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A Reinterpretation of Parental Monitoring in Longitudinal Perspective

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A commonly used measure of parental monitoring is parents' knowledge of adolescents' daily activities. This measure has been criticized on the grounds that parents get more knowledge about teenagers' daily activities through willing youth disclosure than through their own active monitoring efforts, but this claim was based on cross-sectional data. In the present study, we reexamine this claim with longitudinal data over 2 years from 938 seventh and eighth graders and their parents. Youth disclosure was a significant longitudinal predictor of parental knowledge in single- and cross-rater models. Neither measure of parents' monitoring efforts—control or solicitation—was a significant predictor. In analyses involving delinquency, parental monitoring efforts did not predict changes in delinquency over time, but youth disclosure did. We conclude that because knowledge measures do not seem to represent parental monitoring efforts, the conclusions from studies using these measures should be reinterpreted.

When children are young, vigilant parental monitoring is often the only thing that stands between them and physical harm. When they become adolescents, the dangers are no less real, but parents are less able to monitor adolescents' activities directly because they spend so much time away from home. Parents must rely on methods such as asking the youth about his or her activities away from home and creating house rules that require adolescents to tell where they are going, what they will be doing, and whom they will be with. Adolescents are keenly aware, however, of the need to manage what their parents know about their activities (Marshall, Tilton-Weaver, & Bosdet, 2005). The question, then, is whether these indirect efforts to monitor adolescents' whereabouts and associations effectively keep youths away from the dangers that they are exposed to in adolescent life.

Many studies over the past 20 years have concluded that parents' monitoring efforts are, indeed, effective in keeping youths away from deviant peers and problem behaviors such as drug use and delinquency (for reviews,

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see Crouter & Head, 2002; Dishion & McMahon, 1998). In previous studies, however, we have questioned this interpretation of the findings, claiming that the typical measures of parental monitoring used in the literature do not adequately capture the construct (Kerr & Stattin, 2000; Stattin & Kerr, 2000). We pointed out that many studies in the monitoring literature operationalized monitoring with measures of parental knowledge of youths' daily activities, an observation that was later confirmed in a systematic review of the literature (Crouter & Head, 2002). We suggested that parents can get knowledge in different ways, and not all of them involve monitoring. Our studies aimed to determine whether knowledge measures capture the same phenomenon as active monitoring efforts. If not, we argued, the findings in the literature should be reinterpreted.

The empirical strategy in these studies was twofold. One part involved developing measures of specific actions parents might take to get knowledge and then testing whether those measures of monitoring actions were interchangeable with knowledge measures. Two measures of monitoring efforts were developed. One dealt with asking for information from the youth, the youths' friends, and the friends' parents. It was labeled *solicitation*. The other dealt with setting rules that require youths to give information about where they will be and with whom when they are away from home. It was labeled *control*. These measures correlated with knowledge in the .2–.3 range, which was not high enough to suggest that they captured essentially the same phenomenon as knowledge. In addition, although control and solicitation were correlated with delinquency, the coefficients were significantly lower than those between knowledge and delinquency. Thus, the measures of monitoring efforts were not highly related to knowledge and they were not as highly related to delinquency as knowledge was. In other words, knowledge did not seem to be measuring the same thing as parents' active monitoring efforts.

The second part of the empirical strategy in these studies involved testing the possibility that parental knowledge is primarily imparted by teenagers themselves. We used a measure of youth disclosure of information about daily activities, relating it to both knowledge and delinquency. Unlike the measures of parents' monitoring efforts, disclosure was highly correlated with knowledge (in the .6 range), and this link was not accounted for by parent–child relationship quality. Also, unlike the measures of monitoring efforts, the concurrent link between disclosure and delinquency was similar to the link between knowledge and delinquency. From the empirical evidence in these studies, we concluded that the knowledge measures that have been used in the literature as operational definitions of parental monitoring do not primarily capture parental monitoring, but very much capture youth disclosure of information.

Both these studies (Kerr & Stattin, 2000; Stattin & Kerr, 2000) were cross-sectional, and as such, they raise a number of questions about the directions of effects and processes involved. One is whether the link between disclosure

and knowledge holds up when tested longitudinally—does disclosure *contribute* to knowledge, and if so, does it contribute more longitudinally than control and solicitation do? Another question raised by the cross-sectional findings is about the directions of effects between disclosure and control and solicitation, specifically, whether disclosure might be a consequence of parents' monitoring efforts. A number of recent studies have implied this by discussing disclosure as part of a complex parental monitoring process in which parents use different means to get information (Dishion, Nelson, & Bullock, 2004; Laird Pettit, Bates, & Dodge, 2003). At least one study has tested a model (albeit on cross-sectional data) in which parenting style variables elicit disclosure (Soenens, Vansteenkiste, Luyckx, & Goossens, 2006). If solicitation and control elicit disclosure, then monitoring efforts do, indeed, lie behind knowledge, which would argue against a reinterpretation of the previous monitoring literature. A third question raised by the cross-sectional findings is whether the negative link between disclosure and delinquency can be found longitudinally, and if so, whether delinquency seems to lead to less disclosure or disclosure seems to lead to less delinquency. These different possibilities carry very different implications for understanding the phenomenon and for prevention and intervention efforts. In short, these studies left open questions about what contributes to knowledge over time and whether parents' monitoring efforts might elicit disclosure.

Although several published studies have followed up on our studies, they have not addressed these longitudinal questions. Concerning the claim that parents' knowledge comes primarily from youth disclosure, a few recent studies have dealt in various ways with sources of parents' knowledge and whether knowledge measures represent parents' active monitoring efforts (Crouter, Bumpus, Davis, & McHale, 2005; Fletcher, Steinberg, & Williams-Wheeler, 2004; Soenens et al., 2006; Waizenhofer, Buchanan, & Jackson-Newsom, 2004). Two of these, however, included only cross-sectional data (Soenens et al., 2006; Waizenhofer et al., 2004). The others included longitudinal data for measures of problem behavior, but not for knowledge and the sources of knowledge. Thus, the claim that parents get more knowledge from youth disclosure than from their own monitoring efforts remains untested longitudinally.

Concerning the directional links among the sources of knowledge and between them and delinquency, there are several hypothetical scenarios that can be constructed to describe the processes involved. One scenario is a *parent-driven process*, in which parental monitoring efforts elicit disclosure and also discourage delinquency. Monitoring efforts might affect both disclosure and delinquency directly, or they might affect one directly and the other as a consequence. For instance, adequate monitoring might prevent youths from engaging in delinquency and then, because they have little to hide, youths might disclose willingly about their activities. Alternatively, adequate monitoring efforts might elicit disclosure, which might, in turn,

discourage delinquency. Both of these scenarios account for the reported connection between disclosure and delinquency (Kerr & Stattin, 2000; Stattin & Kerr, 2000), and they are also consistent with the traditional view of parental monitoring as a deterrent to delinquency.

There are, however, several hypothetical scenarios that are less consistent with the traditional view. One is a *disclosure-driven process*, in which a youth's willingness to disclose encourages parents to ask questions and to enforce rules that require the youth to provide information. These monitoring efforts might, in turn, discourage delinquency in the way that has been traditionally assumed. In addition, disclosure itself might discourage delinquency through a process of strengthening emotional bonds to the family. Another alternative is a *delinquency-driven process*, in which youth delinquency is the instigating factor affecting both disclosure and parents' monitoring efforts. Under this scenario, the more youths engage in delinquency, the more they have to hide from their parents and, consequently, the less they tend to disclose. At the same time, delinquency might leave parents so discouraged that they give up and reduce their monitoring efforts. Finally, some parts of the disclosure- and delinquency-driven scenarios can be merged into a general *youth-driven process*, in which there might be no directional link between disclosure and delinquency, but both of these youth behaviors might affect parents' monitoring efforts in the ways described above. Thus, there are various parent- or youth-driven processes that could be revealed by longitudinal data and that carry very different implications for claims about a reinterpretation of the previous monitoring literature. Support for the parent-driven process would suggest that the traditional interpretation of the monitoring literature is correct, whereas support for any of the three other models would argue for a reinterpretation.

