PARENTAL AWARENESS AS A MEDIATOR OF THE RELATION BETWEEN MARITAL CONFLICT AND ADOLESCENT BEHAVIOR CONDUCT COMPETENCE

A Thesis

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by

Amber Marie Grundy, B. A.

Dawn M. Gondoli, Director

Graduate Program in Psychology

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Abstract

by

Amber Marie Grundy

The present paper examined relations between marital conflict, aspects of parenting, and adolescent behavioral outcomes. Specifically, the present study considered whether maternal awareness or maternal behavior control, or both, mediated the relation between overt marital conflict and adolescent behavior conduct competence, as well as a number of alternative models. Four years of self-report data were collected from 133 mothers and their adolescents, beginning when the adolescents were in fourth grade. Marital conflict, maternal awareness, maternal behavior control, and adolescent behavior conduct competence were assessed at all four time points in order to apply a recent methodology for assessing longitudinal mediating patterns. The results suggested that maternal awareness, but not maternal behavior control, mediated the relation between marital conflict and adolescent behavior conduct competence. Thus, the present study identified one possible parenting process through which marital conflict may affect adolescent behavior.
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INTRODUCTION

Marital conflict has been consistently linked to negative child outcomes in numerous studies (e.g. Cox, Paley, & Harter, 2001; Cummings, 1998; Davies & Cummings, 1994; Erel & Burman, 1995; Krishnakumar & Buehler, 2000). Conflict has been shown to be associated with a range of child externalizing and internalizing problems, including aggression, conduct problems, delinquency, anxiety, and depression (see Cummings & Davies, 1994, for review). In fact, Emery (1982) concluded that marital discord is the best familial predictor of childhood behavioral and emotional problems.

In addition to behavioral and emotional symptomatology, high levels of marital conflict have been associated with decreased competence or diminished adaptive functioning among children and adolescents in a variety of areas, including behavioral, social, and academic realms (Emery & O’Leary, 1984; Long, Forehand, Fauber, & Brody, 1987; Wierson, Forehand, & McCombs, 1988). These associations have been found for children of all ages, including infants (Cummings & Davies, 1994), preschool children (Block, Block, & Morrison, 1981), and school-aged children (Emery, 1982; Emery & O’Leary, 1984). Such results suggest that it is important to investigate relations between marital conflict and child adjustment or well-being, as well as between marital conflict and child psychological and behavioral symptoms.

Although there has been some research focused exclusively on the effect of marital conflict on adolescents (e.g., Linver & Silverberg, 1997), much of the research has
continued to focus on younger children. It may be particularly important to consider adolescents, however, because adolescence presents an important transitional period for parents and their children. Cox and Paley (1997) suggested that transitional periods are particularly important areas of study because of the challenges and reorganizations taking place during these times. With respect to marital conflict, Easterbrooks and Emde (1988) concluded that the effect of marital conflict on parenting and child adjustment may be particularly strong at challenging times in the child’s life. Of most interest to the present paper, the transition to adolescence presents a number of normative challenges for children and parents. For instance, according to Collins, Madsen, and Susman-Stillman (2002), pre-adolescence and adolescence are characterized by increases in the adolescent’s ability to reason, an increased desire for autonomy and mutual authority in the parent-child relationship, and less direct parental supervision (see also, Sturge-Apple, Gondoli, Bonds, & Salem, 2003). Although most parents and adolescents negotiate these challenges successfully, the transition can be stressful. Marital conflict is likely to add additional stress for mothers during an already challenging transitional period. Such stress may impact parenting and subsequent adolescent adjustment.

In order to capture the effects of marital conflict during a transitional period, however, it is necessary for researchers to conduct longitudinal research. Grych (2002) emphasized that it is not acceptable to simply document the correlations between marital conflict and child adjustment problems; instead, researchers need to consider multiple factors and influences, and their effects over time. There has also been a call for more process-oriented research, aimed at determining the potential mediators and moderators through which marital conflict operates on child outcomes (Cummings & Davies, 2002; Cummings, Davies, & Campbell, 2000; Cummings, Goeke-Morey, & Dukewich, 2001). The present study will address these issues by
exploring a longitudinal mediating model that links marital conflict to parenting behaviors and adolescent adjustment during the transition to adolescence.

*Parenting as a mediator*

A major focus of the current study is determining what processes might account for relations between marital conflict and adolescent outcomes over time. One possibility is that parenting-related variables may be important mediating pathways through which marital conflict affects adolescent adjustment. A number of researchers have described conceptual models that are consistent with this particular mediating perspective. Such conceptual models have focused either on affect-related or nurturance aspects of parenting and parent-adolescent relationships (e.g., parental emotional availability, involvement, and parent-child attachment), or on aspects of parenting that reflect parental organization and control behaviors (e.g., limit-setting, supervision, and monitoring). A few conceptual models, however, have focused on both affect and control dimensions. For instance, Cummings (1998) noted that the effects of marital conflict are likely to disrupt parental discipline and also foster parental emotional and psychological unavailability, lack of responsiveness, and decreased parent-child attachment. Similarly, Grych (2002) suggested that marital conflict may decrease the consistency of discipline the child receives from his or her parents, as well as undermine the quality of the parent-child relationship, in turn leading to child adjustment problems. According to Krishnakumar and Buehler (2000), there are three specific parenting behaviors that are influenced by marital conflict: involvement, discipline, and consistency. Moreover, all of these parenting behaviors are considered important influences on child adjustment.

