monitoring that do appear to experience the benefit.

Associations between parenting and adolescent behavioral problems are presumed to be bidirectional or transactional with parenting influencing behavioral problems as well as parents responding to behavioral problems (e.g., Laird et al. 2003). The current study tested two unidirectional hypotheses focused on the potential effects of parental monitoring activities on adolescent antisocial behavior. Effects in the opposite direction from antisocial behavior to monitoring activities were not tested because we had no strong rationale for why unsupervised time or legitimacy beliefs would interact with antisocial behavior to predict monitoring activities. Previous studies have tested main effects but have not found evidence that high levels of delinquent behavior predict reductions in solicitation and control (although high levels of delinquent behavior have been found to predict reductions in disclosure; Keijsers et al. 2009a; Kerr et al. 2009; Kiesner et al. 2009). Results from the current study suggest that rather than continuing to test main effects of delinquency on solicitation and control, it may help to identify specific situations or contexts within which delinquent or antisocial behavior would be expected to lead to reductions in monitoring activities. For example, parents may be more likely to reduce their monitoring efforts in response to delinquent behavior when they feel that such efforts are ineffective, that monitoring activities increase conflict, or that monitoring activities are threat to the quality of the parent-adolescent relationship. While associations between parenting and behavioral problems are likely bidirectional, it is reasonable to propose that at least

some moderators are direction specific as they reflect individuals' tendency to interpret situations and respond to another's behavior.

Strengths of the current study include the longitudinal design, tests of hypothesized interaction effects, and the inclusion of parent and adolescent reports. Adolescents reported their perceptions of legitimacy beliefs, unsupervised time and antisocial behavior because adolescents are uniquely positioned to report their own beliefs and are likely to be the most informed regarding their own involvement in antisocial behavior. Parents and adolescents often have different perspectives on family processes and parents' and adolescents' reports of family processes are often only modestly correlated (Conger and Ge 1999; Gonzales et al. 1996). In this study, parents' and adolescents' reports of monitoring activities and disclosure were weakly correlated, adolescents' reports of monitoring activities and disclosure were more strongly intercorrelated than were mothers' reports, and only adolescents' reports are consistently associated with antisocial behavior. Parents reported higher levels of disclosure, solicitation, and control than did adolescents and ceiling effects limited the variability in mothers' reports of solicitation and control, in particular. Adolescents typically report that their parents engage in less monitoring activities than reported by their parents (e.g., Keijsers et al. 2009b), but the face-to-face data collection procedures used in the current study may have exacerbated mothers' tendencies to report high levels of monitoring activity. In any event, the limited variability in mothers' reports may be responsible for the weak parent-adolescent correlations, the weaker intercorrelations among measures, and the lack of longitudinal effects. Previous studies analyzing parents' and adolescents' reports of disclosure and monitoring activities often report similar main effects that are typically weaker for parents' reports than for adolescents' reports (e.g., Keijsers et al. 2009a; Kerr et al. 2009; Kiesner et al. 2009). Despite these challenges, the use of multiple informants is a strength of the study and provided an opportunity to demonstrate that at least one of the hypothesized interactions generalized across mothers' and adolescents' perceptions of solicitation.

Limitations of the study include a sample recruited from a single geographic region, the timing of the assessment of unsupervised time, and difficulties interpreting parameter estimates in multivariate models. Although the sample in the current study includes both sexes and the demographic characteristics generally reflect the geographic area from which the sample was recruited, well-educated parents are over-represented in the dataset and the convenience sample is likely biased by the desire to collect data through personal interviews in the participants' homes. Given that unsupervised time is likely to increase with age (Laird, Pettit, Dodge and Bates 1998; Larson et al. 1996; Patterson and

Stouthamer Loeber 1984), it is likely that some adolescents who were spending a lot of time unsupervised at age 12 were more closely supervised at age 11. However, such bias in measurement should have made it more difficult to detect the interaction between unsupervised time and solicitation given that we expected solicitation to be more effective for the least supervised adolescents. Finally, although the bivariate correlations indicate that more adolescent-reported control is associated with less antisocial behavior, the beta weight for control in the age 12 regression analysis including unsupervised time suggests that more control is associated with more antisocial behavior. This suppressor effect likely is an artifact of the longitudinal analysis (suggesting that more control is associated with less antisocial behavior concurrently, but with increases in antisocial behavior longitudinally) or of controlling for unsupervised time (suggesting that after accounting for individual differences in unsupervised time, more control is associated with increases in antisocial behavior longitudinally). Limitations of the sample, design, and analyses should be kept in mind to avoid overgeneralizing findings.

In summary, this study revisited Stattin and Kerr's (2000) reconceptualization of parental monitoring to test whether greater monitoring was associated with less antisocial behavior in two situations where monitoring was thought to be most needed. Results from this study demonstrate that the link between parents' solicitation and adolescents' antisocial behavior is moderated by the amount of time adolescents spend outside of direct adult supervision and by adolescents' legitimacy beliefs. Perceptions of greater solicitation are more strongly associated with lower levels of, and reductions in, antisocial behavior among adolescents spending more, as compared to less, time unsupervised and among adolescents reporting weaker, as compared to stronger, legitimacy beliefs. These findings suggest important limitations to Stattin and Kerr's (2000) conclusion that monitoring activities do not inhibit or reduce antisocial behavior. Although monitoring may not be necessary or effective in all situations, monitoring is an effective strategy for inhibiting antisocial behavior when adolescents are not directly supervised and when adolescents are inclined to resist or challenge their parents' rules and authority. The findings from the current study converge with findings from several previous intervention and correlational studies to suggest that parents can take steps to prevent and reduce their adolescents' antisocial behavior.

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