
Maternal Knowledge and Maternal Behavior Control as Predictors of Preadolescent Behavioral Competence

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Abstract

The present article examined relationships between maternal knowledge, maternal behavior control, and preadolescent behavioral competence over time. Four years of self-report data were collected from 133 mothers and their preadolescents, beginning when the preadolescents were in 4th grade. Knowledge, behavior control, and behavioral competence were assessed at all 4 time points. The results for preadolescent-reported variables suggested that maternal knowledge and preadolescent behavioral competence were reciprocally related, but maternal behavior control and preadolescent behavioral competence were not significantly related. Mother-reported maternal knowledge and behavior control were generally not associated with mother-reported preadolescent behavioral competence. Thus, the present study identified a longitudinal, reciprocal association between knowledge and preadolescent behavioral competence, for preadolescent reports of these variables.

Keywords

maternal knowledge; preadolescence; behavior control; adolescent competence; adolescent behavior

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In this study, we examined maternal knowledge and behavior control as predictors of preadolescents' behavioral competence across the transition to adolescence. Parental knowledge refers to parents' awareness of their preadolescents' behaviors, acquaintances, and whereabouts (Crouter & Head, 2002; see also Fletcher, Steinberg, & Williams-Wheeler, 2004; Kerr & Stattin, 2000; Soenens, Vansteenkiste, Luyckx, & Goossens, 2006). In contrast, behavior control refers to parents' attempts to monitor and guide preadolescents through parenting behaviors such as firmness, limit-setting, and follow-through (Barber, Olsen, & Shagle, 1994; Soenens et al., 2006). Finally, behavioral competence involves the ability to regulate oneself in situations in which appropriate behavior is expected (Crouter, MacDermid, McHale, & Perry-Jenkins, 1990; Harter, 1985).

We focused on behavioral competence as our outcome variable for two reasons. First, the development and consolidation of competence in different domains (e.g., behavioral, academic, social) has been theorized as a critical developmental task during adolescence (Clausen, 1991). Adolescents who lack competence in core areas not only struggle during adolescence but also find that their life choices at the transition to adulthood (e.g., with regard to education and occupation) are severely circumscribed (Clausen, 1991). Therefore, we feel that it is important to assess factors which promote competence during adolescence. Second, we focused on behavioral competence rather than externalizing problems such as delinquency because variation in this form of competence may be just as important to consider as variation in problem behavior yet has been relatively neglected in the literature. Park (2004) noted that researchers cannot assume that individuals are doing well just because they do not exhibit elevated symptoms. Furthermore, there can be important variation in well-being even in the absence of pathology (Cummings, Davies, & Campbell, 2000; Sroufe & Rutter, 1984; van Dulman & Ong, 2006). This may be especially the case when normative, nonreferred samples are considered.

Although competence is likely to be predicted by multiple individual and environmental factors, Clausen (1991) theorized that parenting is an important contributor to its development. We suggest that a history of attentive parenting, characterized by age-appropriate support and guidance, may be critical for the development of behavioral competence. In accordance with this view, Baumrind (1991) reported that adolescents with authoritative parents had better self-regulation than adolescents with authoritarian, indulgent, or neglectful parents. Lamborn, Mounts, Steinberg, and Dornbusch (1991) also reported that adolescents with authoritative parents scored high on psychosocial competence and low on behavioral problems. Furthermore, these differences in adjustment persisted over time (Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994).

Current research has generally moved away from assessing the impact of parenting style to examining relationships among dimensions of parenting and adolescent outcomes. Most relevant to the present study, recent studies have focused on the relative contributions of parental knowledge and control to the prediction of adolescent behavioral adjustment (Fletcher et al., 2004; Kerr & Stattin, 2000; Laird, Pettit, Bates, & Dodge, 2003; Soenens et al., 2006; Stattin & Kerr, 2000). This body of literature has yielded somewhat inconsistent findings. For instance, cross-sectional studies of Swedish high school students have indicated that higher scores on measures of parental knowledge were associated with lower reports of externalizing behaviors and fewer delinquent friends, although parental control was a relatively poor predictor of such outcomes (Kerr & Stattin, 2000; Stattin & Kerr, 2000). In fact, Kerr and Stattin (2000) found that parental knowledge was more strongly related than control to a variety of indicators of adolescent adjustment and thus recommended that parents should use strategies other than behavior control to maintain high levels of knowledge. These authors suggested that parents' knowledge may reflect the affective qualities of the parent-adolescent relationship and that parents should try to develop family climates which promote more parent-adolescent communication and positive relationships (Kerr & Stattin, 2000; Stattin & Kerr, 2000; see also Darling & Steinberg, 1993). They concluded that parents' efforts to control their adolescents' behaviors and activities caused the adolescents to *feel* controlled, which resulted in poor adjustment (Kerr & Stattin, 2000; Stattin & Kerr, 2000).

In contrast, a cross-sectional study of Belgian students aged 15 to 21 revealed that *both* knowledge and behavior control were negatively associated with students' delinquency and substance use, although the associations were more consistent and robust for knowledge than for control (Soenens et al., 2006). In another example, longitudinal data collected from American high school students revealed that both parental knowledge and control were negatively associated with delinquency and drug use, both concurrently and over time (Fletcher et al., 2004). In fact, Fletcher et al. (2004) reported that parental behavior control was both directly and indirectly (through parental knowledge) associated with adolescent adjustment. However, the correlations between control and adjustment were not as strong as those between knowledge and adjustment. Therefore, parental control may be an important determinant of adolescent behavioral adjustment, although not as important as parental knowledge. Soenens et al. (2006) hypothesized that the relationship between control and adjustment was likely the result of attempts to provide structure for the adolescent's behaviors. Fletcher et al. (2004) hypothesized that greater behavior control would enhance parental knowledge through the

establishment of clear expectations and structure for behavior, thus resulting in greater behavioral adjustment. In addition, these clear expectations and structure for behavior would be expected to lead directly to greater behavioral adjustment.