Although limited in number, some empirical studies have explicitly tested mediating models linking marital conflict to parenting dimensions and subsequent child
and adolescent adjustment. Buehler and Gerard (2002), for instance, proposed that marital conflict leads to ineffective parenting strategies, which in turn lead to child adjustment problems. In this study, global maladjustment was measured using selected items from the Child Behavior Checklist, assessing both internalizing and externalizing behaviors (Buehler & Gerard, 2002). The authors assessed parenting on different dimensions depending on the age of the children being studied: harsh discipline and parental involvement for children aged 2 through 4; harsh discipline, parental involvement, and parental presence for children aged 5 through 11; and harsh discipline, parent-child conflict, parental involvement, and parental presence for children aged 12 through 18. They found that harsh discipline and parent-child conflict fully mediated the effects of marital conflict on adjustment for adolescents (Buehler & Gerard, 2002). They also found that parental involvement partially mediated the relation between marital conflict and child adjustment for children under age 12, but for older children (ages 12-18) the direct effect between marital conflict and parental involvement was significant only for fathers, and the link between involvement and child adjustment was significant only for mothers (Buehler & Gerard, 2002). Buehler and Gerard (2002) concluded that a measure of parental inconsistency may have resulted in greater variance explained by the parenting mediators. In addition, they hypothesized that the direct effects for younger children which were not mediated by parenting may be explained by modeling of aggressive behaviors during conflict, emotional and physiological arousal due to observing conflict, or through decreases in emotional security (Buehler & Gerard, 2002; see also, Davies and Cummings, 1998). Although these authors obtained a very large sample, a major limitation was that they utilized only cross-sectional data. Because of the lack of longitudinal data, there was no control for prior levels of any of the variables, nor was there assessment of changes in parenting or adjustment over time.
Fauber, Forehand, Thomas, and Wierson (1990) also examined mediating relationships between marital conflict and child outcomes. These authors proposed that interparental conflict affects child adjustment indirectly, through its effects on various affective and control-related aspects of parenting, including parental acceptance/rejection, psychological control, and lax behavioral control. Based on a sample of maritally intact and divorced families, these authors found that marital conflict was associated with greater parental rejection, and increased use of parental psychological control (Fauber et al., 1990). Additionally, parental rejection and psychological control mediated the relation between interparental conflict and child outcomes, particularly for internalizing problems (Fauber et al., 1990). Among intact families, parental rejection was found to partially mediate the relation between interparental conflict and externalizing outcomes (Fauber et al., 1990). However, the authors found that for all ages, lax control or inconsistent discipline did not mediate the relation between marital conflict and child adjustment as they had expected. These authors concluded that parental rejection may be especially important for child externalizing problems, that interparental conflict may disrupt parents’ ability to maintain close relationships with their adolescents, and that the relations among variables were particularly strong for intact families (Fauber et al., 1990). Despite its important implications, this often-cited study was limited by a relatively small sample, consisting of 51 divorced families and 46 intact families. Additionally, all of the data were collected at a single point in time, making the interpretation of causal relations problematic.

In another widely-cited mediational study, Stone, Buehler, and Barber (2002) found that the effects of marital conflict on child behavior were partially mediated by parents’ increased use of psychological control in their interactions with their children. Despite reliance on two samples which were both large, the data in this study
were entirely cross-sectional. Additionally, only child reports of parental conflict, parental psychological control, and child externalizing behaviors were collected.

Summary and the present study

The extant literature linking marital conflict, parenting, and child adjustment is suggestive of a mediating pattern. However, much of this research has been limited by the use of cross-sectional data, small samples, and inadequate methods for testing causal processes. The present study attempts to address these issues, by examining a model in which marital conflict leads to decreased adolescent behavior conduct competence. In this model, we predicted that the relation between marital conflict and decreased behavior conduct competence would be mediated by a variable which assesses a kind of parental involvement, maternal awareness of the adolescent’s activities, behaviors and whereabouts (see Figure 1). We hypothesized that marital conflict would have a significantly negative direct effect on behavior conduct competence. Furthermore, we hypothesized that marital conflict would also have a negative effect on a mothers’ ability to be aware of her adolescent’s activities, whereabouts, and behaviors. Awareness, in turn, was expected to have a positive relation with behavior conduct competence, such that more aware mothers have adolescents who exhibit increased behavior conduct competence. Additionally, we hypothesized that behavior conduct competence would have a reciprocal positive effect on maternal awareness, such that mothers of better-behaved adolescents would be higher in awareness. Two separate models were tested: one in which all measures were reported by the mother, and one in which the mother reported on marital conflict, and the adolescent reported on both awareness and behavior conduct competence. In subsequent sections, we provide empirical support for each link in our proposed model. First, however, we describe more fully the concept of parental awareness
and why it may be negatively affected by marital conflict.

