Summer 8-13-2014

Does Parenting Style Moderate the Association Between Parental Monitoring and Adolescent Problem Behavior?

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A Thesis

Submitted to the Graduate Faculty of the
University of New Orleans
in partial fulfillment of the
requirements for the degree of

Master of Science
in
Psychology

by

Laura LaFleur

B.S. Louisiana State University, 2010

August, 2014

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Abstract

The purpose of this study was to test whether parenting style as conceptualized through Self-Determination Theory (SDT) moderates the association between parental monitoring and adolescent problem behavior. Self-reported data from adolescents (n = 242; 49.2% male; M age = 15.4 years) and their parents (n = 276; 70% mothers) were used in the study. Results showed that monitoring through questions, but not through rules, was significantly associated with behavior problems. Adolescent-reported monitoring through questions, but not parent-reported, was linked to less problem behavior. Also, parental autonomy support and involvement were linked to less problem behavior. Results showed that two out of 24 interactions between monitoring and style variables were significant. Specifically, the links between higher adolescent-reported monitoring through questions and parent-reported autonomy support, and between parent-reported monitoring through rules and adolescent-reported structure were significant. However, neither pattern was consistent with expectations.

Parental monitoring, parenting style, adolescent problem behavior

Does Parenting Style Moderate the Association Between Parental Monitoring and Adolescent Problem Behavior?

Parental monitoring was initially conceptualized as a constellation of parent and child actions that kept parents informed of the child's whereabouts and activities, and served to protect or prevent the child from engaging in misbehavior (Patterson & Stouthamer-Loeber, 1984). Monitoring was recently reconceptualized more narrowly to emphasize parents' actions (Stattin & Kerr, 2000). Parents' monitoring behaviors are less strongly associated with antisocial behavior than are broader conceptualizations of monitoring (Fletcher, Steinberg, & Williams-Wheeler, 2004; Keijsers, Frijns, Branje, & Meeus, 2009; Kerr & Stattin, 2000; Willoughby & Hamza, 2011). Darling and Steinberg (1993) propose that links between specific parenting practices, such as monitoring, and outcomes are moderated by the parenting style within which the behaviors are enacted. The purpose of the current study was to test whether parenting style moderates the association between monitoring and problem behavior.

Parental Monitoring

The concept of parental monitoring was introduced by Patterson and colleagues, drawing on their experiences working with children in clinical settings and on the link between supervision and delinquency in the criminology literature (Patterson, 1982; Patterson, Reid, & Dishion, 1992; Patterson & Stouthamer-Loeber, 1984). Patterson and Stouthamer-Loeber (1984) conceptualized parental monitoring broadly as tracking and maintaining awareness of children's activities. Note that Patterson and Stouthamer-Loeber's (1984) conceptualization included both parent behaviors (i.e., tracking) and parental awareness. Consistent with Patterson and Stouthamer-Loeber's conceptualization, Dishion and McMahon (1998) broadly defined parental monitoring as parental attempts to maintain awareness of child activities and whereabouts by modifying the child's environment or implementing rules. Studies in the first wave of parental

monitoring research used multi-method, multi-informant approaches to assess parental monitoring. Measures commonly included items assessing how much parents know, the perceived importance of parental supervision, the presence of parental supervision, how much information children disclosed to their parents, and how much time parents and children spent together. Overall, the first wave of parental monitoring literature demonstrated that more parental monitoring was linked to less delinquent behavior (Patterson & Stouthamer-Loeber, 1984; Snyder, Dishion, & Patterson, 1986), substance use (Barnes & Farrell, 1992; Dishion & Loeber, 1985), antisocial behavior (Dishion, Patterson, Stoolmiller, & Skinner, 1991; Stoolmiller, 1994; Patterson, 1993), and higher school achievement (Crouter, MacDermid, McHale, & Perry-Jenkins, 1990).

In contrast to the first wave, the second wave of parental monitoring research operationalized parental monitoring more narrowly, primarily focusing on perceived parental knowledge and awareness of adolescents' activities. Studies in the second wave showed that more parental monitoring (i.e., knowledge) was associated with lower levels of substance use (Borawski, Ievers-Landis, Lovegreen, & Trapl, 2003; Branstetter, Furman, & Cottrell, 2009; Brown, Mounts, Lamborn, & Steinberg, 1993; Cottrell, Li, Harris, D'Alessandri, Richardson & Stanton, 2003; Fletcher, Darling, & Steinberg, 1995; Van Ryzin, Fosco, & Dishion, 2012), higher school achievement (Brown et al., 1993; Jacobson & Crockett, 2000) less delinquency (Forehand, Miller, Dutra, & Chance, 1997; Fridrich & Flannery, 1995; Jacobson & Crockett, 2000; Pettit, Laird, Dodge, Bates, & Criss, 2001), and less antisocial behavior (Bean, Barber, & Crane, 2006; Laird, Pettit, Dodge, & Bates, 2003).

Stattin and Kerr (2000) critiqued the monitoring literature, and particularly conclusions and recommendations made by studies in the second wave. Studies in the second wave often

concluded that the best approach to reducing problem behavior was by increasing parents' active tracking efforts (Fletcher et al., 1995; Fridrich & Flannery, 1995; Forehand et al., 1997; Jacobson & Crockett, 2000; Pettit et al., 2001). Stattin and Kerr (2000; Kerr & Stattin, 2000) pointed out that this recommendation rested on the assumption that parents' behaviors were the source of parental knowledge. Stattin and Kerr imposed a distinction between parent and adolescent behaviors that was not evident in Patterson and Stouthamer-Loeber's (1984) original conceptualization. More specifically, Stattin and Kerr defined monitoring as a behavior that parents engage in to gain awareness of adolescents' actions and whereabouts as contrasted with disclosure, which is a behavior that the child engages in that may keep parents informed. To determine the source of parental knowledge, Stattin and Kerr tested monitoring through questions, which they labeled solicitation (i.e. how often parents ask questions about activities), monitoring through rules requiring adolescents to keep parents informed of their activities, which they called parental control, and child disclosure (i.e. how frequently adolescents willingly share information with parents) as predictors of parental knowledge. Their data showed that knowledge was associated with monitoring through questions and rules, but that child disclosure was the primary source of parents' knowledge (Kerr & Stattin, 2000). Stattin and Kerr's recommendation was for researchers to measure active monitoring behaviors, such as monitoring through questions and rules, rather than parental knowledge that may or may not have been gained from those behaviors. Stattin and Kerr's work led to a third wave of parental monitoring research that made a distinction between parent and child behaviors in predicting behavior problems.