In one example of research which has emphasized positive outcomes, Crouter et al. (1990) examined contemporaneous associations between parental knowledge and preadolescents' competence among a sample of 9- to 12-year-olds. Most relevant to the present study, these authors found that greater parental knowledge was associated with higher scores on the behavior conduct competence subscale of the Self-Perception Profile for Children (SPPC; Harter, 1985). Thus, more knowledgeable parents were more likely to have preadolescents who reported that they behaved well, did not get into trouble, and generally did the right things. There may, in fact, be reciprocal relationships among these constructs, such that parents of competent preadolescents tend to be more knowledgeable, and children whose parents are more knowledgeable tend to be more competent (Crouter et al., 1990). Perhaps, competent adolescents feel more comfortable sharing their experiences with their parents thereby making their parents more knowledgeable. Moreover, adolescents who perceive their parents to be more knowledgeable may feel competent because their parents make efforts to stay involved and maintain a high level of knowledge, leading to a greater sense of adolescent self-worth.

One potential explanation for the differences in findings is that there has been variation in the ways that researchers have measured behavior control. Some authors have included parental actions intended to promote parental knowledge (including parental supervision and monitoring behaviors) as part of their behavior control scale (e.g., Soenens et al., 2006). Others have conceptualized behavior control as the extent to which adolescents reported shared decision making with parents (e.g., Fletcher et al., 2004). Those authors who included monitoring-type items or measures of family democracy have found connections between behavior control and adolescent outcomes (e.g., Fletcher et al., 2004; Soenens et al., 2006), whereas those studies which included only measures of firmness and limit-setting generally did not find such associations (e.g., Kerr & Stattin, 2000; Stattin & Kerr, 2000). It is important for authors to be clear about what type of control they are measuring or what dimensions of control they are including in their measures, so that results can be compared more clearly. In the present study, our intention was to measure control as firmness and limit-setting, rather than as monitoring or democracy in decision making.

Furthermore, most of the recent work in the area has either been cross-sectional (Kerr & Stattin, 2000; Soenens et al., 2006; Stattin & Kerr, 2000) or has presented only two waves of data with longitudinal measures of only the outcome (Fletcher et al., 2004). The cross-sectional studies to date have presented an interesting pattern of associations among knowledge, behavior control, and behavioral adjustment. However, because of the cross-sectional nature of the data, there is no way to examine the direction of effects among these variables. There may be reciprocal effects among these variables which can only be accurately assessed using a longitudinal design. Only one study to date, to our knowledge, has used a rigorous longitudinal design to assess reciprocal associations among knowledge and other variables (Laird et al., 2003). These authors used a cross-lagged panel design to assess longitudinal, reciprocal associations between knowledge and adolescent delinquency in a sample of 9th- through 12th-grade students. In this study, greater knowledge was associated with less subsequent delinquency, and less delinquency was associated with greater subsequent knowledge. The findings from this study indicated that there are likely reciprocal effects among the variables of interest in the present study, although Laird and colleagues (2003) assessed an older sample than the one in the present study.

Most of the prior studies in this area have focused on older, high school (Fletcher et al., 2004; Laird et al., 2003) or college-aged adolescents (Soenens et al., 2006). Relatively few studies in this area have focused on younger adolescents. In one exception, Crouter et al. (1990) examined a sample of preadolescents aged 9 to 12 years and found cross-sectional reciprocal relationships between parental knowledge and preadolescent behavioral competence. However, Crouter et al. (1990) did not examine behavioral control. We believe that the lack of research involving younger samples is an important limitation because of the reorganizations in family structure and the parent-child relationship that take place during the transition to adolescence, which are likely to affect maternal knowledge. For instance, during this period there are increases in behavioral autonomy and greater mutuality in authority relationships (Collins, Madsen, & Susman-Stillman, 2002; Holmbeck, Paikoff, & Brooks-Gunn, 1995). Adolescents also begin to spend more time away from their parents and become more involved in extracurricular activities.

The inconsistencies revealed by prior research examining associations among parental knowledge, control, and adolescent outcomes are intriguing. Although the samples in several studies are similar (e.g., large, non-clinical community samples), differing results have been reported. Clearly, additional work is needed to further understand associations among these constructs.

Summary and the Present Study

Recent studies based on large community samples have indicated that knowledge is a consistent predictor of adolescent problem behavior. In contrast, the findings for parental behavior control have been less consistent, suggesting that additional replication of findings is important. Furthermore, longitudinal research is needed, as is research focused on younger adolescents. Finally, additional research focused on adolescent behavioral competence, rather than only behavioral problems, is needed.

In the present study, we examined longitudinal relationships among maternal knowledge, maternal behavior control, and preadolescent behavioral competence during the transition to adolescence. Specifically, we assessed whether knowledge and behavior control were predictors of change in behavioral competence from 4th to 7th grade. We examined the simultaneous contributions of knowledge and behavior control to behavioral competence, and also the separate impacts of these constructs. We hypothesized that high scores on maternal knowledge would predict subsequent high scores on the behavioral competence measure. Given the inconsistencies in past findings on the relationships between behavior control and adolescent adjustment, we did not make any specific hypotheses about those relationships. In addition, we included reciprocal paths in our models to explore the potential effects of preadolescent behavioral competence on change in maternal knowledge and behavior control over time. We hypothesized that higher scores on behavioral competence would predict subsequent higher scores on knowledge but were unable to make specific predictions about the effects of competence on control.

Method

Participants and Procedure

The data were collected as part of a longitudinal project examining maternal and child well-being during the transition to adolescence. During the first year of the study, initial contact letters were distributed by primary schools in a medium-sized, Midwestern city. The letters briefly described the study and instructed mothers of 4th graders to contact the research office if they were interested in participating.