Conceptualization of awareness

In the present study, the term awareness is used to describe the mother’s and adolescent’s perceptions of maternal knowledge about the adolescent. Awareness encompasses knowledge 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” or “awareness.”

A number of authors have made this distinction between monitoring and parental awareness. In perhaps the best known example, Kerr and Stattin (2000) and Stattin and Kerr (2000) have called for a reinterpretation of the concept that has been in the past called “monitoring.” They argue that measures which are traditionally used to measure “monitoring” are actually assessing parental knowledge or awareness. These measures ask questions such as “how much do you really know about your child’s friends?” They do not assess actual behaviors by the parents, or address the question of how they obtain this knowledge.

Despite current discussion about nomenclature, researchers agree that parental awareness seems to be an important construct across the adolescent transition. In Western, industrialized societies, children approaching late middle-childhood and early adolescence typically begin to gain more freedom from direct parental supervision (Collins, Harris, & Susman, 1995; Collins et al., 2002). During this period, children and adolescents become more involved in contexts outside the family, in-
cluding peer relationships, school, and extracurricular activities (Collins et al., 2002; Holmbeck, Paikoff, & Brooks-Gunn, 1995). They also begin to feel a greater need for autonomy, and as this behavioral autonomy increases, parents’ direct, first-hand knowledge about their adolescent’s daily activities, behaviors, and peers typically decreases (Collins et al., 2002; Crouter & Head, 2002; Crouter, Helms-Erikson, Uppedgraff, & McHale, 1999; Kerr & Stattin, 2003a; Li, Stanton, & Feigelman, 2000).

Despite decreases in direct parental supervision and immediate knowledge, however, many parents are able to maintain continued awareness of their adolescent’s experiences and activities. It is this distal parental awareness that has been shown to be associated with positive behavioral outcomes among children in middle-childhood and adolescence (for reviews, see Crouter & Head, 2002; Holmbeck et al., 1995; see also Mott, Crowe, Richardson, & Flay, 1999; Steinberg, 1986; Steinberg, Lamborn, Dornbusch, & Darling, 1992). Given the importance of maintaining a high level of parental awareness during the transition to adolescence, and the centrality of the awareness construct in the adolescent literature at this time, we will next explore the linkages between marital conflict and awareness, as well as between awareness and adolescent behavior conduct competence.

**Marital conflict and maternal awareness**

A number of conceptual pieces have proposed an association between marital conflict and decreased maternal awareness. In this body of work, marital conflict is believed to be likely to reduce a parent’s resources for parenting, and may thus present conditions that undermine parental awareness (e.g., Grych, 2002). For instance, Easterbrooks and Emde (1988) hypothesized that marital dissatisfaction may lead to emotional unavailability, which may in turn lead to an compromised ability to “monitor” sensitively, and thus to decreased awareness. According to Fincham,
Grych, and Osborne (1994), marital conflict may also lead to a lack of communication between parents regarding parenting. Decreased communication between parents may subsequently lead to decreased parental awareness because parents are not sharing information regarding their adolescent’s friends, activities, or whereabouts (Crouter & Head, 2002). Crouter and Head (2002) suggested that happier couples pay more attention to, spend more time with, interact more easily with, and are seen as more accessible by their adolescents, all situations which may lead to greater awareness. Parental awareness is also affected by the parents’ motivation to be knowledgeable about their adolescents, and marital distress may interfere with this motivation (Dishion & McMahon, 1998). Capaldi (2003) concluded that parental awareness stems from a true interest in the activities of the adolescent, and also derives from making awareness a high priority, and from regular and positive parent-adolescent communication. Parents who are heavily involved in their own marital concerns may therefore be unable to maintain high levels of awareness (Capaldi, 2003).