To our knowledge, no study to date has included longitudinal data and all of the necessary measures to examine these processes. A number of recent studies have used longitudinal data to examine the effects of parental monitoring on substance use, delinquency or antisocial behavior, smoking, gambling, and alcohol misuse (Barnes, Hoffman, Welte, Farrell, & Dintcheff, 2006; Barnes, Welte, Hoffman, & Dintcheff, 2005; Borawski, Ievers-Landis, Lovegreen, & Trapl, 2003; DiClemente et al., 2001; Eamon & Mulder, 2005; Harakeh, Scholte, Vermulst, de Vries, & Engels, 2004; Nash, McQueen, & Bray, 2005; Piko, Fitzpatrick, & Wright, 2005; Ramirez et al., 2004; Richards, Miller, O'Donnell, Wasserman, & Colder, 2004; Siebenbruner, Englund, Egeland, & Hudson, 2006; Webb, Bray, Getz, & Adams, 2002). These studies did not question how monitoring should be operationalized, however, and they used measures of parental knowledge or youth disclosure to operationalize monitoring. Similarly, reciprocal relations between knowledge and delinquency have been shown longitudinally, but with no attempt to unpack knowledge into different possible sources and examine the directional links among those sources or between them and delinquency (Laird et al., 2003). Thus, although

there have been many longitudinal studies of parental monitoring published since our reinterpretation of monitoring (Stattin & Kerr, 2000), most have not had the goal of addressing the issues raised in the reinterpretation.

Although they have not always been longitudinal and not always included all the relevant variables, a handful of recent studies have reported support for parent- or youth-driven models. One study reported support for a parent-driven model in which components of parenting style elicited disclosure and discouraged delinquency directly and through knowledge provided by disclosure (Soenens et al., 2006). The data used in the study were cross-sectional, however, and although the authors tested alternative directions of effects with structural equation modeling, they acknowledged that longitudinal data would provide a more valid test of directionality. In addition, because the study focused on parenting style rather than monitoring efforts, the parenting measures did not include solicitation. Another study found support for a parent-driven model in which parenting efforts discouraged substance use concurrently and 1 year later both directly and through their effects on knowledge (Fletcher et al., 2004). Like in the Soenens et al. (2006) study, most of the data used in the model were cross-sectional; only the Time 2 (T2) substance-use measures were longitudinal. Unlike in the Soenens and colleagues study, however, Fletcher and colleagues did not consider or try to test alternative directions of effects. Moreover, this study did not include a measure of youth disclosure. Parental warmth was used as a proxy for youth disclosure, and this can be questioned. Two other studies used longitudinal data and tested bidirectional models in which delinquency and "negative behaviors" that correlate with delinquency might affect parental monitoring efforts (control and solicitation) directly and through parents' negative emotional reactions, and these could, in turn, affect later delinquency (Kerr & Stattin, 2003; Kerr, Stattin, & Pakalniskiene, 2008). Although these studies used longitudinal data and examined directions of effects, the measures used were composites that combined control and solicitation into one measure and included disclosure together with constructs such as lying, manipulation, and off-task behavior in the measures of negative behavior. In addition, these studies did not include knowledge or look at what contributes to knowledge over time. Thus, of the handful of relevant studies in the literature, none has addressed the longitudinal questions that would help tease apart the processes linking the sources of knowledge with each other and with delinquency.

In this study, we use two waves of data from a longitudinal study to examine whether disclosure, control, and solicitation contribute to parental knowledge over time and how they are related over time to each other and to delinquency. We use structural equation modeling with both parents' and youths' reports of all measures. First, we establish that the often-found association between parental knowledge and delinquency exists in this sample, and we examine the bidirectional, longitudinal linkages between

knowledge and delinquency. Next, we ask which of three potential sources of knowledge (control, solicitation, or disclosure) is most strongly linked to parental knowledge, but we extend our earlier logic (Stattin & Kerr, 2000) by examining the predictive relations over time among all of these variables. Finally, we ask which of the three sources of knowledge is most closely linked to delinquency over time and what the directions of those relations might be. In so doing, we examine the evidence for the parent- and youth-driven hypothetical models described above. For each of these questions, we use multiple group analyses to test for moderating effects of gender and parent-child relationship quality.

METHOD

Participants

The sample included 938 adolescents (433 girls and 505 boys) and their parents participating in a longitudinal study. Adolescent participants were recruited from all 29 seventh- and eighth-grade classrooms in three schools of a small city (population 26,000) in central Sweden. Adolescents participated in the study annually on five occasions; parents participated during the first, third, and fifth waves of the study. In the present analyses, we use comparable data from parents and youths at two time points, so Time 1 (T1) and T2 in this study represent data collected 2 years apart. The target sample included students enrolled in all seventh- and eighth-grade classrooms (13- and 14-year-olds) at the first and third waves of the study ($n = 1{,}391$). The analytic sample included families in which: (1) both youths and parents participated in at least one wave of data collection, and (2) either youths or parents participated in both waves of data collection. Of these ($n = 938$), 830 parents (88.5%) and 713 youths (76.1%) completed surveys at both time points, 55 parents (6.0%) and 131 youths (17.8%) participated at T1 only, and 53 parents (5.5%) and 94 youth (10.0%) participated at T2 only. Missingness was addressed by using full information maximum likelihood estimation, which is thought to provide less biased estimates than listwise or pairwise deletion and is considered appropriate even when data are not missing completely at random (Schafer & Graham, 2002). The proportion of missing values may be calculated with a covariance ''coverage'' matrix (Muthén & Muthén, 2006). This provides an estimated proportion of available observations for each pair of variables. In this study, the coverage ranged from .74 to .96. Using the logistic regression analysis, we examined whether any of the following predicted attrition—age, ethnicity, gender, family structure, and the youth- and parent-reported measures of knowledge, delinquency, disclosure, control, and solicitation—used in the study. Significant results emerged for family structure (OR = 0.747, $p = .010$) and parent–child relationship quality (OR = 1.304, $p = .016$). Thus, adolescents in the analytic

sample were more likely than those lost to attrition to live with both biological parents and report higher quality parent–child relationships.

Participants initially ranged in age from 12 to 15 years ($M = 13.51$, $SD = .53$), with 94.0% of youths being 13 or 14 years old. At T1, 79.0% of adolescents lived in households with both biological parents, 15.2% lived with one biological parent and one stepparent (or significant other), and 5.8% lived in single-parent households. A total of 38.0% of households included one parent with some university education. Only 7.8% of the youths were born in other countries. The unemployment rate in the community at the outset of the study was similar to that in the rest of the country, as was the proportion of single-parent households. Mean incomes were about 4.0% lower than in the rest of the country.

Measures

Unless noted otherwise, all of the scales used were taken from Kerr and Stattin (2000). Also, for most of the measures both youths and parents served as reporters. Their questions were identical, except for small changes in wording to direct the question to the appropriate reporter (e.g., ''Do you . . .'' vs. ''Do your parents . . .'').