To ensure that families had the same degree of experience with the adolescent transition, mother-child dyads were eligible only if the 4th grader was the oldest child in the family. In addition, dyads were eligible if the mother was currently married to the 4th grader's father and had never been

divorced. Other studies have demonstrated that recently separated or divorced mothers experience dramatic increases in stressors and associated decreases in psychological well-being (e.g., Forgatch, Patterson, & Skinner, 1988; Hetherington et al., 1992). Temporary perturbations in family functioning, such as disrupted parenting, are also common during marital transitions (Forgatch et al., 1988). We did neither aim to compare stably married families to those undergoing marital transition nor intend to examine phases of adjustment following marital transition. Therefore, we examined adjustment only among dyads in which mothers remained married during the study period. One hundred eighty-two dyads met our two criteria and were invited to participate. Of these dyads, 13 (7%) declined participation after hearing more about the study, and 4 (2%) repeatedly cancelled their laboratory appointments or were unresponsive to contact by the researchers. Thus, 165 dyads (91%) participated in the 1st year of data collection. However, due to attrition over the course of the study (e.g., relocation and refusal to continue participation), as well as our exclusion of data following marital divorce (13 dyads, 7.9%), a total of 133 dyads' data were available for analysis in the present study. This represents 80.6% of the 165 dyads who completed the 1st year of data collection and 73.1% of the initial 182 eligible dyads.

Once annually, mothers and their children visited a university research laboratory for approximately 2 hours. During each visit, mothers and children separately and independently completed consent and assent forms prior to completing their questionnaires. In compensation for their participation, the dyads were paid \$30.00 in the 1st year of the study, \$40.00 in the 2nd year, \$50.00 in the 3rd year, and \$60.00 in the 4th year.

The data of interest for the present study were collected from both mothers and their children during the 4th through 7th grades. This sample consisted of 60 boys and 73 girls who were between the ages of 9 and 11 years at the 4th grade assessment ($\bar{X} = 9.69$, $SD = .51$). Most of the sample identified themselves as European American (95.5%); many fewer identified themselves as African American (2.3%), Latina/o (0.8%), Asian American (0.8%), or Other, including combinations of races (0.8%). At the 4th grade assessment, the mothers had been married an average of 13.5 years ($SD = 3.86$), and there were an average of 2.49 children in the families ($SD = .93$). The families tended to be well educated and middle class: mothers had completed, on average, 3.42 years of education after receiving their high school diplomas, 69.2% of the mothers worked full- or part-time jobs outside home, and the families' annual household incomes ranged from \$5,400 to \$400,000, with a mean income of \$80,912 ($SD = \$53,111$, median = \$68,500).

Measures

Respondents completed self-report questionnaires to assess maternal knowledge, maternal behavior control, and preadolescent behavioral competence.

Maternal knowledge. In the present study, the term *knowledge* was used to describe the mother's and adolescent's perceptions of maternal knowledge about the adolescent. Knowledge encompasses awareness about what an adolescent is really doing, who he or she is with, or where he or she may be when not at home. In past research, this construct has often been called *monitoring*. However, the measures used to assess monitoring generally focused on parental knowledge, rather than on actual parenting behaviors (see Crouter & Head, 2002, for further discussion). Thus, such monitoring measures have recently been termed measures of parental knowledge.

Maternal knowledge at all time points was measured using a 9-item scale that assessed the degree to which the mother was aware of the preadolescent's whereabouts, acquaintances, and behaviors (Grundy, Gondoli, & Blodgett Salafia, 2007). Preadolescent and mother perceptions of maternal knowledge were measured with parallel items. Our knowledge scale was similar to other scales that have been widely used to assess monitoring with preadolescents but are now termed measures of knowledge (for discussion, see Crouter & Head, 2002). Sample items included, "How often does your mom know where you go when you are not at home?" and "How often do you know who your child's friends are?" Mothers and preadolescents responded to each item using a 5-point Likert-type scale ranging from *never* to *always*. Items were scored such that higher scores indicated greater knowledge. Across the 4 years of data collection, alpha values ranged from .68 to .79 for mother reports, and .78 to .82 for preadolescent reports.

Maternal behavior control. Maternal behavior control was measured using a 7-item scale developed by Barber et al. (1994). Barber et al. selected items from the Child Report of Parental Behavior Inventory (CRPBI; Schaefer, 1965) firm versus lax parental control subscale to form their behavior control scale. Sample items included, "My mom is firm when it comes to rules" and "I let my child go out any night he or she wants." Mothers and preadolescents responded using a 5-point Likert-type scale, ranging from *never* to *always*. Items were scored such that higher scores indicated a greater degree of maternal behavior control. Across the 4 years of data collection, alpha values ranged from .63 to .75 for mother reports, and .60 to .70 for preadolescent reports.

The measurement of behavior control across studies has varied widely. For example, Soenens et al. (2006) measured behavior control partly as "parental monitoring," which included parental actions designed to promote

parental knowledge. A sample item from their control scale is “My mother/father makes efforts to know who my friends are, where I spend my time, etc.” (Soenens et al., 2006). In contrast, Fletcher et al. (2004) conceptualized behavior control as the extent to which adolescents reported shared decision making with parents. They asked adolescents to indicate the degree of parent-adolescent shared decision making for situations such as how late at night the adolescent could stay out, and whether the adolescent could drink alcohol (Fletcher et al., 2004). In the present study, our intention was to measure control as firmness and limit-setting, rather than as monitoring or democracy in decision making. Therefore, we selected Barber et al.’s (1994) scale for our assessment of behavior control. As evidence of validity in the present study, behavior control was moderately negatively related (e.g., r s ranging from $-.20$ to $-.40$) with measures of parent-adolescent decision making and democracy in parenting among both preadolescents and mothers.