Although virtually no studies have examined specific connections between marital conflict and parental awareness, findings from a number of research areas suggest that marital conflict is likely to disrupt awareness. Chilcoat and Anthony (1996) reported that parental awareness decreased when parents had limited resources or less time available for caregiving. Osborne and Fincham (1996) noted that couples experiencing high levels of conflict were preoccupied with their marital problems and may withdraw from their adolescent, becoming overly permissive, disinterested, or even rejecting of their adolescents; all of these are outcomes likely to compromise awareness. Bumpus, Crouter, and McHale (1999) found that parents who are experiencing high levels of dissatisfaction with their marriage were less behaviorally and emotionally available to their children. More relevant to the present paper,
these authors also found that parents who are unhappy with their marriage have less knowledge about their child, particularly when parent work hours are high. Patterson (1982) suggested that conflict between parents may increase child anti-social behavior by reducing the effectiveness of parental discipline. In particular, a series of studies indicated that decreases in marital adjustment were found to be associated with decreases in maternal, but not paternal, awareness of children, and less involved parenting by mothers (Patterson, 1982; Patterson, Reid, & Dishion, 1992). Patterson et al. (1992) suggested that such associations may be particularly strong during times of normative transition, such as the onset of adolescence or during family reorganizations including divorce or remarriage. However, Patterson and colleagues (1982; 1992) focused entirely on samples of parents with sons and utilized only cross-sectional data.

Taken together, the current literature suggests that marital conflict may have a negative effect on parental awareness. To our knowledge, no previous research has explicitly examined the associations between marital conflict and parental awareness with a sample of adolescents. However, we hypothesize that marital conflict will be negatively associated with awareness. In turn, decreased awareness is likely to be related to decreased adolescent behavioral competence. In support of the latter hypothesis, we next review the literature linking parental awareness to behavior conduct competence.

*Parental awareness and behavior conduct competence*

Parental awareness has been shown to be a strong and consistent correlate of child and adolescent behavioral outcomes (e.g., Chilcoat & Anthony, 1996; Crouter & Head, 2002; Jacobson & Crockett, 2000). In fact, Barnes and Farrell (1992) called awareness the “very best and most consistent predictor of adolescent out-
comes” (p. 770). Low parental awareness has been shown to be associated with a variety of negative behavioral outcomes for adolescents, including association with deviant peers, early substance use, smoking, and firesetting (Brown, Mounts, & Steinberg, 1993; Dishion & Loeber, 1985; Dishion, Patterson, Stoolmiller, & Skinner, 1991; Fletcher, Darling, & Steinberg, 1995; Kolko & Kazdin, 1990; Radziszewska, Richardson, Dent, & Flay, 1996; Steinberg, 1987). A low level of parental awareness has also been linked to increased conduct problems, anti-social behaviors and delinquency, decreased school achievement, and increased early sexual activity (e.g., Biglan, Metzler, Wirt, & Ary, 1990; Crouter, MacDermid, McHale, & Perry-Jenkins, 1990; Laird, Pettit, Dodge, & Bates, 2003; Meschke & Silbereisen, 1997; Patterson, 1982; White & Kaufman, 1997). Moreover, relations between awareness and behavioral problems have been found for both at-risk (e.g., Chilcoat & Anthony, 1996; Kilgore, Snyder, & Lentz, 2000; Li, Feigelman, & Stanton, 2000; Li, Stanton, & Feigelman, 2000) and community samples (e.g., Beck, Shattuck, Haynie, & Simons-Morton, 1999; Crouter et al., 1990; Jacobson & Crockett, 2000; Kerr & Stattin, 2000; Stattin & Kerr, 2000).

Much of the previous research linking awareness to adolescent behavioral outcomes has relied on cross-sectional data. For instance, Stattin and Kerr (2000) found low awareness to be related to “normbreaking behaviors” defined as delinquency, smoking and drug use for a sample of Swedish teens. For the same sample, Kerr and Stattin (2000) reported links between higher levels of awareness and lower internalizing and externalizing behaviors, fewer deviant friends, more positive parent-adolescent relationships, and less family discord. Furthermore, Kerr and Stattin (2000) reported that higher awareness predicted better adjustment for both boys and girls, regardless of the reporter (e.g., parent or adolescent), the type of adjustment being measured, or the gender of the adolescent. Specifically, high
awareness was associated with lower delinquency, fewer school problems, and better relationships with teachers (Kerr & Stattin, 2000). High awareness was also associated with fewer delinquent peers, less time spent “hanging out on the streets,” less frequent contact with police, and better parent-adolescent relationships (Kerr & Stattin, 2000). Jacobson and Crockett (2000) found that higher awareness was associated with decreased delinquency, sexual activity, and depression, as well as increased grade point average, for a sample of lower middle-class rural adolescents in the US. High levels of awareness have also been shown to be related to the lowest instances of drinking, drug use, deviance, and school misconduct (Barnes & Farrell, 1992). Still other studies have shown that low levels of awareness are related to adolescents attending unsupervised parties and engaging in underage drinking (e.g., Beck et al., 1999).