Parental control. Parents and youths answered five questions about youths being required to inform parents where they would be and whom they would be with when away from home. All items were measured on a scale ranging from 1 = *no*, *never* to 5 = *yes*, *always*. Examples of parental items are: ''Does your child have to get your permission to stay out late on a weekday evening? Does your child have to ask you before he or she can make plans to do something with friends on a *Saturday night*? If your child has been out very late one night, do you require him or her to explain what he or she did and whom he or she has been with?'' Alpha reliabilities were adequate for parent ($\alpha = .81$ at both time points) and youth ($\alpha = .79$ and .84) scales. Parent and youth measures were moderately correlated ($r = .28$ at both time points).

Parental knowledge. Parents completed nine items describing their knowledge of the youth's whereabouts, activities, and peers, and youths completed six items. Items were measured on a scale ranging from 1 = *no*, *not at all*, or *never* to 5 = *yes*, *fully*, or *almost always*. Examples of the parental items are: ''Do you know what your child does during their free time? Do you know which friends your child hangs out with during his or her free time? Do you usually know what type of homework your child has? Do you usually know when your child has an exam or paper due at school? Do you know where your child goes when he or she is out with friends at night? Do you normally know where your child goes and what he or she does after

school?'' Alpha reliabilities were adequate for parent ($\alpha = .81$ and .86) and youth ($\alpha = .85$ and .87) scales. Parent and youth measures were moderately correlated ($r = .35$ and .41 at T1 and T2, respectively).

Parental solicitation. Parents and youths completed five items describing parents' tendencies to actively seek information about their youth. Items were measured on a scale ranging from 1 = *no* or *almost never* to 5 = *very often* or *always*. Examples of the parental items are: ''During the past month, how often have you started a conversation with your child about his or her free time? How often do you talk with your child's friends when they come to your home (ask what they do, how they think and feel about different things)? How often do you initiate a conversation about things that happened during a normal day at school?'' Alpha reliabilities were adequate for parent ($\alpha = .67$ and .69) and youth ($\alpha = .70$ and .72) scales. Parent and youth measures were modestly correlated ($r = .26$ and .24 at T1 and T2, respectively).

Parent-child relationship quality. To assess the relationship quality, we used youth reports of their relationships with both their parents. The scale was created for this project, and its goal was to capture youths' feelings that their parents are a safe base. Youths answered questions about their mothers and fathers separately. All items were measured on a scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. At T1, youths responded to five items about their mothers: ''I feel like I can try new things because I know my mother supports me. I feel comfortable sharing my private thoughts and feelings with my mother. When I am angry, sad or worried, my mother can make me feel better. I know that my mother is there for me when I need her. My mother encourages me to pursue my dreams.'' Five identical items were completed describing feelings about their father. Mother and father subscales were highly correlated ($r = .58$), so subscales were averaged to provide the measure of *parent–child relationship quality.* Alpha reliability of this scale was .89.

Youth delinquency. Parents completed 12 items describing the youth's norm-breaking behaviors during the previous year. Youths completed 18 items. Parent-reported items were measured on a scale ranging from 1 = *no, it has not happened* to 3 = *yes, it has happened several times*, and youth-reported items were measured on a 5-point scale from 1 = *no, it has not happened* to 5 = *more than 10 times*. For parents and youths, the delinquent behaviors included breaking into stores or cars, hitting someone, hurting someone with a weapon, painting graffiti, shoplifting, skipping school, stealing a bike, stealing a car, stealing from someone's pocket, stealing money, threatening someone to do things, and vandalism. The additional items for youths involved threatening and forcing others, sneaking out of a café, for instance,

or onto a bus without paying, taking a car or taking things from cars, stealing from someone's pocket or bag, hurting someone so they had to be hospitalized, and hurting someone with a weapon. Alpha reliabilities were adequate for parent ($\alpha = .71$ and .77) and youth ($\alpha = .82$ and .88) scales. Parent and youth measures were moderately correlated ($r = .49$ and .36 at T1 and T2, respectively).

Youth disclosure. Parents and youths completed five-item scales describing youths' tendencies to provide unsolicited information. Items were measured on a scale ranging from 1 = *never* or *not at all* to 5 = *always* or *very much*. Examples of parent-reported items are "Does your child usually tell about how school was when he or she gets home (how he or she is doing in different subjects, relations with teachers, etc.)? Do you think that your child hides a lot about what he or she does at night and on weekends? When your child has been out in the evening, does he or she tell what he or she has done that evening?" Alpha reliabilities were adequate for parent ($\alpha = .79$ and .85) and youth ($\alpha = .72$ and .78) scales. Parent and youth measures were moderately correlated at each measurement point ($r = .37$ and .39 at T1 and T2, respectively).

Procedure

Parents were informed about the study ahead of time in community meetings, parents' meetings at the schools, and through the mail. They later received questionnaires in the mail and returned the completed surveys by mail. At both time points, roughly 70% of the surveys were completed by mothers, 15% were completed by fathers, and 15% were completed by both parents working together. Analyses of variance revealed that fathers working alone reported lower levels on all measures; however, correlational contrasts failed to reveal any statistically significant differences between concurrent associations. Students were recruited in classrooms during school hours. They were told what kinds of questions they would be asked and how long it would take to participate. Students were informed that participation was voluntary and confidential; they were assured that their answers would not be revealed to parents, teachers, the police, or anyone else. Both parents and youths were informed that they were free to end participation in the study at any time, and parents could end their youth's participation by returning a postage-paid card provided with the information at each wave. The study was approved by the university's ethics review board.

Analyses

Structural path analyses were performed to examine bidirectional associations between (a) parental knowledge and youth delinquency; (b) the three

potential sources of knowledge (parental control, parental solicitation, and youth disclosure) and parental knowledge; and (c) the three sources of parental knowledge and youth delinquency. We tested single- and cross-rater models with data from parents and youths. Single-rater models refer to models in which all measures come from a single informant (youths or parents). Cross-rater models refer to models in which some measures are from one informant and others are from the other informant. Altogether, we tested four models—two single- and two cross-rater—involving knowledge and the sources of knowledge and four models involving delinquency and the sources of knowledge. In the first single-rater model, all measures were reported by youths; in the second single-rater model, all measures were reported by parents. In the first cross-rater model for knowledge, knowledge was reported by youths and the potential sources of knowledge—control, solicitation, and disclosure—were reported by parents. In the second cross-rater model for knowledge, knowledge was reported by parents and control, solicitation, and disclosure were reported by youths. For delinquency, the same single- and cross-rater models were run. Multiple group analyses were used to examine the possible moderating effects of youth gender and parent–child relationship quality. For all analyses, we used the Huber–White covariance adjustment (MLR in Mplus 4.0; Muthén & Muthén, 2006). We used this estimation method, which gives robust estimates in the presence of nonnormality, because of the degree of skewness and kurtosis in the parent and youth reports of parental knowledge (skewness ranged from -0.66 to -0.89; kurtosis ranged from 0.43 to 1.18) and youth delinquency (skewness ranged from 3.04 to 4.66; kurtosis ranged from 13.78 to 29.25). This method adjusts the expected distribution of covariances to account for nonnormality in the distributions of the individual variables and gives less biased estimates of standard errors even with substantial deviations from normality.

RESULTS

Table 1 presents means and standard deviations of all measures used in the structural path analyses. Paired sample *t*-tests revealed significant differences ($p < .001$) in all measures over time. Parent- and youth-reported delinquency significantly increased over the 2-year interval, whereas parental control, parental knowledge, and youth disclosure decreased over time. Parent-reported parental solicitation significantly decreased over time. Whereas youth-reported parental solicitation significantly increased over time.