Preadolescent behavioral competence. Preadolescent behavioral competence was measured using the behavior conduct competence subscale of the Self Perception Profile for Children (SPPC; Harter, 1985). This subscale assesses the degree to which one likes the way one behaves, does the right thing, acts the way one is supposed to, and avoids getting into trouble. Versions of the SPPC have been developed to assess self- and parent-perceptions of child and adolescent competence in various domains, including behavioral competence (Cole, Martin, Powers, & Truglio, 1996). In the present study, preadolescents and mothers both rated behavioral competence. The preadolescent version of the subscale consisted of six items, and the mother version of the subscale consisted of three items (Cole et al., 1996; Harter, 1985). Responding to each item was a two-step process. First, respondents indicated whether the preadolescent was more similar to some preadolescents who are behaviorally competent or more similar to others who are not (e.g., “Some kids behave themselves very well but other kids often find it hard to behave themselves”). Respondents then indicated whether the statement they had chosen was “really like me (my child)” or “sort of like me (my child).” Items were scored on a 4-point rating scale such that higher scores indicated greater behavioral competence. Across the 4 years of data collection, alpha values ranged from .69 to .76 for mother reports, and .83 to .86 for preadolescent reports.

Harter (1985) reported that the behavior conduct competence subscale exhibited acceptable reliability and external validity among children and parents. Cole and White (1993) found that among 4th graders, child-reported behavioral competence was positively associated with peer ratings of appropriate conduct. Child-reported behavioral competence has also been negatively correlated with parent-reported child externalizing problems (Cederblad, Pruksachatkunakorn, Boripunkul, Intraprasert, & Hook, 2001).

In the present study, this behavioral competence scale was significantly correlated with mother and child reports on the Youth Self-Report (YSR; Achenbach, 1991). For mother reports, behavioral competence was negatively correlated with both the aggression ($r_s = -.52$ to $-.68$) and delinquency subscales ($r_s = -.32$ to $-.56$). For preadolescent reports, behavioral competence was also negatively correlated with both the aggression ($r_s = -.36$ to $-.65$) and delinquency subscales ($r_s = -.40$ to $-.65$).

Results

Descriptive Statistics and Correlations

Descriptive statistics and correlations among the study variables for preadolescent and mother reports are reported in Table 1. For preadolescent reports, maternal knowledge and preadolescent behavioral competence were consistently correlated within and across time points. Knowledge and control, however, were not significantly correlated at any time point. For mother reports, knowledge and control were significantly correlated at most time points, but knowledge and competence were not.

Model Testing

We examined three conceptual models: one in which only maternal knowledge was the predictor of behavioral competence, one in which only maternal behavior control was the predictor, and one in which both predictors were included simultaneously. We tested each model twice: once using only preadolescent reports and again using only mother reports. The variables were measured at all time points in order to account for rank-order change over time and also to avoid potential bias in the path estimates (see Cole & Maxwell, 2003, for further discussion). In each model, the reciprocal paths among behavioral competence and the predictors were included. The variables were allowed to correlate at Time 1 (T1), and all of the errors for variables at concurrent time points were allowed to correlate. However, these correlations are not shown in Figure 1 in order to make it more readable. In addition, all adjacent and nonadjacent autoregressive paths were included, but only the adjacent autoregressive paths are depicted in Figure 1.

The EQS 6.1 program was used to estimate relationships among variables, assess model fit, and compare models. The fit of the models was assessed using the chi-square statistic, the Comparative Fit Index (CFI), the Root Mean Square Error of Approximation (RMSEA), and the standardized Root Mean Residual (sRMR). Models that provide a good fit to the data have

Table 1. Intercorrelations Between Study Variables for Mother Reports (Above Diagonal) and Preadolescent Reports (Below Diagonal), $N = 133$.

Variable	Preadolescent Report												
	Mean (SD)	1	2	3	4	5	6	7	8	9	10	11	12
1. Knowledge T1	32.20 (4.22)	.09	.60*	.59*	.56*	.21*	.20*	.23*	.19*	.01	.09	.14	.15
2. Knowledge T2	32.62 (3.64)	.44*	.09	.62*	.53*	.12	.24*	.19*	.16	.10	.15	.31*	.18*
3. Knowledge T3	31.81 (3.95)	.32*	.58*	.05	.66*	.10	.23*	.21*	.16	.01	.11	.14	.08
4. Knowledge T4	30.92 (4.15)	.20*	.54*	.54*	.35*	.15	.29*	.28*	.31*	.03	.13	.21*	.08
5. Control T1	20.27 (3.47)	-.03	.00	-.11	-.08	.15	.59*	.61*	.56*	.00	-.07	-.02	.03
6. Control T2	20.02 (3.37)	-.07	-.01	.08	.07	.43*	.34*	.72*	.64*	-.03	-.03	.05	.04
7. Control T3	19.92 (3.32)	-.14	.00	.08	.11	.36*	.53*	.35*	.71*	-.04	.00	.02	.10
8. Control T4	19.63 (3.36)	-.05	.09	.05	.10	.34*	.44*	.50*	.37*	-.07	.04	.00	-.05
9. Competence T1	19.72 (3.74)	.32*	.30*	.24*	.15	-.29*	-.15	-.20*	-.05	.26*	.77*	.55*	.59*
10. Competence T2	20.24 (3.08)	.10	.33*	.37*	.18*	-.21*	-.06	-.02	-.02	.56*	.37*	.58*	.61*
11. Competence T3	20.83 (3.02)	.20*	.35*	.46*	.36*	-.09	-.01	-.02	.03	.40*	.56*	.23*	.68*
12. Competence T4	20.60 (3.15)	.15	.21*	.41*	.34*	-.11	-.08	-.04	-.13	.25*	.38*	.63*	.38*
Mother Report		33.70	33.71	33.29	32.38	21.77	22.06	22.03	21.43	11.08	10.95	11.23	11.20
Mean (SD)		(2.21)	(2.06)	(2.59)	(2.97)	(2.70)	(2.75)	(2.65)	(3.17)	(1.42)	(1.45)	(1.18)	(1.27)

Note: Correlations between mother and preadolescent reports are depicted on the diagonal (in bold).

* $p < .05$.