While most studies have related high levels of awareness with decreases in negative adolescent behaviors, Crouter et al. (1990) explicitly examined the association between parental awareness and increases in positive conduct. These authors found that higher awareness was related to children’s perceived conduct, perceived school competence, and school achievement (Crouter et al., 1990). More specifically, they found that higher levels of parent- and adolescent-reported awareness were related to higher perceived school competence, measured on the Self-Perception Profile for Children (SPCC; Harter, 1985). They also found that perceived awareness was associated with parental reports of fewer learning difficulties in their pre-adolescents, and greater school achievement (Crouter et al., 1990). With regard to behavior conduct, Crouter et al. (1990) found that higher scores on the SPCC conduct subscale were related to higher levels of perceived awareness, as reported by both parents and their pre-adolescents. Awareness is clearly important an important aspect of parenting, but virtually all of the extant studies in this area have utilized cross-sectional
Authors from one research program have employed longitudinal designs and found results that support the cross-sectional work on awareness. Pettit, Laird, Dodge, Bates, and Criss (2001) found parent and adolescent reports of awareness were systematically negatively related to later reports of delinquent behavior. They also found that awareness during adolescence was preceded by a parenting style (when the child was aged five years) that was more proactive, and that took a preventive orientation towards dealing with problematic adolescent behavior (Pettit et al., 2001). Pettit and Laird (2002) found that mother-reported awareness was negatively related to anxiety and delinquent behavior problems, particularly for adolescents who did not report high levels of behavior problems in pre-adolescence. In addition, they found that levels of awareness were relatively stable between the ages of eleven and thirteen, and that those families who reported high awareness at earlier ages exhibited the greatest degree of stability (Pettit & Laird, 2002). Finally, using hierarchical linear modeling, Laird, Pettit, Dodge, and Bates (2003) found that low levels of awareness at grade 9 predicted continued low levels of awareness from grades 9 through 12. They also reported that parental awareness at grade 9 was negatively associated with grade 9 adolescent- and parent-reported behavior problems, and positively associated with grade 9 parental involvement (Laird, Pettit, Dodge, & Bates, 2003). Although they had longitudinal data available, these last findings were reported only for concurrent reports at grade 9 (Laird, Pettit, Dodge, & Bates, 2003). To summarize, awareness seems to be a very important correlate of behavior conduct competence, whether one is considering adolescents within conduct-disordered or normative community samples. There does need to be more longitudinal research, however. In particular, with longitudinal data, possible reciprocal influences of awareness and behavior conduct competence could be
Reciprocal influences between awareness and behavior conduct competence

Family systems theories propose that there are no unidirectional influences within families (Cox & Paley, 1997). Rather, parents can both affect and be affected by the behaviors of their adolescents (e.g., Kerr & Stattin, 2003b). Based on this conceptualization, awareness is therefore not solely parent-driven; it is likely to be a reciprocal process, affected by both parent and adolescent factors (Ladd & Golter, 1988; Laird, Pettit, Bates, & Dodge, 2003; Laird, Pettit, Dodge, & Bates, 2003). Studies that have explicitly examined reciprocal effects have revealed an inconsistent picture, however. For instance, some studies of older adolescents (e.g., ages 12 to 18 years) have indicated that adolescent involvement in delinquent activities predicts decreases in awareness and parental supervision over time (e.g., Jang & Smith, 1997; Paternoster, 1988).

In contrast, in a sample of early adolescents aged 11 to 13, Brody (2003) found that prior reports of externalizing behaviors were not found to be associated with change in awareness over time. However, prior reports of awareness were negatively associated with later externalizing behavior, even after controlling for stability in externalizing behaviors over time (Brody, 2003). Finally, Kerr and Stattin (2003a) found that negative adolescent behaviors may both increase and decrease parental attempts to be aware. They concluded that youths’ effects on parents are stronger than parents’ effects on their adolescents, and that the parents of delinquent youths actually decreased their attempts to be aware and in control of their adolescents over time (Kerr & Stattin, 2003a). In addition, Kerr and Stattin (2003a) noted that few longitudinal studies have addressed adolescent effects on parents. Clearly, researchers need to examine more closely the causal chains between parental awareness...
and adolescent behavior across time. Therefore, the proposed model presented in Figure 1 explicitly includes potential reciprocal effects between parental awareness and adolescent behavior conduct competence.

*Behavior control as an alternative measure of parenting*

The present study is primarily focused on whether maternal awareness mediates the relation between marital conflict and adolescent behavior conduct competence. A second goal of this research is to consider an additional dimension of parenting, behavior control. Behavior control has been defined in the literature as parenting behaviors that are designed to manage and control the adolescent’s behaviors (Barber, 1996). The present study will consider whether this alternative dimension of parenting will show the same pattern of associations with marital conflict and behavior conduct competence as maternal awareness. That is, we will assess whether behavior control also mediates the effect of marital conflict on adolescent behavior conduct competence. We have selected this particular construct for three reasons. First, the behavior control construct seems likely to be affected by marital conflict. Second, some evidence seems to suggest that it is positively associated with adolescent behavior conduct competence, although the specific findings in this area have been somewhat inconsistent. Third, as a measure of firmness and limit-setting, behavior control may represent a relatively “pure” measure of control, while awareness may tap both control and positive parental involvement dimensions. Thus, one goal of the present study is to compare and contrast these aligned, yet distinct, dimensions of parenting.