The third wave of parental monitoring research emphasized the disaggregation of parent and child contributions to monitoring, and measured parent and child components as separate

elements of a monitoring process. Several studies adopted Stattin and Kerr's measure of monitoring through questions and rules, but a few studies used other measures that clearly differentiated parent and child behaviors. Child behaviors (i.e., disclosure) and parental behaviors (i.e., monitoring through questions, monitoring through rules) were assessed separately to determine which parental and child behaviors were linked to less adolescent problem behavior. Bivariate correlations from the third wave of monitoring research show that in most (e.g., Fletcher et al., 2004; Keijsers et al., 2009; Kerr & Stattin, 2000; Willoughby & Hamza, 2011), but not all studies (Keisner, Dishion, Poulin, & Pastore, 2009; Laird, Marrero, & Sentse, 2010), more parental monitoring through rules and questions are linked to less problem behavior and substance use. Results from multivariate analyses showed that parental monitoring behaviors were predictive of adolescent problem behavior, though not as predictive as child disclosure (Keijsers et al., 2009; Kerr & Stattin, 2000; Stattin & Kerr, 2000). Stattin and Kerr (2000; Kerr & Stattin, 2000) and others (Keijsers, Branje, VanderValk, & Meeus, 2010; Kerr, Stattin, & Burk, 2010) however, argued that the apparent effects of parental monitoring in the first and second waves of monitoring research was likely a child-effect driven by the child's willingness to disclose information about their activities. Following from this demonstration, a number of studies have focused on antecedents and consequences of child disclosure. However, studies in the third wave suggest that parent contributions, though modest, are linked to less problem behavior. The weak associations between parental monitoring behaviors and problem behavior may reflect variability between family contexts.

Parenting Style as a Moderator

Darling and Steinberg (1993) distinguished parenting practices from parenting styles. Parenting practices are discrete behaviors enacted by parents whereas parenting style is the

broader context in which the behaviors occur. Parenting behaviors can be thought of in terms of what parents do, while parenting style can be thought of in terms of how it is done. For example, the same parenting behavior (e.g., asking a teen where they are going) can be executed in different ways by the parent or be perceived in different ways by the adolescent. More specifically, the question when coming from a cold and harsh parent is thought to have a different impact on the child than the same question when asked by a warm and sensitive parent.

Monitoring measures in the first two waves of the monitoring research may have been strongly linked to indices of child misbehavior because the measures conflated parenting practices and parenting styles. Stattin and Kerr's (2000) emphasis on monitoring as a behavior reflecting parent agency not only separated parent and child contributions to the monitoring process, but also separated specific monitoring behaviors from the interpersonal context within which they are enacted. Parental monitoring behaviors (i.e., monitoring through questions and monitoring through rules) are consistent with Darling and Steinberg's (1993) conceptualization of parenting behaviors. The way parents enact the behaviors is consistent with Darling and Steinberg's (1993) conceptualization of parenting style.

The term 'parenting style' typically brings to mind Baumrind's (1967, 1971) conceptualization, which characterizes three distinct styles: authoritative, authoritarian, and permissive. Rather than using Baumrind's (1967, 1971) categorical approach to parenting styles, the current study joins others who operationalized style dimensionally (e.g., Chao, 2001; Glasgow, Dornbusch, Troyer, Steinberg, & Ritter, 1997; Grolnick, 2003; Steinberg, Lamborn, Dornbusch, & Darling, 1992), using dimensions grounded in Self-Determination Theory (SDT).

According to SDT, individuals have three basic psychological needs: autonomy support, competence, and relatedness (Deci & Ryan, 1985). During adolescence, parents can create an

environment that meets adolescents' needs for autonomy support, competence, and relatedness by providing autonomy support, structure, and involvement, respectively (Grolnick, 2003; Grolnick & Pomerantz, 2009). Thus, autonomy support, structure, and involvement can be used to characterize environments according to how well they meet adolescents' needs. Parents are autonomy supportive when they openly discuss rules and disagreements with adolescents, provide choices for how (but not whether) adolescents can follow rules, and acknowledge their child's perspective (Farkas and Grolnick, 2010; Grolnick, 2003). Parents provide structure by communicating clear and consistent guidelines, rules, and expectations to adolescents (Farkas & Grolnick, 2010). Parents are warm and involved when they stay involved in their child's life, and express affection, care, and support (Skinner, Johnson, & Snyder, 2005).

The dimensional approach grounded in SDT is consistent with Baumrind's (1967, 1971) conceptualization of authoritative parenting. Parental involvement operationalized as involvement, structure in terms of consistency, and autonomy support all characterize authoritative parenting (Farkas & Grolnick, 2010; Grolnick, Gurland, DeCourcey, & Jacob, 2002). Moreover, research suggests that autonomy support, structure, and involvement are linked to children's behavior problems and adjustment in a way similar to authoritative parenting. Generally, children raised by authoritative parents have fewer behavior problems than children in families characterized by other parenting styles (Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Steinberg, Mounts, Lamborn, & Dornbusch, 1991; Suldo & Huebner, 2004). Similarly, research shows that more parental autonomy support, structure, and involvement are linked to positive child outcomes, although most studies have focused on academic outcomes (Farkas & Grolnick, 2010; Grolnick, Kurowski, Dunlap, & Hevey, 2000; Grolnick & Ryan, 1989). For example, Grolnick et al., (2000) found that higher levels of parental involvement were related to

higher child competence, and that more parental autonomy support was associated with less child behavior problems. The disaggregation of parenting styles in the dimensional approach allows us to test whether specific parenting dimensions moderate the association between parenting practices and problem behavior.

In addition to conceptualizing parenting practices and parenting styles as separate constructs, Darling and Steinberg (1993) hypothesized that parenting style moderates the association between parenting practices and adolescent outcomes. Thus, parents who engage in similar parenting practices may differ substantially in terms of parenting style. Few studies have tested Darling and Steinberg's (1993) hypothesis, but some studies have found that parenting practices, in the context of a supportive parenting style, are associated with more positive outcomes. Mounts (2002) found that in the context of authoritative (i.e., high involvement, high control), authoritarian (i.e., low involvement, high control), or indulgent parenting styles (i.e., high involvement, low control), higher levels of parental guiding were associated with lower levels of adolescent drug use. Conversely, in the context of uninvolved parenting (i.e., low involvement, low control), higher levels of parental guiding were associated with higher levels of adolescent drug use. Steinberg et al., (1992) found that when parents were rated as authoritative, the link between more parental involvement in school and better school performance was stronger than when parents were rated as nonauthoritative. Child behaviors also have been linked to better outcomes in the context of supportive parenting style. For example, Keijsers et al., (2009) found that in families with higher parental support, the link between adolescent disclosure and less problem behavior was stronger than in the context of low parental support. In addition to moderating the influence of parenting practices and negative outcomes, parenting style has also been shown to moderate the association between family adversity and child problem behavior.