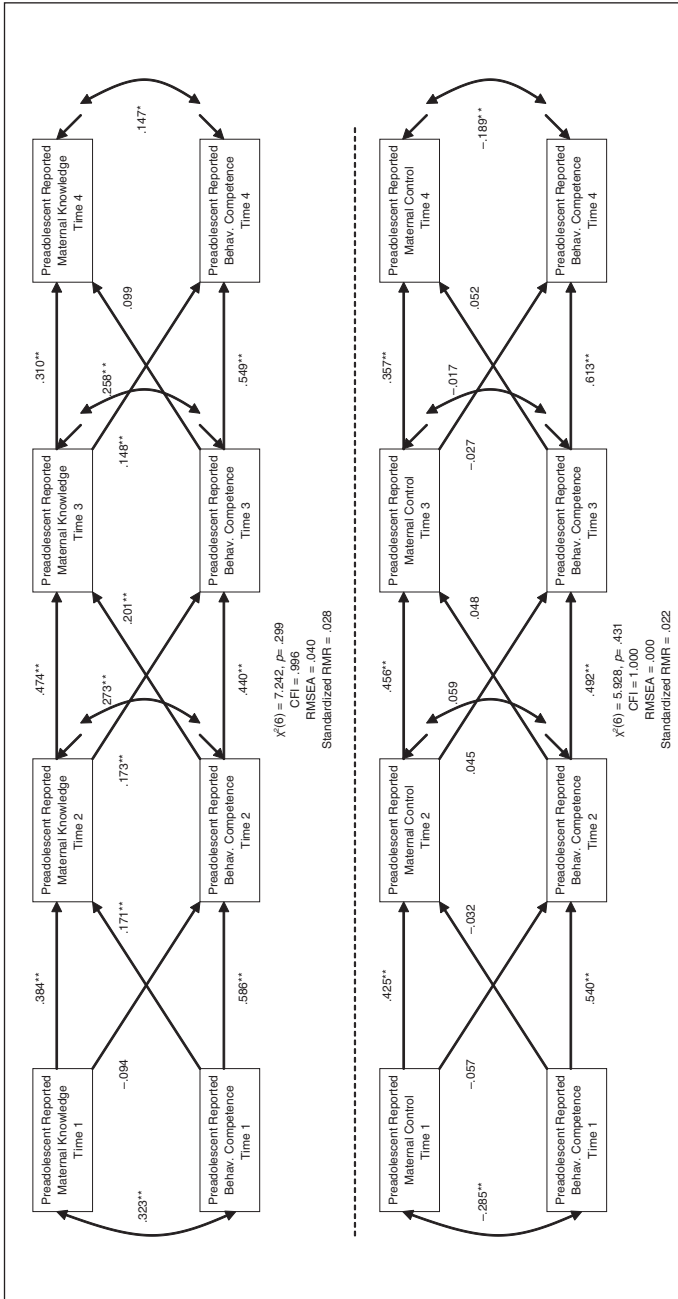


Figure 1. Structural Equation Models for Pre-Adolescent Reports of Study Variables.
 Note: Additional autoregressive paths between nonadjacent time points were estimated but are not depicted.
 * $p < .10$. ** $p < .05$.

nonsignificant ($p > .05$) chi-square values, CFI values $> .95$, and RMSEA and sRMR values $< .05$. For the standardized path coefficients, a t value > 1.96 indicated a statistically significant association at $p < .05$ (two-tailed).

Analyses Utilizing Preadolescent Reports

First, we tested two separate models to determine if maternal knowledge and maternal behavior control showed different patterns of relationships with preadolescent behavioral competence. In the first model, we examined the association between knowledge and behavioral competence (see top half of Figure 1). The results indicated that knowledge was a significant predictor of behavioral competence between T2 and T3 ($\gamma = .173, p < .05$) and between T3 and T4 ($\gamma = .148, p < .05$). The positive relationships between knowledge and behavioral competence indicated that higher reports of prior knowledge predicted greater increase in subsequent behavioral competence. In addition, the results revealed significant reciprocal relationships. Specifically, behavioral competence was a significant predictor of knowledge from T1 to T2 ($\gamma = .171, p < .05$), and from T2 to T3 ($\gamma = .201, p < .05$). These reciprocal paths indicated that higher reports of prior behavioral competence predicted less decrease in subsequent knowledge. This model was a good fit to the data, $\chi^2(6) = 7.24, p = .30$, CFI = .996, RMSEA = .040, sRMR = .028. In contrast, results of the behavior control and behavioral competence model revealed that none of the paths connecting behavior control and behavioral competence at any time point were statistically significant (see bottom half of Figure 1).

Next, we tested a model which included both maternal knowledge and behavior control as predictors of behavioral competence simultaneously. This model was examined to determine whether knowledge continued to predict behavioral competence, even when controlling for behavior control. The results mirrored those of the two models which tested the predictors separately. Knowledge was still a significant predictor of behavioral competence between T2 and T3 ($\gamma = .173, p < .05$) and between T3 and T4 ($\gamma = .153, p < .05$), and behavioral competence was still a significant predictor of knowledge between T1 and T2 ($\gamma = .171, p < .05$) and between T2 and T3 ($\gamma = .201, p < .05$).

Analyses Utilizing Mother Reports

As with preadolescent reports, we fit models using mother reports of all variables with maternal knowledge and maternal behavior control predicting preadolescent behavioral competence separately and simultaneously. In the

model which included knowledge as the predictor, only the path connecting T2 knowledge and T3 behavioral competence was statistically significant ($\gamma = .229, p < .05$). However, for the model which examined behavior control separately, none of the paths connecting behavior control and behavioral competence were statistically significant. For the model including knowledge and behavior control, neither knowledge nor behavior control consistently predicted behavioral competence. In fact, there were only two significant paths connecting the study variables. Knowledge at T2 predicted behavioral competence at T3 ($\gamma = .223, p < .05$), and behavior control at T3 predicted behavioral competence at T4 ($\gamma = .119, p < .05$).