In a number of conceptual papers, authors have proposed that marital conflict is likely to affect aspects of parental control (Cox et al., 2001; Fincham et al., 1994; Grych, 2002). Several empirical studies have also examined whether marital
conflict is indeed associated with parental control behaviors. In a meta-analytic review of the literature, Krishnakumar and Buehler (2000) examined twelve articles which had examined the mediating role of parenting on the association between marital conflict and child and adolescent outcomes. They reported that the strongest associations were between marital conflict and parental over-control, operationalized as verbal criticism or physical forms of punishment (Krishnakumar & Buehler, 2000). In one specific empirical example, Cowan and Cowan (1992) found that maritally dissatisfied parents were more likely to use authoritarian, rather than authoritative, parenting practices, which included excessive and rigid control behaviors. Similarly, Buehler and Gerard (2002) found that for adolescents aged 12-18, harsh discipline fully mediated the relation between marital conflict and adolescent adjustment, but parental involvement did not mediate this relation. It is also possible that parents who are preoccupied with marital conflict could become too lax or permissive in their parenting (Osborne & Fincham, 1996). However, a study conducted by Krishnakumar, Buehler, and Barber (2003) indicated that marital conflict was not significantly related to lax parental control. Thus, there are suggestions in the literature that marital conflict may be associated with control that is excessive, rather than overly lax.

Many authors have proposed that parental behavior control is important for preventing antisocial behavior in adolescence (e.g., Barber, Olsen, & Shagle, 1994; Dishion & Loeber, 1985; Loeber & Dishion, 1984; Maccoby & Martin, 1983; Patterson, Capaldi, & Bank, 1989; Patterson & Stouthamer-Loeber, 1984; Steinberg, 1990; Wilson, 1980). Despite this belief, research in the area of the effects of parental control on their children has produced inconclusive results (Barber, 1992, 1996; Rollins & Thomas, 1979). Dishion et al. (1991) and Patterson and Stouthamer-Loeber (1984) found that both parental awareness and discipline were related to decreased
antisocial peer involvement. However, Beck et al. (1999) found that there was no association between parental enforcement of rules and adolescent drinking behaviors. They defined enforcement as parental rules, limit-setting, and follow-through when rules are violated (Beck et al., 1999). These authors also measured active monitoring and supervision behaviors, which they found to be negatively related to frequency of adolescent alcohol use. Another study by the same research program found no relation between enforcement and drinking behaviors in teens (Beck, Scaffa, & Ko, 1995). Additionally, Bronstein et al. (1996) found that prior parental punitive control was not related to subsequent externalizing behaviors in a sample of 5th, 6th and 7th graders. However, they found that “aware parenting” was significantly related to subsequent levels of externalizing (Bronstein et al., 1996). Similarly, Krishnakumar et al. (2003) found that parental awareness, but not lax control, was related to child and adolescent externalizing problems. Fauber et al. (1990) found that lax control did not mediate the relation between marital conflict and child externalizing behaviors, but that parental acceptance did mediate this relation. They also found that awareness loaded highly on a construct of behavior control (Fauber et al., 1990). These authors suggested that perhaps there are two separate dimensions of the firm control construct, and one of those dimensions is awareness.

To complicate matters further, the literature in this area is somewhat confusing because many authors have used a measure of awareness and called it behavior control. In fact, many of the studies which claim to demonstrate relations among behavior control and externalizing outcomes actually used a measure of parental awareness as their index of control. Based on such associations, Patterson and Stouthamer-Loeber (1984) concluded that awareness is a particularly reliable and powerful measure of family management practices. Awareness has also been called
a “fundamental component” of the behavior regulation construct (Patterson et al., 1992). In a specific empirical example, Barber (1996) found that “behavior control” was related to externalizing behaviors, using a measure of parental awareness to represent behavior control. In the conceptualization of their study, Barber et al. (1994) defined lack of behavior control as “family interaction that is disengaged and provides insufficient parental regulation of the child’s behavior, as in excessive behavioral autonomy, lack of rules and restrictions, and/or lack of knowledge of a child’s day to day behavior” (p. 1121). These authors created a latent variable representing behavior control composed of three factors: unrestricted autonomy, “laissez-faire” parenting, and awareness (Barber et al., 1994). They found that all three factors loaded well on the latent variable. However, when they predicted externalizing behaviors from behavior control they used only the measure of awareness. According to the authors, they selected only awareness to reduce the number of parameters in the model (Barber et al., 1994). They then found that “behavior control” did, in fact, predict externalizing. Similarly, Barber and Thomas (1996) conceptually defined behavior control as monitoring, supervision, and parental management of behavior. Using only the common awareness measure in their analyses, however, they found that “behavior control” predicted social competence, which they had previously defined as a lack of antisocial behavior (Barber & Thomas, 1996).