For example, Pettit, Bates, and Dodge (1997) found that in the context of lower amounts of supportive parenting (i.e., parental involvement, involvement, calm discussion, proactive teaching), family adversity (i.e., socioeconomic risk, single parent status) was associated more strongly with child externalizing behavior compared to an environment in which parents were more supportive. Empirical studies that tested Darling and Steinberg's (1993) hypothesis operationalized parenting practices and parenting styles differently. However, findings suggest that parenting style does moderate the association between parenting practices and beneficial outcomes.

In the current study, more monitoring through questions and rules was hypothesized to be associated with less problem behavior. Based on Darling and Steinberg's (1993) model, the link between monitoring and behavior problems was expected to differ as a function of parenting style. More specifically, the link between more parental monitoring and less problem behavior was expected to be stronger in the context of higher levels of autonomy support, structure, and involvement. Parental monitoring was expected to be most strongly linked with low levels of behavior problems when monitoring was enacted within the context of exchanges that meet adolescents' needs for autonomy support, competence, and relatedness.

Hypothesis 1

Higher levels of parental monitoring through questions and monitoring through rules are associated with less adolescent problem behavior.

Hypothesis 2

Higher levels of autonomy support, structure, and involvement are linked with less behavior problems.

Hypothesis 3

Parental monitoring through questions and monitoring through rules interact with autonomy support, structure, and involvement to predict behavior problems such that the link between parental monitoring through questions and monitoring through rules and behavior problems is stronger at higher levels of autonomy support, structure, and involvement.

Methods

Participants

Participants included 276 parents and 242 adolescents (50.8% female), ranging from 14 to 17 years of age (*M* age = 15.4 years, *SD* = .78). The adolescent age group was selected for three reasons. First, adolescents spend most of their time unsupervised by parents (Larson, Richards, Moneta, Holmbeck, & Duckett, 1996). Second, compared to younger youths and adults, adolescents have a higher rate of problem behavior (Steinberg & Morris, 2001). Third, most studies in the first, second, and third waves of parental monitoring research tested their hypotheses using adolescent samples. In the current study, adolescents were ethnically diverse, and were identified by their parents as white (50%), Hispanic (16%), African American (18%), or of another ethnicity (16%). One parent from each family was required to participate in the study. However, all parents were invited to participate. Only 1 parent participated (80% mothers) in most families (*n* = 208), but two parents participated in 34 families. The parent participants mainly consisted of mothers (70%) or fathers (25.5%) while a few (< 5%) self-reported as grandparents, aunts, or step-parents. Most parents were female (73%), and were in their first marriage (54%), had been remarried at least once (19%) or were living together (2%). Mean family income per year ranged from $60,000 to $80,000. An annual family income of $20,000 or less was reported by 8% of families, and 33% of families reported annual incomes of more than $100,000.

Procedures

After IRB approval, adolescents were recruited from drivers' education courses at two different sites in Jefferson Parish (i.e., county) Louisiana in the United States. All adolescents were required to complete a driver's training program prior to obtaining a learner's permit or intermediate license, according to the Louisiana GDL regulations. Participants were recruited from a privately-owned drivers' training school and at courses held at the Jefferson Parish School System (JPSS). At the private driving school, members of the research team provided adolescents with information about the study at the first drivers' education course. Those interested in participating were given parental consent, permission, and assent forms along with parent and adolescent questionnaires. Research members collected the completed forms and questionnaires one week later. The majority (n = 141) of participants were recruited from the private driving school. Recruitment also occurred through drivers' education courses held at the Jefferson Parish School System (JPSS) (n = 100). Parents and adolescents were recruited over the course of two sign-up nights, and were provided with information about the study. Families were given consent forms and questionnaires to be completed and returned the next week. At both sites, participants were given $50 for returning completed questionnaires.

Measures

Monitoring Behavior

To assess monitoring through rules, parents and adolescents responded to six items formulated by Stattin and Kerr (2000; e.g. "Before you leave the house, how often do your parents require you to tell them where you are going and with whom?"). Previous studies have shown these item sets to be internally consistent and associated with less child behavior problems (Kakihara, Tilton-Weaver, Kerr, & Stattin, 2010; Keijsers et al., 2010; Keisner et al.,

2009; Stattin & Kerr, 2000; Willoughby & Hamza, 2011). Parental monitoring through questions was assessed through eight items (e.g. "Before you leave the house, how often do your parents ask what you plan to do?"). The item set for monitoring through questions is an expanded version of the items used by Stattin and Kerr (2000). Stattin and Kerr's (2000) items primarily assessed how often parents ask about adolescents' free time and school activities in a general way (e.g. "How often does your mother ask what happened in your free time?"). The monitoring through questions measure in the present study assessed more specifically about monitoring-relevant questioning (e.g. "How often do your parents ask who will be with you?") both before leaving home and upon returning. Although these newly developed items have not been evaluated, the original items on which they were measured are internally consistent and associated with lower levels of child problem behavior (Keijsers et al., 2010; Laird, Criss, Pettit, Dodge, & Bates, 2008; Laird, Marrero, & Sentse, 2010). Participants responded to the monitoring through rules and the monitoring through questions items using a five-point scale (0 = *never* to 4 = *always*). Separate scores for parents and adolescents were computed, and indicated the extent to which parents monitor through rules (αs = .69 and .80, for parent and teen reports, respectively) and monitor through questions (αs = .88 and .91, for parent and teen reports, respectively). Higher scores indicated more monitoring through questions and rules.