Discussion

Consistent with some past efforts (e.g., Kerr & Stattin, 2000; Stattin & Kerr, 2000), we found that parental knowledge, but not behavior control, was associated with change in adolescent behavioral competence, at least when preadolescent reports were considered. These associations were positive, indicating that greater knowledge predicted greater subsequent increase in competence. In interpreting the positive associations between knowledge and behavioral competence, it is helpful to consider what the knowledge and behavioral competence scales may have measured. First, the knowledge scale may tap into a larger underlying construct of maternal involvement with, or interest in, the preadolescent (Kerr & Stattin, 2000). In turn, the behavioral competence scale may measure a preadolescent's ability to regulate his or her own behavior and to direct behavior in a positive, prosocial manner (Harter, 1985). This type of behavioral competence is likely to be strongly influenced by parenting (Clausen, 1991). In particular, a history of involved and attentive parenting, as evidenced by mothers with more knowledge about their adolescents, may be important for the development of this type of competence.

It is important to note that knowledge did not merely lead to competence; rather, knowledge and behavioral competence were reciprocally related. These results are consistent with, and extend, past efforts demonstrating reciprocal connections between knowledge and delinquency in samples of older adolescents (e.g., Laird et al., 2003). In prior studies, delinquency negatively affected knowledge; conversely, we found that behavioral competence positively affected knowledge. The mechanisms underlying this particular connection should be more fully explored in future research. We speculate that preadolescents who generally meet or exceed the standards for behavior in diverse social contexts may be both more open with their parents

and more cooperative with ongoing parental involvement and supervision, leading ultimately to greater parental knowledge (Kerr & Stattin, 2000). Such preadolescents may also be more pleasant to be around and may spend more time engaging in relatively positive interactions with their parents, sharing details about their experiences at school, with peers, and in other social settings. Such dynamics may allow parents to maintain greater parental knowledge, even across the early adolescent transition when direct and immediate parental supervision normatively declines (Collins et al., 2002; Crouter & Head, 2002; Holmbeck et al., 1995).

In contrast to the consistent associations we detected between knowledge and behavioral competence, behavior control was not consistently associated with behavioral competence, whether preadolescent or maternal reports were considered. This particular finding differs from some previous research indicating that less parental control was associated with greater child deviance (e.g., Fletcher et al., 2004; Soenens et al., 2006), although it is consistent with other studies which found no associations between control and externalizing behaviors (e.g., Kerr & Stattin, 2000; Stattin & Kerr, 2000).

It is possible that differences in the measurement of behavior control may account for the divergence in findings. For example, in the Soenens et al. (2006) study, the measure of behavior control included "parental monitoring," which included parental actions designed to promote parental knowledge. For instance, this measure included the following item: "My mother/father makes efforts to know who my friends are, where I spend my time, etc." (Soenens et al., 2006). Thus, this measure included items which may have overlapped with the parental knowledge items, perhaps ultimately boosting the relationship Soenens et al. (2006) detected between control and outcomes. In another example, Fletcher et al. (2004) used a measure of control that asked the adolescents to rate how decisions were made about certain issues in their households. The adolescents were asked to indicate to what degree they were allowed to make decisions about behavioral limits and freedoms. Adolescents were asked to indicate the extent of parent-adolescent discussion and shared decision making on such matters. Thus, this measure may have shared some relationship with measures of family democracy or autonomy and may have been more complex than the measure of control used in the present study.

Our measure of behavior control is indeed more similar to measures used by Kerr and Stattin (2000; Stattin & Kerr, 2000). Like Kerr and Stattin, we used a control measure which emphasized firmness and limit-setting, and that had little apparent overlap with measures of affect in parenting such as maternal warmth. The present measure asked preadolescents and mothers, for instance, to rate whether the mothers allowed the preadolescents to stay

out late, whether they had to have permission to go somewhere, and whether mothers were firm and enforced rules. Our findings are also more in line with the findings reported by Stattin and Kerr (2000; Kerr & Stattin, 2000). They indicated that maternal behavior control was a poor predictor of maternal knowledge in a sample of over 700 Swedish adolescents (aged 14). Furthermore, Stattin and Kerr have focused on high-functioning, normative samples, finding little association between control and knowledge.

In future work, researchers should examine the associations among different measures of parental control and knowledge, as well as the associations among adolescent outcomes and measures of parental control. For instance, researchers could compare measures which focus on limit-setting and firm parenting (such as the measure used in the present study, as well as Kerr & Stattin, 2000, and Stattin & Kerr, 2000), measures which examine specific monitoring and tracking (such as the measure used in Soenens et al., 2006), and measures which examine democracy and power in the family system (such as the measure used in Fletcher et al., 2004). It is possible that stronger relationships between parental control and preadolescent competence may emerge, depending on the measurement of the control construct.

We also note that most low-risk families likely have a history of appropriate behavior control during childhood. What distinguishes such families across the transition to adolescence may be the degree to which they maintain appropriate involvement and positive parent-child relationships. This does not mean that a history of limit-setting, follow-through, and high expectations for child behavior is not important, however (see Crouter & Booth, 2003; Crouter & Head, 2002; Kandel & Lessor, 1972). There are also a number of contextual variables which may affect the strength of these associations. For instance, some authors have indicated that maintaining high levels of control may be particularly important for families who live in dangerous neighborhoods (e.g., Day, Peterson, & McCracken, 1998; McLoyd, 1998). Other authors have indicated that cultural differences may be associated with differences in parenting style, with European American families being more authoritative, whereas Asian and African American families tend to be more authoritarian (e.g., Steinberg et al., 1994). Thus, a more culturally or socioeconomically diverse sample may have produced different associations among the study variables.

Furthermore, we note that unlike many previous efforts demonstrating a significant association between control and competence, our study incorporated a low-risk, preadolescent sample, and our participants tended to score high on maternal behavior control and behavioral competence, relative to the possible ranges of these measures. Thus, the lack of associations between behavior

control and behavioral competence in the present study could be the result of restriction in range. In addition to the low-risk nature of our sample, the age of our sample may account for the lack of associations between behavior control and behavioral competence. In recent studies which have shown an association between control and adolescent adjustment (e.g., Fletcher et al., 2004; Soenens et al., 2006), the adolescents were generally high school aged and older. These studies reported that the positive associations between control and adjustment were small but significant. Given the small magnitude of the associations between control and adjustment in these large community samples, it is possible that the present analyses did not reveal a significant association because of the younger age, as well as the smaller size, of our sample.