Recently, authors have argued that parental awareness may not be an entirely appropriate conceptualization of behavior control. According to Crouter and Head (2002), parental awareness develops in the context of a trusting, rather than controlling relationship between the parents and adolescent. Thus, parents can be knowledgeable and aware with respect to their adolescent without using behavior control to obtain that information. In fact, Cohen and Rice (1995) found that parents’ control efforts did not prevent substance use, nor did they provide information
about their children’s activities or whereabouts. Kerr and Stattin (2000) suggested that perhaps control is not a good predictor of behavior problems because parental control may compromise the adolescents’ sense of personal control, causing the adolescent to be less open and warm with his or her parents. This decreased relationship quality may then lead to decreased parental awareness. These same authors have suggested that perhaps parents of adolescents shouldn’t be trying to exercise firm control at all, because it can make the adolescent feel controlled, which leads to negative outcomes (Kerr & Stattin, 2003a). In one study, these authors found that parental awareness was much more strongly related to delinquent behaviors than parental control (Kerr & Stattin, 2000). In other studies by the same research program, control was a poor predictor of parental awareness, while child self-disclosure, a relational property, was strongly related to awareness (Kerr, Stattin, & Trost, 1999; Stattin & Kerr, 2000). Steinberg and Silk (2002) also suggested that perhaps the positive effects of awareness are due to having a good parent-adolescent relationship, rather than the active monitoring behaviors by the parent. Given these findings, perhaps we should not assume that parental awareness represents parental attempts at control. For this reason, the present study will consider parental behavior control as an alternative measure of parenting, in order to compare its mediating role to that of parental awareness.

Alternative models

Prior research in this area has generally made use of correlational, cross-sectional data, and few studies have examined associations over time. While it is possible to create multiple defensible causal models using only correlational data gathered at one time point, it is impossible to explicitly examine divergent pathways or to test valid alternative models. One of the strengths of the present study is the ability
to propose and test multiple alternative models in addition to our theoretically and empirically derived model (see Figure 1). This ability to test alternative models is particularly interesting, because we are able to compare competing models with one another, rather than comparing a single model to a null hypothesis. According to Fincham et al. (1994), “testing the existence of a longitudinal association against a null hypothesis is far less powerful than are tests of competing theoretical positions” (p. 136). Rutter (1994) also advocated testing the reverse direction of causal hypotheses to rule out the possibility that there are reciprocal effects, or that the true effects are opposite to those you have hypothesized. For instance, it is also possible that marital conflict affects adolescent behavior conduct directly, which in turn affects parental awareness (Alternative 1). In this case, awareness would be assumed to also affect adolescent behavior conduct competence in a reciprocal fashion. In another alternative, adolescent conduct may affect awareness, which then may lead to conflict between the parents (Alternative 2). Finally, awareness may affect conduct, which in turn may lead to marital conflict (Alternative 3). The present study compared each alternative model with our conceptually and empirically derived model shown in Figure 1.

We also explored alternative models which utilized maternal behavior control as an alternative measure of parenting. Parental behavior control was chosen as an alternative parenting variable because seems distinct from awareness, and may also be associated with marital conflict and behavior conduct competence. Awareness may represent a broad construct which includes parental involvement, and aspects of the parent-adolescent relationship, as well as control-related concepts. In contrast, behavior control appears to assess the more narrow concept of parental management of behavior. Figure 2 shows maternal behavior control as a mediator of the relation between marital conflict and adolescent behavior conduct competence,
which parallels the original hypothesized model (Alternative 4). In addition, the same three alternative orderings of variables were assessed for the behavior control model. Specifically, we considered whether adolescent behavior conduct competence mediates the relation between marital conflict and parental behavior control (Alternative 5). Models with behavior control as a mediator of the relation between adolescent behavior conduct competence and marital conflict (Alternative 6), and finally adolescent behavior conduct competence as a mediator of the relation between behavior control and marital conflict (Alternative 7) were also considered.

The present study examined the proposed conceptual model (see Figure 1) and each of the alternative models using the EQS 6.1 program (Bentler & Wu, 1995). The models attempt to address some of the limitations of previous research in this area, including lack of longitudinal data, small sample sizes, and statistical analysis limitations. Almost two decades ago, Baron and Kenny (1986) proposed what is now the most widely-used method for analyzing mediation. Their method for testing mediation involved a three step process of regression analyses. A relation between the predictor and the mediator must first be established by regressing the mediator on the predictor (Baron & Kenny, 1986). Next one must establish that the predictor and the outcome are significantly related by regressing the outcome on the predictor (Baron & Kenny, 1986). Finally, mediation is tested by regressing the outcome on both the predictor and the mediator (Baron & Kenny, 1986). One can conclude that mediation is taking place if the previously significant direct effect of the predictor on the outcome is reduced to non-significance. In structural equation modeling, it is common to take one final step of removing the direct path between the predictor and the outcome, and assessing whether the fit is significantly worse in the absence of the direct path.