Style Dimensions

Parental involvement, structure, and autonomy support were assessed using the Parenting as a Social Context Questionnaire (Skinner, Johnson, & Snyder, 2005). Parents and adolescents responded to four items measuring involvement (e.g., "My parents enjoy being with me"), four assessing structure (e.g., "My parents explain the reason for our family rules"), and four measuring autonomy support (e.g., "My parents try to understand my point of view") by using a

four-point scale (1 = *not at all true* to 4 = *very true*). Skinner et al., (2005) reported adequate reliability for parent-reported autonomy support, structure, and involvement (e.g., αs > .60) and good reliability for child-reported autonomy support, structure, and involvement (e.g., αs > .79). Also, parental autonomy support, structure, and involvement were each associated with lower levels of adolescent problem behavior (Skinner et al., 2005). Parents reported on their own personal behavior while adolescents reported their perception of both parents' parenting style. Scores were computed separately and assessed perceptions of parental autonomy support (αs = .64 and .67, for parent and teen reports, respectively), structure (αs = .61 and .75, for parent and teen reports, respectively), and involvement (αs = .64 and .73, for parent and teen reports, respectively).

Problem Behavior

The Problem Behavior Frequency Scale, developed by Farrell, Kung, White, and Valois (2000) was used to assess adolescent problem behavior (e.g., How many times in the last month did you threaten to hit another teenager?"). The items have been shown to be internally consistent (De Los Reyes, Goodman, Kliewer, & Reid-Quiñones, 2010; Laird, Marrero, & Sentse, 2010). Also, less problem behavior, assessed by The Problem Behavior Frequency Scale, has been linked to higher levels of parental monitoring (Bowman, Prelow, & Weaver, 2007; Kung & Farrell, 2000; Laird, Marrero, & Sentse, 2010). Adolescents reported the frequency of engaging in problem behavior on twenty-six items by using a three-point scale (0 = *never* to 3 = *always*). The measure includes items assessing physical aggression, non-physical aggression, drug use, and delinquent behaviors. For the purpose of this study, a composite mean score was used as an indicator of overall antisocial behavior (α = .94).

Results

Results from four sets of analyses will be presented. The first set of analyses focused on descriptive means and standard deviations and sought to determine whether there were sex and ethnicity differences in reports of parental monitoring and parenting style. The next set of analyses tested bivariate associations between predictor variables and between predictor variables and outcome variables. These analyses provide preliminarily tests of the main-effects hypotheses. The third set of analyses tested multivariate associations and included interaction terms. The multivariate analyses test the primary hypothesis that parental monitoring through questions and monitoring through rules will interact with autonomy support, structure, and involvement to predict problem behaviors. Inspection of significant interaction terms will reveal whether the associations linking problem behavior with monitoring through questions and monitoring through rules are stronger at higher levels of autonomy support, structure, and involvement, as hypothesized. All analyses were repeated after dichotomizing problem behavior.

In some families (n = 34), two parents participated in the study, which violates the assumption of independence of observations. Therefore, analyses were conducted in MPLUS 6.11 (Muthén & Muthén, 2010) using the "type = complex" specification to correct the standard errors for the nested nature of the data. This method of accommodating data from multiple parents in some, but not all, families was used for each analysis. The p-values for all results reported in the text and tables have been corrected in this manner, when necessary.

Table 1.

Means and Standard Deviations for Parental Monitoring and Parenting Style Variables as a Function of Adolescent Sex

Variable	Overall	Males	Females	*p*
Questions AR	3.12 (.80)	3.00 (.82)	3.22 (.78)	.044
Questions PR	3.59 (.52)	3.40 (.65)	3.65 (.44)	.16
Rules AR	2.99 (.77)	2.88 (.82)	3.11 (.70)	.020
Rules PR	3.51 (.51)	3.38 (.61)	3.56 (.46)	.45
Involvement AR	3.12 (.75)	3.06 (.77)	3.19 (.72)	.19
Involvement PR	2.76 (.29)	2.69 (.34)	2.78 (.27)	.29
Structure AR	2.39 (.81)	2.34 (.84)	2.44 (.77)	.33
Structure PR	2.68 (.36)	2.63 (.42)	2.70 (.33)	.35
Autonomy Support AR	2.69 (.74)	2.60 (.74)	2.79 (.74)	.06
Autonomy Support PR	2.63 (.33)	2.58 (.33)	2.65 (.33)	.54
Problem Behavior	.20 (.37)	.19 (.40)	.22 (.35)	.67

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, all other values not significant. AR = adolescent report; PR = parent report.

Descriptive Statistics and Demographic Group Differences

Tables 1 and 2 present overall means as well as means for males and females, and for different ethnic groups. Adolescents and parents reported relatively high levels of monitoring and parenting styles that meet adolescents' needs. Adolescents reported low levels of behavior problems. Adolescent-reported monitoring through rules and monitoring through questions, but not autonomy support, structure, or involvement, differed as a function of adolescent sex. Adolescent females reported higher levels of monitoring through questions and monitoring through rules than did adolescent males. There were no significant mean-level ethnicity

differences in the monitoring or parenting style variables. Furthermore, no mean level ethnicity or sex differences were found for adolescent-reported problem behavior. Therefore, sex and ethnicity were not controlled in subsequent analyses.

Table 2.

Means and Standard Deviations for Parental Monitoring and Parenting Style Variables as a Function of Ethnicity

Variable	Black	White	Hispanic	Other	*p*
Questions AR	3.15 (.90)	3.07 (.81)	3.22 (.72)	3.06 (.78)	.57
Questions PR	3.56 (.58)	3.55 (.51)	3.69 (.42)	3.59 (.57)	.39
Rules AR	3.11 (.79)	2.97 (.78)	3.03 (.75)	2.91 (.74)	.53
Rules PR	3.66 (.43)	3.45 (.52)	3.51 (.49)	3.53 (.55)	.19
Involvement AR	3.13 (.78)	3.16 (.75)	3.23 (.68)	2.93 (.72)	.37
Involvement PR	2.74 (.31)	2.79 (.28)	2.74 (.25)	2.70 (.36)	.37
Structure AR	2.39 (.72)	2.45 (.80)	2.44 (.87)	2.15 (.82)	.36
Structure PR	2.76 (.31)	2.66 (.34)	2.66 (.35)	2.68 (.45)	.37
Autonomy Support AR	2.64 (.78)	2.74 (.75)	2.72 (.76)	2.61 (.59)	.63
Autonomy Support PR	2.64 (.36)	2.63 (.31)	2.62 (.30)	2.62 (.38)	.88
Problem Behavior	.17 (.36)	.21 (.41)	.23 (.37)	.18 (.25)	.62

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, all other values not significant. AR = adolescent report; PR = parent report.

Standardized Covariances

Standardized covariances among variables of interest are shown in Table 3. Bivariate associations testing the links among measures of parental monitoring show that the four monitoring variables were significantly associated with one another both within and across informants. Only two of the 15 bivariate associations testing links among measures of parenting

style were non-significant, suggesting that parenting style variables are generally associated with one another, both within and across informants.