Bidirectional Associations Between Parental Knowledge and Youth Delinquency

Links between parental knowledge and youth delinquency are well documented (for a review, see Crouter & Head, 2002). We deemed it appropriate,

TABLE 1
Means and Standard Deviations of All Measures Used in the Structural Path Analyses

	Time 1		*Time 2*	
Measure	*M*	*SD*	*M*	*SD*
Parental control				
Parent-reported	4.28	.69	3.88	.84
Youth-reported	3.21	.86	2.91	.90
Parental knowledge				
Parent-reported	4.41	.41	4.27	.48
Youth-reported	4.11	.71	3.96	.76
Parental solicitation				
Parent-reported	3.62	.70	3.48	.71
Youth-reported	2.76	.88	2.96	.82
Youth delinquency				
Parent-reported	1.06	.11	1.11	.17
Youth-reported	1.15	.30	1.19	.44
Youth disclosure				
Parent-reported	4.13	.62	4.03	.67
Youth-reported	3.59	.78	3.41	.75

however, to establish the longitudinal links in the present data before examining the sources of knowledge and their links to delinquency. Consequently, we tested four (single- and cross-rater) autoregressive models with cross-lagged effects, looking at longitudinal relations between knowledge and delinquency. In these models, the autoregressive stability paths were all positive and statistically significant ($ps < .01$). In addition, in all four models delinquency predicted decreases in parental knowledge over time (standardized estimates from $-.084$ to $-.143$, z-scores from -3.46 to -2.31), and in three out of four models, knowledge predicted decreases in delinquency (standardized estimates from $-.090$ to $-.140$, z-scores from -2.50 to -3.55). It was only for the single-rater, youth-reported model that knowledge did not emerge as a significant predictor of changes in delinquency ($Est. = -.023$, $z = -.48$). Overall, then, according to both single- and cross-rater models of parents' and youths' reports, there are fairly robust bidirectional linkages between measures of knowledge and delinquency separated by 2 years. The question is whether knowledge should be understood as a product of parents' monitoring efforts or as a result of the youth's disclosure of information, apart from parents' monitoring efforts.

Sources of Parental Knowledge Over Time

How do parents obtain knowledge about their youth's whereabouts, activities, and peer affiliations? To address this question, we performed four

structural path models to test the relative contributions to parental knowledge of three potential sources (parental control, parental solicitation, and youth disclosure). Figure 1 presents a conceptual model of the associations between knowledge and the three potential sources of knowledge. We present results from saturated models (i.e., models containing as many parameter estimates as there are available degrees of freedom). Although we do not present them here, we also removed paths from each model that did not significantly contribute to the overall fit to the data. These analyses produced a similar pattern of significant findings, and the models demonstrated good fit to the data with comparative fit index (Bentler, 1990) and Tucker–Lewis index (Tucker & Lewis, 1973) values ranging from .98 to 1.00 (values $>.95$ suggest a good model fit; Hu & Bentler, 1999) and with root mean square error of approximation values ranging from .00 to .03 (values $<.05$ indicate a close model fit with the data; Browne & Cudeck, 1993). The slopes from the saturated models are summarized in Table 2.

Which is the most important source of parental knowledge? We consider, first, which sources of knowledge predict increases in knowledge over time. As shown in the first group of results under the heading Cross-lagged paths in Table 2, in all four models the strongest predictor of increases

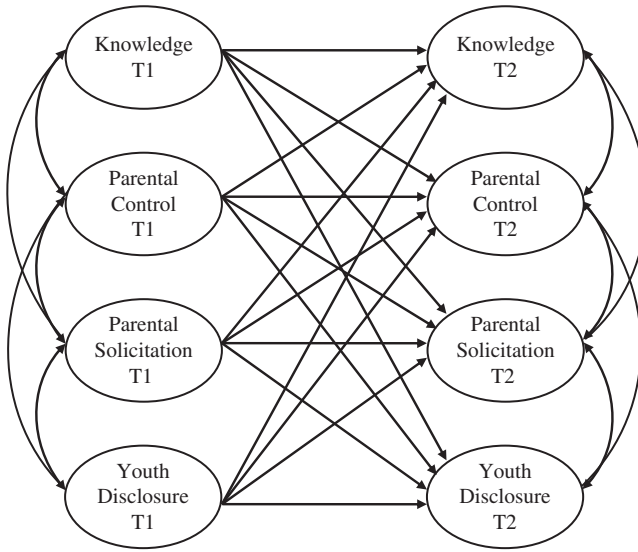

FIGURE 1 Conceptual saturated model of the relations between parental knowledge and parental control, parental solicitation, and youth disclosure at Time 1 (T1) and Time 2 (T2).

TABLE 2
Standardized Estimates of Cross-Lagged Paths in Structural Path Models of Relations Between Parent- and Youth-Reported Parental Knowledge and Three Potential Sources of Knowledge

	Single-Rater Models		*Cross-Rater Models*	
Measures	*Parent Reports*	*Youth Reports*	*Youth-Reported Knowledge*[a]	*Parent-Reported Knowledge*[b]
Autoregressive stability paths				
T1 knowledge–T2 knowledge	.469**	.329**	.410**	.566**
T1 control–T2 control	.560**	.448**	.557**	.450**
T1 solicitation–T2 solicitation	.504**	.441**	.499**	.433**
T1 disclosure–T2 disclosure	.505**	.438**	.558**	.416**
Cross-lagged paths				
Predicting changes in knowledge from sources of knowledge				
T1 disclosure–T2 knowledge	.220**	.188**	.142**	.125**
T1 control–T2 knowledge	.002	− .015	− .092**	.042
T1 solicitation–T2 knowledge	− .011	− .039	.005	− .037
Predicting changes in disclosure from monitoring efforts				
T1 control–T2 disclosure	− .029	.020	− .030	.012
T1 solicitation–T2 disclosure	.002	.026	.012	.031
Predicting changes in monitoring efforts from disclosure				
T1 disclosure–T2 control	− .022	− .010	− .021	.012
T1 disclosure–T2 solicitation	.108*	.108*	.060	.049
Cross-lagged paths from knowledge				
T1 knowledge–T2 disclosure	.127**	.002	.095**	.119**
T1 knowledge–T2 control	.051	.071	.109**	.062
T1 knowledge–T2 solicitation	− .063	− .092*	.047	.017
Cross-lagged paths between monitoring efforts				
T1 control–T2 solicitation	.070*	.046	.064	.036
T1 solicitation–T2 control	.013	.050	.015	.060

Note. T1 = Time 1; T2 = Time 2.
[a]Parent-reported sources of knowledge.
[b]Youth-reported sources of knowledge.
*$p < .05$; **$p < .01$.

in parental knowledge was youth disclosure, and in all four models, disclosure was a significant predictor. In contrast, of the eight cross-lagged slopes predicting changes in knowledge from parental monitoring efforts, only one cross-path reached significance, and it indicated that higher levels of parental control at T1 were related to decreased knowledge over time. None of the other cross-paths from monitoring efforts to knowledge approached significance. Thus, youth disclosure of information seemed to contribute to increased knowledge over time, whereas parents' monitoring efforts did not.

Do monitoring efforts elicit disclosure? We consider, next, whether parents' monitoring efforts might lie behind youth disclosure. The next group of results in Table 2 addresses this by showing cross-lagged paths from the two measures of parents' monitoring efforts to youth disclosure. As shown in the table, all of the eight cross-paths were near zero and none approached significance. Thus, these findings do not provide support for the idea that parents' monitoring efforts elicit adolescent disclosure.