In contrast to the clear and consistent findings based on preadolescent reports, neither knowledge nor behavior control was consistently related to behavioral competence when maternal reports were considered. This is consistent with findings from other studies which have found that mother reports of knowledge and control were less strongly related to mother reports of adolescent behavior than the associations found using adolescents' own reports of all of these variables (e.g., Soenens et al., 2006). One reason why the mother-reported variables were not consistently associated may be because these variables had a greater degree of rank-order stability than did the preadolescent-reported variables. This rank-order stability was exhibited in the relatively large autoregressive paths in the models for mothers. Thus, the mother reports did not exhibit much rank-order change over time, and it is difficult to account for change in variables when there are only small degrees of change taking place.

One other possible explanation for the stronger associations between knowledge and competence for adolescent reports is that perhaps the actual levels of parental knowledge are relatively unimportant, whereas the adolescents' *perceptions* of parental knowledge are closely associated with their behavior. For example, adolescents are likely to regulate their behavior more carefully if they believe that their mothers are highly knowledgeable about where they are and what they are doing. However, adolescents who do not believe that their mothers are aware of their activities may be less likely to behave appropriately, because they believe that their mothers are not paying attention. In fact, prior research has shown that preadolescents and adolescents are more influenced by their *perceptions* of how knowledgeable their mothers are, rather than by how much knowledge their mothers may actually have (e.g., Laird et al., 2003; Schaefer, 1965).

Parents may also perceive themselves as relatively stable on knowledge despite acknowledging changes in their relationships with their preadolescents

(for further discussion, see Crouter & Head, 2002). Spring, Rosen, and Matheson (2002) reported that parents tended to report that they were just as knowledgeable about their youngsters' behaviors during adolescence as they were before the adolescent transition began. Furthermore, although parents perceived that relationships with their preadolescents were becoming more difficult and that their youngsters were seeking and were being granted greater behavioral autonomy, they still reported maintaining high levels of knowledge (Spring et al., 2002). Perhaps the mothers in the present study believed that high levels of knowledge and greater behavior control are essential components of the parenting role. Their reports on the knowledge and behavior control scales may reflect personal beliefs that these parenting characteristics reflect appropriate parenting during the preadolescent and adolescent period. Thus, mother reports of such variables may remain fairly high and stable due to social desirability effects. It is also important to consider that it may be more informative to use preadolescent reports of parenting-related variables because their perceptions of such variables may have even more influence on adjustment than their parents' actual behaviors (Laird et al., 2003; Schaefer, 1965).

Limitations

Some limitations of the present study should be noted. Our sample was predominantly European American and middle class. In addition, all of the mothers included in the present analyses were married and never divorced. As a result, our sample consisted mainly of dyads with relatively high and stable resources. A larger, more diverse sample would allow broader generalizations of the findings. Furthermore, a more diverse sample would likely show greater variation on the measures and thus allow for better detection of associations among measures, particularly for mother-reported variables.

We also did not utilize latent variables in the analyses, because only single variable measures were available in the present study. In addition, the present study did not have father reports of variables. We believe, however, that the measurement of both mother and preadolescent reports on all variables is a substantial strength of the study. Furthermore, studies which have included fathers have not shown systematic differences in mother and father reports of knowledge. For instance, Soenens et al. (2006) had both mother and father reports on the variables and analyzed these reports separately. However, the results showed that there were few differences between the mother- and father-reported models. Therefore, we feel that the lack of fathers in the present study may not be a substantial limitation.

Contributions and Future Directions

Limitations notwithstanding, our study makes several important contributions. First, we considered the relationships among the study variables for mothers and preadolescents separately. We discovered that there were different patterns of relationships among the variables depending on whose report was considered. In future studies, researchers should be careful to acknowledge that findings may differ depending on whether parent or child perspectives are considered. Second, we distinguished maternal knowledge from maternal behavior control. It appears from our results that these variables may be distinct entities rather than mutual indicators of firmness and limit-setting, particularly when preadolescent reports are considered. In future work, greater attention should be directed toward understanding how these variables may differ in what they assess, as well as in their antecedents and outcomes among parents and children.

A third contribution of the present study is the use of a rigorous method of assessing relationships among variables over time (see Cole & Maxwell, 2003). There is currently very little longitudinal data which examines maternal knowledge and even fewer studies which have measured all of the variables at all time points. By measuring four waves of data, with both mother and preadolescent reports, and including all of the autoregressive paths in our analyses, we have applied a very stringent analysis procedure in order to obtain unbiased estimates of the longitudinal relationships among the study variables.

One final, key contribution was that we focused on a positive aspect of preadolescent behavior as an indicator of adjustment. Most of the prior studies which have considered associations among knowledge, behavior control, and adjustment have used problem behavior (e.g., delinquency) as the outcome measure (e.g., Fletcher et al., 2004; Laird et al., 2003). Our sample of preadolescents was low-risk and generally high-functioning, and thus it was more appropriate to examine variation in their behavioral competence, rather than variation in their problem behavior. Furthermore, it is important to consider that well-being is not defined solely by avoiding pathology but also by optimizing development (Cowen, 1994; Cummings et al., 2000; Park, 2004). As children transition into adolescence, it is important to not only avoid delinquency but also build a sense of competence in one's ability to behave appropriately within diverse social contexts, including those outside the family. Our results suggest that a preadolescent's perception of maternal knowledge is an important contributor to this accomplishment.