Bivariate associations testing the links among measures of parental monitoring and parenting style show that adolescent-reported autonomy support and structure were associated with more monitoring through questions and rules. Involvement was only linked to higher adolescent-reported monitoring through rules. Involvement was not linked to monitoring through questions. Bivariate associations among parent-reported data showed a more consistent pattern. Specifically, more parental reported involvement, autonomy support, and structure were each associated with higher parent-reported monitoring through questions and monitoring through rules. Cross informant bivariate associations show that the adolescent-reported parenting style variables were not significantly associated with parent-reported measures of parental monitoring. Similarly, parent-reported structure was not linked to adolescent-reported measures of parental monitoring. However, parent-reported autonomy support was associated with more adolescent-reported monitoring through questions, and parent-reported involvement was associated with higher levels of both adolescent-reported monitoring through rules and monitoring through questions. Generally, within informant, parenting style variables were associated with parental monitoring variables. However, only three of the 12 cross-informant bivariate associations were significant. More parent-reported autonomy support was linked to higher adolescent-reported monitoring through questions, and more parent-reported involvement was linked to higher measures of both forms of adolescent-reported monitoring.

Table 3.

Standardized Covariances Among Parental Monitoring and Parenting Style Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Questions AR													
2. Questions PR	.35***												
3. Rules AR	.69***	.28***											
4. Rules PR	.23***	.57***	.29***										
5. Involvement AR	.17	.05	.18*	.07									
6. Involvement PR	.20**	.27***	.14*	.25**	.18*								
7. AS AR	.19**	0.03	.20**	.00	.68***	.16*							
8. AS PR	.16*	.27***	.10	.23***	.16*	.51***	.21**						
9. Structure AR	.22**	.05	.20**	.08	.63***	.22**	.62***	.17*					
10. Structure PR	.13	.17*	.12	.15*	.09	.49***	.51***	.08	.12*				
11. Behavior Problems AR	-.22***	-.16	-.10	-.09	-.23**	-.10*	-.25***	-.16*	-.10	-.06			
12. Behavior Problems AR (no BP = 0, BP > = .001)	-.16	-.11	-.34**	-.10	-.18	-.14	-.27**	-.13	-.13	-.07	.35***		
13. Adolescent Age (14-17)	.07	-.09	.05	-.12	-.08	-.08	-.01	.01	-.02	-.02	.01	-.17*	
14.Marital Status (two parent family = 0; single parent family= 1)	.002	.02	.02	-.05	-.11	-.11*	-.07	-.06	-.17**	-.03	-.02	.05	.16**

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, all other values not significant. AR = adolescent report; PR = parent report; AS = autonomy support; BP = behavior problems.

Bivariate associations testing the links between two monitoring variables and problem behavior show that the only significant association was between higher adolescent-reported monitoring through questions and less problem behavior. In contrast, bivariate associations between parenting style and problem behavior were more consistent. Particularly, both adolescent-reported and parent-reported involvement and autonomy support, but not structure, were significantly linked to less adolescent-reported problem behavior.

When problem behavior was dichotomized, bivariate associations testing the links among the two monitoring variables, parenting style, and problem behavior showed a different pattern. In contrast to associations among problem behavior as a continuous variable with parental monitoring and parenting style variables, only two significant links were found when problem behavior was dichotomized. Compared to adolescents who did not report problem behavior, adolescents who did report problem behavior also reported less monitoring through rules and autonomy support.

Among the bivariate associations testing the link among adolescent age, marital status, and measures of monitoring, style, and behavior problems, only 4 were significant. Adolescents who reported problem behavior were younger compared to adolescents who did not report problem behavior. Single parents reported lower levels of involvement compared to married parents. Adolescents in single-parent families, compared to two-parent families, reported lower levels of structure and were overall, older.

Multivariate Analyses

Multivariate analyses involved a series of regression equations in which the monitoring and parenting style variables, as well as interactions between variables, predicted adolescent problem behavior. Specifically, parental monitoring through questions and monitoring through

rules (independent variables) as well as involvement, autonomy support, and structure (moderators) were regressed on problem behavior. Interaction terms (independent variable x moderator) were formed from centered variables and regressed on problem behavior to test moderation. All interaction terms were tested individually to maximize statistical power.

The first set of analyses tested multivariate models with all variables reported by the same informant (i.e., included parental monitoring, parenting style, and problem behavior reported by adolescents followed by parent-reported parental monitoring, parenting style, and adolescent-reported problem behavior). A second set of analyses tested multivariate models with parental monitoring variables reported by one informant, and parenting style variables reported by the other informant. A third set of analyses was conducted to determine if results from the first two sets of analyses differed substantially from results when controlling for all main effects. A final analysis was conducted with all main effects (i.e., all parent-reported and adolescent-reported monitoring and parenting style variables) entered on the first step. Each interaction term was tested separately in a series of second steps. All significant findings from the first two sets of analyses were reproduced in the third set of analyses. Therefore, only results from the third set of multivariate analyses are presented in Table 4.

More behavior problems were associated with less monitoring through questions, involvement, and autonomy support as reported by adolescents. In contrast, more behavior problems were associated with more adolescent-reported structure. Adolescent-reported monitoring through rules and all of the parent reports were not uniquely associated with behavior problems. None of the within informant interactions between measures of parental monitoring and parenting style were not significant. However, two cross informant interactions were significant. Specifically, interactions between adolescent-reported monitoring through questions

and parent-reported autonomy support, and between parent-reported monitoring through rules and adolescent-reported structure were significant.

Interactions were interpreted using procedures developed by Preacher, Curran, and Bauer (2006). As shown in Figure 1, simple slopes demonstrated that more adolescent-reported monitoring through questions was more strongly associated with less behavior problems at low levels of parent-reported autonomy support (b = -.16, SE = .07, p = .02), than at moderate (b = -.10, SE = .05, p = .07), or high levels of autonomy support (b = -0.03, SE = .07, p = .60). Regions of significance showed that at levels of parent-reported autonomy support .15 standard deviations below the mean and lower, monitoring through questions was significantly associated with less behavior problems. The interaction between parent-reported monitoring through rules and adolescent-reported structure also was significant. Simple slopes presented in Figure 2 show that more monitoring through rules were associated with more behavior problems at high levels of structure (b = .15, SE = .05, p = .01), but not at moderate (b = 0, SE = .04, p = .93) or low (b = -.14, SE = .11, p = .21) levels of structure. Regions of significance showed that when adolescent-reported structure is .40 standard deviations above the mean and higher, parent-reported monitoring through rules are associated with more behavior problems.