Does disclosure elicit monitoring efforts? We examine, next, the cross-paths from disclosure to monitoring efforts to determine whether there is evidence that parents' monitoring efforts are influenced by the youth's willingness to provide information. As shown in the next two rows in Table 2, none of the four slopes from disclosure to control approached significance. For solicitation, however, two of the four slopes were significant. When single raters—either parents or youths—provided judgments about knowledge and the sources of knowledge, disclosure predicted increased solicitation over time. Thus, there is some evidence to support the idea that parents' monitoring efforts are influenced by the youth's openness.

Other cross-lagged paths in the models. The last two groups of results in Table 2 show cross-lagged paths in the models that we did not have any specific questions about. Here, the most salient finding is that in three out of four models, knowledge predicts increases in disclosure over time. There are no other findings that appear in more than one out of four possible models.

To summarize concerning our research questions, then, the main conclusion from these results is that disclosure is the only one of the three sources of knowledge considered that contributes to parental knowledge over time. Parental monitoring efforts do not seem to lead to increased knowledge or to increased youth disclosure. There is also evidence, albeit less robust, that youth disclosure leads to increased parental solicitation of information.

Directional Links Between Sources of Knowledge and Youth Delinquency

Turning now to our questions about delinquency, we first examine the longitudinal links between delinquency and these three sources of knowledge. To address this question, we performed four structural path models to test the bidirectional links between the three sources of parental knowledge and youth delinquency within and across raters. The results of these models are presented in Table 3. As shown in the upper part of the table, all of the autoregressive stability paths were significant and of similar magnitude. Below, we report the cross-lagged paths that address our questions about the hypothetical models. We will not discuss bidirectional relations between

solicitation and control (last two rows in Table 3) because we did not have any questions or make any predictions concerning them.

Predicting changes in disclosure and delinquency from parents' monitoring efforts. We look, first, at the cross-lagged paths predicting youth disclosure and delinquency from parental control and solicitation, which would support the parent-driven models hypothesized above. As shown in the first group of results under the heading Cross-lagged paths in Table 3, there are few paths that reached significance. Of the eight paths predicting disclosure and delinquency from monitoring efforts, only two reached significance. In both youth- and parent-reported single-rater models, higher levels of parental solicitation were linked to increases in delinquency over time. These results did not appear, however, in the cross-rater models. All together then, there is little evidence that parents' monitoring efforts influence either delinquency or disclosure for the better. In the evidence that exists, solicitation is linked to increases rather than decreases in delinquency.

Cross-lagged paths from delinquency and disclosure. Next, we examine the cross-lagged paths from delinquency and disclosure, which would support the various youth-driven models hypothesized above. As shown in the next group of results in Table 3, the robust findings are bidirectional links between delinquency and disclosure. The more delinquent youths were at T1, the less they disclosed over time; and the less youths disclosed at T1, the more delinquent they became over time. Like in the previous set of models, there are two significant cross-lagged paths in which disclosure predicts changes in solicitation over time.

So, what are the longitudinal linkages between these sources of parental knowledge and youth delinquency? These findings suggest that (a) the more delinquent youths are, the less information they will disclose to parents; (b) the less youths disclose, the more they will engage in delinquent behaviors; and (c) the more parents try to solicit information about their youth's whereabouts, activities, and friends, the more delinquency the youth will engage in. Taken together, the major support is for the youth-driven hypothetical models, but the robust findings are for relations *between* youth behaviors—disclosure and delinquency—rather than from them to parental behaviors.

Potential Moderators: Youth Gender and Parent–Child Relationship Quality

Does gender or parent–child relationship quality moderate associations between sources of knowledge, parental knowledge, and youth delinquency? To examine this question, we conducted two sets of multiple group analyses. The first set of analyses tested the differences between girls ($n = 433$) and boys ($n = 505$); the second set of analyses tested the differences between youths reporting low-quality relationships with parents (< -1 *SD*; $n = 165$)

TABLE 3
Standardized Estimates of Autoregressive and Cross-Lagged Paths in Structural Path Models of Relations Between Parent- and Youth-Reported Youth Delinquency and the Three Potential Sources of Knowledge

	Single-Rater Models		*Cross-Rater Models*	
	Parent Reports	*Youth Reports*	*Youth-Reported Delinquency*[a]	*Parent-Reported Delinquency*[b]
Autoregressive stability paths				
T1 delinquency–T2 delinquency	.532**	.577**	.588**	.535**
T1 parental control–T2 parental control	.565**	.452**	.561**	.454**
T1 parental solicitation–T2 parental solicitation	.496**	.429**	.496**	.434**
T1 youth disclosure–T2 youth disclosure	.539**	.427**	.562**	.423**
Cross-lagged paths				
Predicting changes in delinquency and disclosure from monitoring efforts				
T1 control–T2 delinquency	−.003	.006	.053	−.051
T1 control–T2 disclosure	−.028	.017	−.032	.017
T1 solicitation–T2 delinquency	.105**	.087**	.007	.026
T1 solicitation–T2 disclosure	.023	.033	.019	.042
Cross-lagged paths from delinquency and disclosure				
T1 delinquency–T2 control	.012	−.040	−.032	−.059
T1 delinquency–T2 solicitation	.029	.018	.012	−.020
T1 delinquency–T2 disclosure	−.112**	−.104**	−.086**	−.111**
T1 disclosure–T2 control	.017	.020	.000	.017
T1 disclosure–T2 solicitation	.089*	.063	.081*	.050
T1 disclosure–T2 delinquency	−.103**	−.080**	−.081*	−.124**
Cross-lagged paths between monitoring efforts				
T1 solicitation–T2 control	.013	.064	.018	.064
T1 control–T2 solicitation	.068	.040	.068	.037

Note. T1 = Time 1; T2 = Time 2.
[a]Parent-reported sources.
[b]Youth-reported sources.
*$p < .05$; **$p < .01$.

and those reporting average or high-quality parent–child relationships (> -1 *SD*, $n = 773$). Analyses were performed on each of the previously described models. Tests of moderation were performed by individually constraining paths in each model to be invariant between groups. A significant χ^2 difference, when we use the correction suggested by Satorra and Bentler (2001), between constrained and unconstrained models indicates a statistically significant difference between groups. We only report statisti-

cally significant differences of cross-lagged paths involving either parental knowledge or youth delinquency.

Youth Gender as a Moderator

We tested for gender differences in the single- and cross-rater models reported above: (a) knowledge and delinquency; (b) knowledge, disclosure, and monitoring efforts (as reported in Table 2); and (c) delinquency, disclosure, and monitoring efforts (as reported in Table 3).

Knowledge and delinquency. In the four models combining knowledge with delinquency, eight cross-paths were tested for moderating effects of gender, and only one differed significantly between boys and girls. In the cross-rater model with youth-reported delinquency, the path from delinquency to knowledge differed for boys and girls, $\Delta\chi^2(1) = 5.09$, $p = .024$. Delinquency significantly predicted decreases in knowledge for girls ($Est. = -.172$, $z = -2.42$) but not for boys ($Est. = -.052$, $z = -1.28$). Because no gender differences emerged for this path in the other three models, however, this finding should be interpreted with caution.