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References

- Achenbach, T. M. (1991). *Manual for the Youth Self-Report and 1991 profile*. Burlington: University of Vermont, Department of Psychiatry.
- Barber, B. K., Olsen, J. E., & Shagle, S. C. (1994). Associations between parental psychological control and behavioral control and youth internalized and externalized behaviors. *Child Development, 65*, 1120-1136.
- Baumrind, D. (1991). The influence of parenting style on adolescent competence and substance use. *Journal of Early Adolescence, 11*, 56-95.
- Cederblad, M., Pruksachatkunakorn, P., Boripunkul, T., Intraprasert, S., & Hook, B. (2001). Behaviour problems and competence in Thai children and youths: Teachers', parents', and subjects' perspectives. *Transcultural Psychology, 38*, 64-79.
- Clausen, J. S. (1991). Adolescent competence and the shaping of the life course. *American Journal of Sociology, 96*, 805-842.
- Cole, D. A., Martin, J. M., Powers, B., & Truglio, R. (1996). Modeling causal relations between academic and social competence and depression: A multitrait-multimethod longitudinal study of children. *Journal of Abnormal Psychology, 105*, 258-270.
- Cole, D. A., & Maxwell, S. E. (2003). Testing mediational models with longitudinal data: Questions and tips in the use of structural equation modeling. *Journal of Abnormal Psychology, 112*, 558-577.
- Cole, D. A., & White, K. (1993). Structure of peer impressions of children's competence: Validation of the peer nomination of multiple competencies. *Psychological Assessment, 5*, 449-456.
- Collins, W. A., Madsen, S. D., & Susman-Stillman, A. (2002). Parenting during middle childhood. In M. H. Bornstein (Ed.), *Handbook of parenting: Children and parenting* (pp. 65-89). Hillsdale, NJ: Lawrence Erlbaum.
- Cowen, E. L. (1994). The enhancement of psychological wellness: Challenges and opportunities. *American Journal of Community Psychology, 22*, 149-179.
- Crouter, A. C., & Booth, A. (2003). *Children's influences on family dynamics: The neglected side of family relationships*. Mahwah, NJ: Erlbaum.
- Crouter, A. C., & Head, M. R. (2002). Parental monitoring and knowledge of children. In M. H. Bornstein (Ed.), *Handbook of parenting: Being and becoming a parent* (pp. 461-483). Mahwah, NJ: Lawrence Erlbaum.

- Crouter, A. C., MacDermid, S. M., McHale, S. M., & Perry-Jenkins, M. (1990). Parental monitoring and perceptions of children's school performance and conduct in dual- and single-earner families. *Developmental Psychology, 26*, 649-657.
- Cummings, E. M., Davies, P. T., & Campbell, S. B. (2000). *Developmental psychopathology and family process: Theory, research, and clinical implications*. New York: Guilford Press.
- Darling, N., & Steinberg, L. (1993). Parenting style as context: An integrative model. *Psychological Bulletin, 113*, 487-496.
- Day, R. D., Peterson, G. W., & McCracken, C. (1998). Predicting spanking of younger and older children by mothers and fathers. *Journal of Marriage and the Family, 60*, 79-94.
- 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., Patterson, G. R., & Skinner, M. L. (1988). A mediational model for the effect of divorce on antisocial behavior in boys. In E. M. Hetherington & J. D. Arasteh (Eds.), *Impact of divorce, single parenting, and stepparenting on children* (pp. 135-154). Hillsdale, NJ: Lawrence Erlbaum.
- Grundy, A. M., Gondoli, D. M., & Blodgett Salafia, E. H. (2007). Marital conflict and preadolescent behavioral competence: Maternal knowledge as a longitudinal mediator. *Journal of Family Psychology, 21*, 675-682.
- Harter, S. (1985). *Manual for the self-perception profile for children*. Denver, CO: University of Denver.
- Hetherington, E. M., Clingempeel, W. G., Anderson, E. R., Deal, J. E., Stanley-Hagan, M., Hollier, E. A., et al. (1992). Coping with marital transitions: A family systems perspective. *Monographs of the Society for Research in Child Development, 57*, 1-238.
- Holmbeck, G. N., Paikoff, R. L., & Brooks-Gunn, J. (1995). Parenting adolescents. In M. H. Bornstein (Ed.), *Handbook of parenting: Children and parenting* (pp. 91-118). Mahwah, NJ: Lawrence Erlbaum.
- Kandel, D., & Lessor, G. S. (1972). *Youth in two worlds*. San Francisco: Jossey-Bass.
- Kerr, M., & Stattin, H. (2000). What parents know, how they know it, and several forms of adolescent adjustment: Further support for a reinterpretation of monitoring. *Developmental Psychology, 36*, 366-380.
- 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.
- Lamborn, S. D., Mounts, N. S., Steinberg, L., & Dornbusch, S. M. (1991). Patterns of competence and adjustment among adolescents from authoritative, authoritarian, indulgent, and neglectful families. *Child Development, 62*, 1049-1065.
- McLoyd, V. C. (1998). Socioeconomic disadvantage and child development. *American Psychologist, 53*, 185-204.

- Park, N. (2004). The role of subjective well-being in positive youth development. *Annals of the American Academy of Political and Social Science, 591*, 25-39.
- Schaefer, E. (1965). Children's reports of parental behavior: An inventory. *Child Development, 36*, 413-424.
- 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.
- Spring, B., Rosen, K. H., & Matheson, J. L. (2002). How parents experience a transition to adolescence: A qualitative study. *Journal of Child and Family Studies, 11*, 411-425.
- Sroufe, L. A., & Rutter, M. (1984). The domain of developmental psychopathology. *Child Development, 55*, 17-29.
- Stattin, H., & Kerr, M. (2000). Parental monitoring: A reinterpretation. *Child Development, 71*, 1072-1085.
- Steinberg, L., Lamborn, S. D., Darling, N., Mounts, N. S., & Dornbusch, S. M. (1994). Over-time changes in adjustment and competence among adolescents from authoritative, authoritarian, indulgent, and neglectful families. *Child Development, 65*, 755-770.
- van Dulman, M. H. M., & Ong, A. (2006). Editorial: New methodological directions for the study of adolescent competence and adaptation. *Journal of Adolescence, 29*, 851-856.

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