Table 4.

Behavior Problems Regressed on Parental Monitoring and Parenting Style

	B	*SE*	*β*	*P* value
Main effects (all simultaneous)				
	Adolescent-reported Monitoring and Style			
Questions	-.12	.06	-.23	.03
Rules	.07	.07	.13	.32
Involvement	-.08	.04	-.16	.03

Table 4 continued	*B*	*SE*	*β*	*P* value
Autonomy Support (AS)	-.11	.05	-.22	.01
Structure	.08	.03	.17	.03
Parent-reported Monitoring and Style				
Questions	-.07	.06	-.10	.23
Rules	-.01	.06	-.10	.88
Involvement	.02	.08	.02	.77
Autonomy Support (AS)	-.08	.08	-.07	.28
Structure	.00	.07	.00	.96
R^2	.14			
Interactions (individually)				
Adolescent-reported Monitoring and Style				
Questions x Involvement	.02	.03	.04	.54
Questions x AS	.04	.05	.07	.42
Questions x Structure	-.02	.04	-.03	.70
Rules x Involvement	-.02	.04	-.03	.64
Rules x AS	-.03	.03	-.05	.35
Rules x Structure	-.02	.03	-.03	.55
Parent-reported Monitoring and Style				
Questions x Involvement	.20	.18	.09	.27
Questions x AS	.27	.21	.13	.16
Questions x Structure	-.23	.17	-.11	.17
Rules x Involvement	.08	.09	.04	.38
Rules x AS	.20	.16	.10	.15
Rules x Structure	.14	.15	.08	.36
Adolescent-reported Monitoring, Parent-reported Style				
Questions x Involvement	.06	.08	.05	.44

Table 4 continued	*B*	*SE*	*β*	*P* value
Questions x AS	.19	.12	.15	.04
Questions x Structure	-.02	.08	-.02	.80
Rules x Involvement	-.10	.08	-.07	.17
Rules x AS	-.12	.11	-.09	.22
Rules x Structure	-.05	.08	-.04	.50
Parent-reported Monitoring, Adolescent-reported Style				
Questions x Involvement	-.02	.10	-.02	.81
Questions x AS	-.05	.10	-.04	.65
Questions x Structure	-.03	.10	-.03	.75
Rules x Involvement	.10	.10	.10	.29
Rules x AS	.08	.11	.07	.48
Rules x Structure	.18	.09	.19	.04

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, all other values not significant. AR = adolescent report; PR = parent report

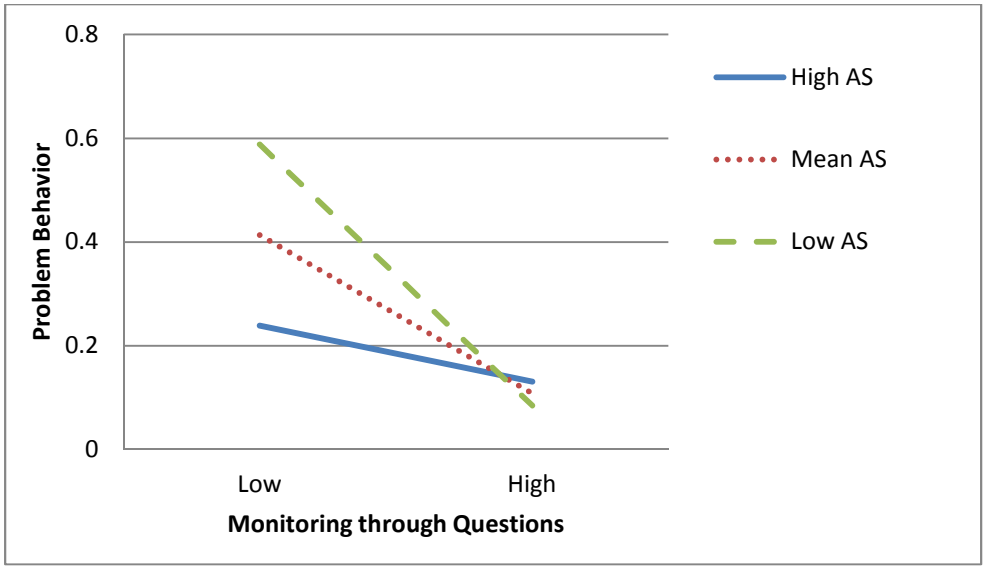

Figure 1. Adolescent-Reported Monitoring through Questions x Parent-Reported Autonomy Support Predicting Problem Behavior

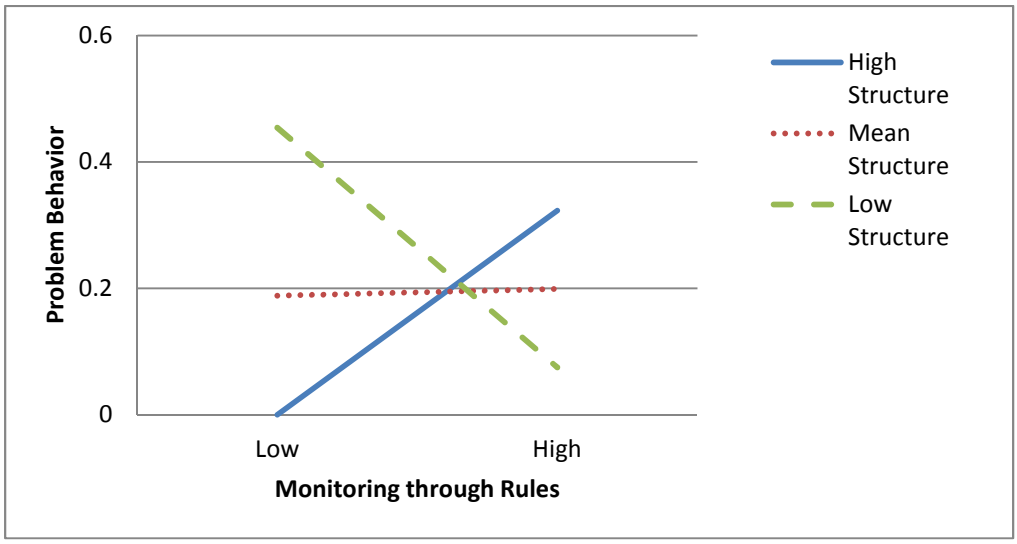

Figure 2. Parent-Reported Monitoring through Rules x Adolescent-Reported Structure Predicting Problem Behavior

Multivariate analyses were again conducted with behavior problems as a dichotomized outcome variable (see Table 5). Results showed two significant associations between behavior problems and one monitoring and parenting style variable. Adolescents with behavior problems reported less monitoring through rules and less autonomy support than adolescents who did not engage in problem behavior. Adolescent-reported monitoring through rules and all of the parent reports were not uniquely associated with behavior problems. None of the within informant or cross informant interactions between measures of parental monitoring and parenting style were significant.