Knowledge, disclosure, and monitoring efforts. Concerning moderating effects of gender in the models combining knowledge with disclosure and monitoring efforts, 24 cross-paths were tested and only two differed significantly as a function of gender. For the cross-rater model with parent-reported knowledge, the path from knowledge to disclosure differed for boys and girls, $\Delta\chi^2(1) = 4.89$, $p = .027$. Knowledge predicted increases in disclosure for girls ($Est. = .174$, $z = 3.45$), but not for boys ($Est. = .051$, $z = 1.00$). For the cross-rater model with youth-reported knowledge, the path from parental solicitation to knowledge differed for boys and girls, $\Delta\chi^2(1) = 4.80$, $p = .029$. This path was marginally significant for girls ($Est. = .087$, $z = 1.90$), suggesting that parental solicitation predicted increases in knowledge, but was nonsignificant for boys ($Est. = -.052$, $z = -1.17$). Because no gender differences emerged for this path in the other three models, however, this finding should be interpreted with caution.

Delinquency, disclosure, and monitoring efforts. Concerning moderating effects of gender in the models comparing delinquency with disclosure and monitoring efforts, 24 paths were tested and four revealed significant gender differences. Three of these paths involved links from delinquency to parental control, and in all three, girls' delinquency led to decreases in parental control, whereas boys' delinquency did not. For the single-rater, parent-reported model, the gender difference, $\Delta\chi^2(1) = 7.59$, $p = .006$, involved a marginally significant, negative path for girls ($Est. = -.082$, $z = -1.87$) and a marginally

significant, positive path for boys (*Est.* = .077, $z = 1.89$). For the single-rater, youth-reported model and the cross-rater model with parent-reported knowledge, the gender differences, $\Delta\chi^2(1) = 7.20$, $p = .007$ and $\Delta\chi^2(1) = 11.56$, $p = .001$ for the two models, respectively, involved significant paths for girls (*Est.* = −.143, $z = -3.51$ and *Est.* = −.113, $z = -2.65$ for the single- and cross-rater models, respectively), but not for boys (*Est.* = −.009, $z = -.17$ and *Est.* = .020, $z = .57$ for the single- and cross-rater models, respectively). Thus, the pattern over three out of four models was that girls' delinquency predicted decreases in parental control, but boys' delinquency did not. The fourth significant gender difference was for the single-rater, youth-reported model. A gender difference in the path from disclosure to delinquency, $\Delta\chi^2(1) = 5.35$, $p = .021$, involved a significant link for boys (*Est.* = −.124, $z = -2.85$), but not for girls (*Est.* = −.092, $z = -1.15$). So, of the 24 paths tested, four revealed significant gender differences. Three of these paths involved links from delinquency to parental control. In all three, the path was significantly higher for girls than for boys. The fourth path moderated by gender, from youth-reported disclosure to youth-reported delinquency, was significant for boys but not for girls.

Taken together, these findings provide little evidence for youth gender as a moderator of the longitudinal associations tested in this study, with one exception. Delinquency predicted decreased parental control for girls, but not for boys. Aside from this link, our conclusion is that our results may be generalized to boys and girls.

Parent–Child Relationship Quality as a Moderator

Knowledge and delinquency. Eight paths were tested for moderating effects of relationship quality in the models with knowledge and delinquency, and none showed significant effects.

Knowledge, disclosure, and monitoring efforts. Twenty-four paths were tested for moderating effects of relationship quality in the models predicting knowledge from disclosure, control, and solicitation. Only one significant difference between the relationship quality groups emerged. For the single-rater, parent-reported model, equality constraints revealed a significant difference in the path from disclosure to parental knowledge, $\Delta\chi^2(1) = 5.21$, $p = .023$. Disclosure predicted knowledge more strongly for those in the low-quality relationship group (*Est.* = .383, $z = 4.02$) than for those in the average and high-quality relationship group (*Est.* = .163, $z = 3.56$). This one significant difference of the 24 paths tested, however, does not exceed the level expected by chance.

Delinquency, disclosure, and monitoring efforts. Twenty-four paths were tested in the models predicting delinquency from disclosure, control,

and solicitation, and none showed significant moderation effects for parent–child relationship quality.

Taken together, these findings provide little evidence for parent–child relationship quality as a moderator of the longitudinal associations tested in this study. Our conclusion is that the results we have presented may be generalized to families with parent–child relationships of varying quality.

DISCUSSION

Some of the most robust findings in the literature on adolescent problem behavior are those linking parental monitoring with lower levels of delinquency, substance use, deviant peer association, and other problems. Several years ago, we argued that the most commonly used operationalization of parental monitoring—parents' knowledge of youths' daily activities—is not a valid measure of parents' monitoring efforts (Kerr & Stattin, 2000; Stattin & Kerr, 2000). Our argument was supported by cross-sectional data showing relatively low correlations between knowledge and measures of parental monitoring efforts and strong correlations between knowledge and youth disclosure of information. Since then, no study has looked at the issue longitudinally to determine whether disclosure contributes to knowledge over time or whether parents' monitoring efforts might elicit disclosure. Using longitudinal data on 12- to 15-year-olds followed over 2 years, we show in this study that what parents know is more a function of what youths tell them than what they try to find out by monitoring. There is little in these results to suggest that monitoring efforts provide parents with knowledge or act protectively to reduce delinquency. Furthermore, monitoring efforts do not seem to elicit youth disclosure. These results are similar for boys and girls and for the minority with poor parent–child relationships as well as the majority with average and good relationships. In short, these results are consistent with a view that the conclusions should be reconsidered from monitoring studies using knowledge as the operationalization of monitoring.

We do not know exactly how many of the more than 300 parental monitoring studies in the literature have operationalized monitoring with measures of knowledge, but our impression is that it is a large majority. The question is why there are not more studies that have tried to measure parents' active monitoring efforts directly, rather than relying on measures of the presumed end product of monitoring—knowledge. One speculation has to do with the fact that null findings are not readily accepted for publication (see, e.g., Rosenthal, 1979). In Rosenthal's explication of the "file drawer problem," part of what he pointed out was that null findings more often end up in file drawers than in journals. If measures of parents' active monitoring efforts that others might have tried have been as unrelated to delinquency as those reported in this study, they are likely to have ended up in file drawers.

In short, one possible reason why there are few studies in the literature using measures of parents' active monitoring efforts might be because those measures were not significantly related to adolescent problem behavior and, as a consequence, did not become part of the literature.

One critical question is whether the measures of parents' monitoring efforts used in this study adequately capture the activities parents could engage in to monitor their adolescents' whereabouts and associations. We argued in our earlier studies (Kerr & Stattin, 2000; Stattin & Kerr, 2000) that these measures capture the primary actions parents would take to monitor their youth's whereabouts: requiring the youth to inform them before leaving home where they will be and with whom, asking the youth about their activities, and talking to the youth's friends and friends' parents. In recent studies, however, scholars have considered other ways parents could get information, such as receiving it from a spouse (Crouter et al., 2005), spending time with the youth, or soliciting information from others who come in contact with the youth, such as teachers (Waizenhofer et al., 2004). Concerning receiving information from a spouse, it is difficult to think of this as a way for *parents* to get knowledge as one parent already had the information. As such, it cannot be thought of as a parental monitoring strategy. Spending time in direct contact with the youth is a good way for parents to know what their youth is doing, but we question whether it should be considered a *monitoring* strategy. Monitoring is generally conceptualized as keeping track of youths' activities and associations when they are away from home where parents cannot supervise them directly, whereas spending time together involves direct supervision. Concerning solicitation of information from people in the youth's network other than friends and friends' parents, this does represent a monitoring strategy that is not present in our measures. Parents could, for instance, solicit information from the youth's siblings or from neighbors. It is difficult to imagine that these additional targets of solicitation efforts, if added to the measure that exists, could change the results substantially, but this remains an open question. In all, few suggestions have been made that offer additional parental monitoring strategies other than those represented in the control and solicitation measures used in this study. These measures might not capture all possible parental monitoring strategies, but they seem to capture the predominant monitoring strategies.

None of the hypothetical processes we suggested when introducing this study was clearly supported by the results. The strong longitudinal links in the models were between disclosure and delinquency, but neither of these was robustly linked to changes in parents' monitoring efforts. There were some connections, however. Disclosure predicted increased solicitation in some of the models, and girls' delinquency predicted less parental control over time in three out of four models. Thus, if any hypothetical process was supported, it was the youth-driven process, but the support was spotty. Notably, there was no support for the parent-driven processes we described,

in which parents' monitoring efforts might either elicit disclosure, which might, in turn, reduce delinquency, or reduce delinquency directly. There were significant cross-paths for solicitation in some of the models, but solicitation predicted more delinquency over time rather than less, and it seemed to be a response to disclosure rather than an instigator. These results clearly contradict the ideas outlined in our parent-driven process and the conclusions in the monitoring literature that parents' monitoring efforts act protectively to keep youths from engaging in delinquency. Thus, although none of our hypothesized models was supported in full, the model describing a youth-driven process received more support than any other.

One result that is difficult to explain is the link from disclosure to changes in delinquency. It is easy to understand the link from delinquency to disclosure—that as youths become increasingly involved in delinquent activities they have more to hide about their daily activities and become less forthcoming with information. It is more difficult to imagine how the act of disclosing or not disclosing about one's daily activities would affect one's willingness to engage in delinquency in the future. One explanation is that disclosure does not play a direct role, but disclosure or nondisclosure is a marker for engagement with conventional or deviant peers, and it is peer socialization that plays the causal role in delinquency development (see, e.g., Dishion, McCord, & Poulin, 1999). Assuming, however, that disclosure does play a direct role in delinquency development, another explanation is that it strengthens emotional bonds to the family (see Collins & Miller, 1994), and emotional bonds keep youths from engaging in delinquency as described by Hirschi (1969). According to Hirschi, strong emotional bonds create a situation in which parents are psychologically present with the youth when he or she is tempted to engage in delinquent acts, meaning that the youth will think about his or her parents and how disappointed or embarrassed they would be if they found out about the misconduct. If this were the explanation, however, we would expect parent–youth relationship quality to emerge as an important moderator, and it did not. Thus, there are many questions to be answered, but this provocative finding suggests that new theoretical ideas might be needed, or old ideas might be revisited, to explain the role of parents in the development of delinquency.

Two other results that are difficult to explain are the cross-lagged slopes from parental knowledge to youth disclosure and from parental knowledge to delinquency. Concerning the knowledge-to-disclosure link, we expected that disclosure would predict increased knowledge over time, as it did, but knowledge also predicted increased disclosure over time. Because little is known about what knowledge represents apart from its high correlation with disclosure, this link is currently uninterpretable. Concerning the knowledge-to-delinquency link, our bidirectional findings are similar to those reported by others (i.e., Laird et al., 2003). For us, it is understandable that delinquency predicts changes in knowledge; youths who are delinquent

probably keep their parents from knowing what they are doing, and those who are not delinquent probably make no efforts to hide their daily activities. The link from knowledge to delinquency is less easy to understand without assuming some process involving parental monitoring or control. Laird et al. (2003) interpreted this link as a protective effect of parenting efforts, which is consistent with the large literature in which knowledge has been used as a measure of monitoring. This interpretation would make sense if knowledge could be seen as a consequence of parents' efforts to monitor or control their youths' activities and associations, but the evidence suggests that it cannot. To the extent that knowledge represents youth disclosure, this link might appear because youths who have nothing to hide and thus disclose a lot remain low on delinquency while other youths increase in delinquency during adolescence. What is clear is that knowledge does not represent parental monitoring or control efforts. Thus, these links must be interpreted without resting on that interpretation of knowledge.

The present study contributes to a small group of studies to revisit Stattin and Kerr's (2000) questioning of knowledge as a valid measure of parents' active monitoring efforts (e.g., Crouter et al., 2005; Fletcher et al., 2004; Soenens et al., 2006; Waizenhofer et al., 2004). All of these previous studies used cross-sectional data for knowledge and the sources of knowledge, but they each have contributed new perspectives. Crouter et al. (2005) revealed that mothers and fathers can sometimes rely on different sources for knowledge, although overall, both parents' knowledge seemed to originate with youth disclosure (to themselves or the other parent). Two other studies revealed that a complete understanding of knowledge will involve nonmonitoring parenting behaviors such as warmth and psychological control, which might encourage or discourage disclosure (Fletcher et al., 2004; Soenens et al., 2006). Waizenhofer and colleagues found that active strategies (including solicitation) were more highly correlated with knowledge than passive strategies (including youth disclosure). This sounds contradictory to the present findings, but active strategies included spending time in activities *with* the youth, which is not the same as tracking youths' activities away from home. In addition, the importance of time spent together was probably inflated in the sample, because the youths were recruited from organized sports programs in advantaged suburban areas. Their lives, according to the authors, were highly structured by demanding practice and competition schedules, and most of the mothers were not employed outside of the home, so they might have accompanied youths to practices and competitions. Previous studies (Kerr & Stattin, 2000; Stattin & Kerr, 2000) have revealed links between knowledge and delinquency that were not explained by monitoring efforts or youth disclosure, and one speculation was that there is a subgroup of youths who spend most of their time at home or with their parents, which would make the parents perfectly knowledgeable about the youth's whereabouts and would make delinquency highly unlikely. These are the issues to

be teased apart with measures that do not combine monitoring strategies with time spent together.

Some limitations and strengths of the present study should be mentioned. A potential limitation is that we have studied linear relationships without considering that there might be different configurations in different families. For example, monitoring of youths who do not disclose much about their activities might be very different from the same level of monitoring of youths who willingly disclose much. Person-oriented analyses of these issues might reveal important differences between families. One aspect of the study that might have affected the number of significant links in our models was the 2-year interval between measurements. With shorter intervals, more significant links might have appeared. On the other hand, when significant cross-paths appear over an interval of 2 years, and when they are the same for single-rater models from two separate raters as for cross-rater models, and when they are the same for boys and girls and for youths with poor relationships with their parents as well as for those with good relationships, we have confidence that the results represent robust phenomena. The sample was not ethnically diverse or from an urban area, and this can be seen as a limitation to generalizability. To some extent, however, the community sample and high participation rates argue for the generalizability of the results, as do the lack of moderation effects. Ideally, the findings should be replicated in samples that are more diverse in terms of age, ethnicity, and type of living environment.

How should these findings be reconciled with intervention studies that have reported effective monitoring interventions? There are many well-known prevention and intervention programs that target parents, and most have modules on monitoring (e.g., Forgatch & Martinez, 1999; Huey, Henggeler, Brondino, & Pickrel, 2000; McCord, Tremblay, Vitaro, & Desmarais-Gervais, 1994). Furthermore, a number of studies using randomized, controlled trials have specifically reported success of monitoring interventions (e.g., Dishion, Nelson, & Kavanagh, 2003; Stanton et al., 2000) and others are widely thought to have demonstrated monitoring effects, even though the authors themselves did not make that claim (Chamberlain & Reid, 1998; Eddy & Chamberlain, 2000). In general, randomized, controlled trials are powerful for demonstrating causal effects because they are based on experimental methodology. Family interventions, however, are typically multicomponent programs, with a monitoring module being one of several, and our reading of the monitoring interventions mentioned above is that more than monitoring was manipulated in those studies as well. Until studies appear in the literature that specifically manipulate parental monitoring while holding other factors constant, we believe it is too soon to draw any conclusions about whether monitoring interventions are effective.