Table 5.

Dichotomized Problem Behavior Regressed on Parental Monitoring and Parenting Style

	B	*SE*	*β*	*P* value
Main effects (all simultaneous)				
Adolescent-reported Monitoring and Style				
Questions	.20	.20	.15	.32
Rules	-.53	.24	-.37	.029
Involvement	-.07	.21	-.05	.75
Autonomy Support (AS)	-.44	.21	-.29	.037
Structure	.25	.18	.18	.17
Parent-reported Monitoring and Style				
Questions	-.14	.26	-.07	.59
Rules	.05	.25	.02	.86
Involvement	-.21	.37	-.05	.58
Autonomy Support (AS)	-.10	.35	-.03	.77
Structure	.08	.29	.03	.78
R^2	.18			
Interactions (individually)				
Adolescent-reported Monitoring and Style				
Questions x Involvement	-.02	.20	-.01	.94
Questions x AS	.04	.24	.02	.88
Questions x Structure	-.23	.21	-.13	.27
Rules x Involvement	-.13	.23	-.08	.58
Rules x AS	-.20	.23	-.12	.38
Rules x Structure	-.17	.23	-.10	.46
Parent-reported Monitoring and Style				

Table 5 continued	*B*	*SE*	*β*	*P* value
Questions x Involvement	-.31	.52	-.05	.56
Questions x AS	-.24	.58	-.04	.68
Questions x Structure	-.25	.56	-.04	.65
Rules x Involvement	.33	.53	.06	.53
Rules x AS	.10	.66	.02	.88
Rules x Structure	.76	.66	.13	.25
Adolescent-reported Monitoring, Parent-reported Style				
Questions x Involvement	-.31	.38	-.08	.42
Questions x AS	-.01	.41	-.001	.99
Questions x Structure	-.30	.36	-.08	.40
Rules x Involvement	-.35	.44	-.09	.42
Rules x AS	-.19	.44	-.05	.67
Rules x Structure	-.31	.48	-.08	.53
Parent-reported Monitoring, Adolescent-reported Style				
Questions x Involvement	.32	.25	.10	.19
Questions x AS	-.19	.27	-.05	.48
Questions x Structure	-.03	.22	-.01	.90
Rules x Involvement	.06	.29	.02	.84
Rules x AS	-.09	.26	-.03	.72
Rules x Structure	.32	.27	.10	.23

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, all other values not significant. AR = adolescent report; PR = parent report

Discussion

The purpose of the current study was to determine whether the association between parental monitoring and adolescent problem behavior was moderated by the style with which parents communicated with their adolescents. Results show that more monitoring and more

positive parenting styles were associated with fewer behavior problems. Also, there is some evidence of significant interactions between parental monitoring and parenting style variables, but the interactions did not suggest that monitoring was linked to fewer behavior problems in the context of high levels of structure, involvement, or autonomy support.

Stattin and Kerr (2000) critiqued the second wave of parental monitoring literature and recommended that researchers separate parenting behaviors from child behaviors in order to determine how these behaviors are linked differentially to parental awareness of child activities and children's behavior problems. Results from studies following Stattin and Kerr's (2000) recommendation have not been entirely consistent. For example, some studies show that monitoring is linked to less problem behavior (e.g., Fletcher et al., 2004; Keijsers et al., 2009; Kerr & Stattin, 2000; Willoughby & Hamza, 2011) while others do not (Keisner et al., 2009). Therefore, following Darling and Steinberg's (1993) disaggregation of parenting practices and parenting style, the current study hypothesized that parenting style may influence the relations between parental monitoring and adolescent problem behavior such that parental monitoring is linked to lower levels of problem behavior in the context of high autonomy support, structure, and involvement.

Parental monitoring through questions and monitoring through rules were hypothesized to interact with autonomy support, structure, and involvement to predict behavior problems. Furthermore, the link between parental monitoring through questions and monitoring through rules was expected to be stronger at higher levels of autonomy support, structure, and involvement. Twenty-four interactions were tested but few links (less than 10%) were significant. Furthermore, neither significant interaction was consistent with the expected pattern.

Higher adolescent-reported monitoring through questions was more strongly associated with fewer behavior problems at lower levels of parent-reported autonomy support. This finding suggests that low monitoring through questions is only problematic in the context of low autonomy support. Therefore, in the presence of either high parental autonomy support or high monitoring through questions, problem behavior is low. For example, in families with high levels of parental autonomy support, more monitoring through questions is not linked with low problem behavior because there is already a low rate of problem behavior. In other words, monitoring through questions can compensate for a low autonomy-supportive environment. From a parent effect perspective, monitoring through questions or providing autonomy support is associated with lower behavior problems. From a child effect perspective, well-behaved children permit parents to engage in monitoring through questions or to provide autonomy support. Thus, even though these results do not directly support the hypothesized pattern, problem behaviors are low in the context of both autonomy support and monitoring through questions.

Higher parent-reported monitoring through rules was associated with more behavior problems at high levels of adolescent-reported structure, but was not significantly associated with behavior problems at moderate or low levels of structure. This finding suggests that when parents provide more structure, higher levels of monitoring through rules are linked with more behavior problems, which is opposite from the hypothesized moderation effect. When parents provide a high degree of structure in combination with monitoring through rules, adolescents may perceive parents as over-controlling. Furthermore, consistent with previous research (Kakihara et al., 2010; Kerr & Stattin, 2000), adolescent reports of feeling controlled may be associated with more problem behavior. These data may also be evidence that parents solicit more information and implement more rules when adolescents frequently misbehave in an effort

to decrease problem behavior. The two significant interactions do suggest that parenting style alters the association between monitoring and behavior problems. However, there is no evidence that more parental monitoring was more strongly linked to less behavior problems in the context of high autonomy support, structure, or involvement.