Does this mean that parents play no important role in steering their youths away from deviant peers and problem behavior? We would not draw that

conclusion. The evidence seems clear, however, that parental knowledge and youth disclosure measures are not good operationalizations of parental monitoring, and based on this, one must conclude that the majority of monitoring studies in the literature have not actually examined parental monitoring. This should not be mistaken for a claim that parents are unimportant. Parental knowledge and youth disclosure are robustly linked to delinquency and other forms of internal and external adjustment. There must be mechanisms not yet considered or tested that explain the role of parents and that suggest what they might best do to guide their children through adolescence into adulthood.

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REFERENCES

Barnes, G. M., Hoffman, J. H., Welte, J. W., Farrell, M. P., & Dintcheff, B. A. (2006). Effects of parental monitoring and peer deviance on substance use and delinquency. *Journal of Marriage and Family, 68*, 1084–1104.

Barnes, G. M., Welte, J. W., Hoffman, J. H., & Dintcheff, B. A. (2005). Shared predictors of youthful gambling, substance use, and delinquency. *Psychology of Addictive Behaviors*, *19*, 165–174.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*, 238–246.

Borawski, E. A., Ievers-Landis, C. E., Lovegreen, L. D., & Trapl, E. S. (2003). Parental monitoring, negotiated unsupervised time, and parental trust: The role of perceived parenting practices in adolescent health risk behaviors. *Journal of Adolescent Health*, *33*, 60–70.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136–162). Beverly Hills, CA: Sage.

Chamberlain, P., & Reid, J. B. (1998). Comparison of two community alternatives to incarceration for chronic juvenile offenders. *Journal of Consulting and Clinical Psychology, 66*, 624–663.

Collins, N. L., & Miller, L. C. (1994). Self-disclosure and liking: A meta-analytic review. *Psychological Bulletin*, *116*, 457–475.

Crouter, A. C., Bumpus, M. F., Davis, K. D., & McHale, S. M. (2005). How do parents learn about adolescents' experiences? Implications for parental knowledge and adolescent risky behavior. *Child Development*, *76*, 869–882.

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

DiClemente, R. J., Wingood, G. M., Crosby, R., Sionean, C., Cobb, B. K., Harrington, K., et al. (2001). Parental monitoring: Association with adolescents' risk behaviors. *Pediatrics*, *107*, 1363–1368.

Dishion, T. J., McCord, J., & Poulin, F. (1999). When interventions harm: Peer groups and problem behavior. *American Psychologist*, *54*, 755–764.

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

Dishion, T. J., Nelson, S. E., & Bullock, B. M. (2004). Premature adolescent autonomy: Parent disengagement and deviant peer process in the amplification of problem behaviour. *Journal of Adolescence*, *27*, 515–530.

Dishion, T. J., Nelson, S. E., & Kavanagh, K. (2003). The family check-up with high-risk young adolescents: Preventing early-onset substance use by parent monitoring. *Behavior Therapy*, *34*, 553–571.

Eamon, M. K., & Mulder, C. (2005). Predicting antisocial behavior among Latino young adolescents: An ecological systems analysis. *American Journal of Orthopsychiatry*, *75*, 117–127.

Eddy, J. M., & Chamberlain, P. (2000). Family management and deviant peer association as mediators of the impact of treatment condition on youth antisocial behavior. *Journal of Consulting and Clinical Psychology*, *68*, 857–863.

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

Forgatch, M. S., & Martinez, C. R. (1999). Parent management training: A program linking basic research and practical application. *Tidsskrift for Norsk Psykologforening*, *36*, 923–937.

Harakeh, Z., Scholte, R. H. J., Vermulst, A. A., de Vries, H., & Engels, R. C. M. E. (2004). Parental factors and adolescents' smoking behavior: An extension of the theory of planned behavior. *Preventive Medicine*, *39*, 951–961.

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

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

Huey, S. J., Henggeler, S. W., Brondino, M. J., & Pickrel, S. G. (2000). Mechanisms of change in multisystemic therapy: Reducing delinquent behavior through therapist adherence and improved family and peer functioning. *Journal of Consulting and Clinical Psychology*, *68*, 451–467.

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

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

Kerr, M., Stattin, H., & Pakalniskiene, V. (2008). Parents react to adolescent problem behaviors by worrying more and monitoring less. In M. Kerr, H. Stattin, & R. C. M. E. Engels (Eds.), *What can parents do? New insights into the role of parents in adolescent problem behaviors* (pp. 91–112). London: Wiley.

Laird, R. D., Pettit, G. S., Bates, J. E., & Dodge, K. A. (2003). Parents' monitoring-relevant knowledge and adolescents' delinquent behavior: Evidence of correlated developmental changes and reciprocal influences. *Child Development*, *74*, 752–768.

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

McCord, J., Tremblay, R. E., Vitaro, F., & Desmarais-Gervais, L. (1994). Boys' disruptive behaviour, school adjustment, and delinquency: The Montreal prevention experiment. *International Journal of Behavioral Development*, *17*, 739–752.

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

Nash, S. G., McQueen, A., & Bray, J. H. (2005). Pathways to adolescent alcohol use: Family environment, peer influence, and parental expectations. *Journal of Adolescent Health*, *37*, 19–28.

Piko, B. F., Fitzpatrick, K. M., & Wright, D. R. (2005). A risk and protective factors framework for understanding youth's externalizing problem behavior in two different cultural settings. *European Child and Adolescent Psychiatry, 14*, 65–103.

Ramirez, J. R., Crano, W. D., Quist, R., Burgoon, M., Alvaro, E. M., & Grandpre, J. (2004). Acculturation, familism, parental monitoring, and knowledge as predictors of marijuana and inhalant use in adolescents. *Psychology of Addictive Behaviors*, *18*, 3–11.

Richards, M. H., Miller, B. V., O'Donnell, P. C., Wasserman, M. S., & Colder, C. (2004). Parental monitoring mediates the effects of age and sex on problem behaviors among African American urban young adolescents. *Journal of Youth and Adolescence*, *33*, 221–233.

Rosenthal, R. (1979). The ''file drawer problem'' and tolerance for null results. *Psychological Bulletin*, *86*, 638–641.

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

Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods*, *7*, 147–177.

Siebenbruner, J., Englund, M. M., Egeland, B., & Hudson, K. (2006). Developmental antecedents of late adolescence substance use patterns. *Development and Psychopathology, 18*, 551–571.

Soenens, B., Vansteenkiste, M., Luyckx, K., & Goossens, L. (2006). Parenting and adolescent problem behavior: An integrated model with adolescent self-disclosure and perceived parental knowledge as intervening variables. *Developmental Psychology, 42*, 305–318.

Stanton, B. R., Li, X., Galbraith, J., Cornick, G., Feigelman, S., Kaljee, L., et al. (2000). Parental underestimates of adolescent risk behavior: A randomized, controlled trial of a parental monitoring intervention. *Journal of Adolescent Health*, *26*, 18–26.

Stattin, H., & Kerr, M. (2000). Parental monitoring: A reinterpretation. *Child Development*, *71*, 1072–1085.

Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika*, *38*, 1–10.

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

Webb, J. A., Bray, J. H., Getz, J. G., & Adams, G. (2002). Gender, perceived parental monitoring, and behavioral adjustment: Influences on adolescent alcohol use. *American Journal of Orthopsychiatry, 72*, 392–400.