The secondary goal of the study was to replicate previous findings. Higher levels of parental monitoring through questions and monitoring through rules were expected to be associated with less adolescent problem behavior. Generally, results from bivariate and multivariate analyses were consistent with expectations in showing that more monitoring is linked with less adolescent problem behavior. There were two notable patterns within the matrix of associations.

The first pattern showed that monitoring through questions and monitoring through rules may be differentially associated with problem behavior. Monitoring through questions, but not monitoring through rules, was significantly associated with behavior problems. Adolescents may perceive parental questions as more controlling and invasive compared to monitoring through a set of rules. Several studies have shown that monitoring through questions and rules have different effects (Keisner et al., 2009; Kerr et al., 2010; Stattin & Kerr, 2000; Willoughby & Hamza, 2011). Compared to monitoring through questions, higher levels of monitoring through rules have been more consistently linked to less problem behavior (Keisner et al., 2009; Willoughby and Hamza, 2011). Additionally, Stattin and Kerr (2000) found that when controlling for disclosure, monitoring through rules predicted less behavior problems whereas monitoring through questions predicted more behavior problems. Other studies have shown that monitoring through questions is associated with more positive outcomes. For example, Kerr et al., (2010) showed that more monitoring through questions, but not monitoring through rules,

significantly predicted an increase in delinquency longitudinally. Overall, these results and results from the current study suggest that monitoring through questions and rules have different associations with problem behavior, and should not be considered interchangeable indices of monitoring behavior.

The second pattern shows that associations between measures of monitoring and problem behavior differ by informant. More adolescent-reported monitoring through questions, but not parent-reported monitoring through questions, was linked to less problem behavior. Results from the current study are consistent with previous research linking adolescent-reported monitoring, but not parent-reported monitoring, to less problem behavior (Keijsers et al., 2010; Laird, Marrero, & Sentse, 2009). Laird, Marrero, and Sentse (2010) found that more adolescent-reported monitoring through rules and monitoring through questions were each associated with less adolescent-reported problem behavior. Parent-reported monitoring, however, was not associated with less problem behavior. These results, along with results from the present study, suggest that parent and adolescent reports are weakly correlated (Conger & Ge, 1999; Laird & Weems, 2011). Therefore, it was important to include both parent-reported and adolescent-reported data in subsequent multivariate analyses to determine if results differed by informant.

In addition to monitoring, autonomy support, involvement, and structure were each hypothesized to be associated with less problem behavior. Standardized covariances showed that more adolescent-reported and parent-reported involvement and autonomy support were each linked to less problem behavior, which is consistent with expectations. Adolescent-reported and parent-reported structure were associated with problem behavior in the expected direction, however, the link was not significant. Results from multivariate analyses showed that adolescent-reported autonomy support, structure, and involvement were significantly associated with less

problem behavior. Importantly, when controlling for other measures of parental monitoring and style in the multivariate model, structure became significantly associated with more problem behavior. In other words, the bivariate association between structure and problem behavior was non-significant, but the association between structure and problem behavior in the multivariate model was positive and significant. These results are inconsistent with expectations and indicate the presence of a suppression effect due to multicollinearity.

The weak and inconsistent link between structure and behavior problems may be a function of the way structure has been operationalized in previous studies compared to the current study. For example, Grolnick and Ryan (1989) defined structure as the presence of clear and consistent parental rules and regulations. In the present study, items used to measure structure assessed the presence of clear and consistent guidelines but also included other items, such as how often parents help adolescents achieve a desired outcome (Skinner, Johnson, & Snyder, 2005). The weak link between structure and behavior problems may be a result of how structure is operationalized or possibly a function of the current sample. Therefore, in order to distinguish between these possibilities, more research linking problem behavior to parenting style, developed by Skinner, Johnson, and Snyder (2005) is needed.

There were no sex or ethnicity differences in parents' or adolescents' reports of parenting style, or in parents' reports of monitoring. The only sex differences were found for adolescents' reports of monitoring. Females reported higher levels of monitoring through rules and monitoring through questions than males. Results from past studies have also shown sex differences in reports of monitoring. Specifically, females report higher levels of parental monitoring compared to males (Borawski et al., 2003, Keijsers et al., 2010; Kerr & Stattin, 2000; Stattin & Kerr, 2000).

Strengths of the study include operationalizing monitoring using variables that focus on what parents are doing, as recommended by Stattin and Kerr (2000). By excluding other measures (i.e., parental knowledge, child disclosure) the link between parental monitoring efforts and both parenting style and adolescent problem behavior was more clearly observed. An additional strength was using parent and adolescent reports, which provided evidence of whether findings were specific to a single informant or were generalizable across informants. Lastly, sex and ethnicity differences were observed prior to analyses to determine if they should be controlled in subsequent analyses. Past literature has shown that monitoring and style differ as a function of sex and ethnicity, respectively. Mean level differences have been found in measures of parental monitoring (Borawski et al., 2003, Keijsers, et al., 2010; Kerr & Stattin, 2000; Stattin & Kerr, 2000) and problem behavior (Keijsers et al., 2009; Kerr & Stattin, 2000). Also, the effectiveness of different forms of parenting style, as operationalized by Baumrind (1967, 1971), has been linked to different ethnic groups (Steinberg, Dornbusch, & Brown, 1992). Therefore, it was important to examine the presence of mean level differences before testing primary hypotheses.

This study also has several limitations. The study was cross-sectional, therefore, it was not possible to examine how links between measures of monitoring, parenting style, and problem behavior change over time. Also, in addition to parenting influencing adolescent behavior, research has shown that child behavior problems impact parenting (Bell, 1968; Lytton, 1990). Thus, the association between parenting and child behavior problems may be bidirectional and transactional, and cross-sectional analyses are insufficient to deal with the complexity. The internal consistency for several of the style and monitoring measures was less than desired, which may have attenuated associations. Lastly, information was only gained through self-report

measures. A multi-method approach to assessing parental monitoring, parenting style, and problem behavior would have been more informative.

In conclusion, the present study provides evidence to support the link between more parental monitoring and less problem behavior (Fletcher et al., 2004; Keijsers et al., 2009; Kerr & Stattin, 2000; Willoughby & Hamza, 2011). Furthermore, results are consistent with other studies that have drawn a link between high autonomy support and involvement and positive child outcomes (Farkas & Grolnick, 2010; Grolnick & Ryan, 1989; Grolnick et al., 2000). While two interactions between parental monitoring and parenting style variables were significant, parental monitoring was not linked to lower levels of behavior problems in the context of high autonomy support, involvement, and structure.

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