The Baron and Kenny (1986) approach is typically applied to both cross-sectional
and longitudinal data. However, mediation implies a causal relation between variables (Cole & Maxwell, 2003). Specifically, one assumes from mediation that the predictor causes the outcome, through its causal effect on the mediator, which in turn, has a causal effect on the outcome. Because a fundamental assumption of causality is that the cause precedes the outcome in time (Sobel, 1990), the interpretation of mediational results with cross-sectional data is problematic (Cole & Maxwell, 2003). Longitudinal data provides the opportunity to examine causal relationships, and also to control for prior levels of the variables under consideration. Unfortunately, when the Baron and Kenny (1986) approach is applied to longitudinal data, a number of questionable assumptions must be made about the structure of the data. In particular, Cole and Maxwell (2003) indicated that the inferences regarding causation that may be made using cross-sectional mediation techniques require assumptions of stability and stationarity in the data, as well as non-spuriousness. Stability means that the levels of a variable are unchanging over time (Cole & Maxwell, 2003), which is generally not true in developmental data. Stationarity indicates that the causal structure in the data is not changing over time (Cole & Maxwell, 2003). Specifically, this would mean that the predictor affects the outcome in the same way at all time points in the data. This may, or may not, be the case in developmental data. Finally, non-spuriousness implies that no other variables affect the relationship that one is interested in. If one applies the cross-sectional mediation procedures to longitudinal data without controlling for prior levels of the study variables, assuming non-spuriousness would mean that one is assuming there is no effect of prior levels of the variable, an unlikely proposition for most variables (see Cole & Maxwell, 2003, for discussion of these assumptions). If these assumptions are not met, and the cross-sectional mediation approach is applied to longitudinal data, the values of the resultant paths are likely to be bi-
ased. In order to address these concerns, Cole and Maxwell (2003) proposed a new method for analyzing mediation with longitudinal data. In this method all of the variables involved in the mediation process are measured at each time point to be considered (Cole & Maxwell, 2003), so that one can control for prior levels of the cause, the mediator, and the outcome, and can also test the direction of effects. As illustrated in Figures 1 and 2, the present study applied the Cole and Maxwell (2003) methodology.
METHOD

Participants

Four years of data were drawn from an ongoing six-year longitudinal study of parenting during the transition to adolescence. In the first year of the study, self-report questionnaires were administered to 165 married, never-divorced mothers and their first-born fourth graders (71 boys, 94 girls) during a visit to a university research facility. The sample was primarily European American (95%). The pre-adolescents ranged in age from 9 to 11 years, \( M = 9.64, SD = 0.52 \). The mothers reported an average of 15.4 years of education and had an average of 2.5 children in their families. The mothers were generally well-educated and primarily middle-class. Three percent of the mothers reported having completed a graduate or professional degree, 15% reported a master’s degree, 36% had obtained a bachelor’s degree, 19% had received an associate’s degree, 26% had completed a high school diploma, and 1% had not completed high school. Sixty-eight percent of the mothers reported working full- or part-time jobs. The average annual household income was $79,593, with a range from $5,400 to $400,000, \( SD = $51,917 \), and a median value of $65,000.

Procedure

During the first year of the study, participants were recruited from several school districts in a medium-sized, Midwestern U.S. city. Potential participants were contacted either by giving the fourth graders letters about the study to take home, or by direct mailings to their home addresses, if provided by the particular school.
The contact letters briefly described the study and instructed mothers to call the research office if they were interested in participating. Five hundred thirty-seven mother-adolescent dyads contacted the research office. Eligibility was determined by screening questions administered over the phone by research assistants. Participants were eligible if the fourth grader was the oldest child in the family and the mother was currently married to the target child’s father and had never been divorced. Of the 537 who contacted the study, 182 met the criteria, whereas 355 did not because they had an older child, or were divorced or remarried. One hundred sixty-five (91%) of the eligible dyads completed the study at year one; 13 dyads (7%) refused to participate after hearing more about the study, and 4 dyads (2%) dropped out after repeatedly cancelling their laboratory appointment.

The analyses for the current study were be based on 133 mother-adolescent dyads that completed years one through four of the study (82% of the original sample). Seven of the original 165 dyads were lost to attrition during years 2, 3, or 4 of the study; 5 dyads could not be located, and 2 refused to continue. In addition, data were excluded from the present analyses for 13 dyads who continued in the study but who experienced a change in marital status during years 2, 3, or 4 (all became separated or divorced). This exclusion of divorced or separated parents is supported by findings from prior research which showed that the awareness construct appears to measure different things for divorced parents than it does for married parents (e.g. Fauber et al., 1990). Data were also excluded for 10 cases in which only mother data was obtained for one or more years of data collection. These 10 mother-only cases were completed by mail and were the result of family relocation ($n = 7$) or adolescent refusal to continue ($n = 3$) at years 2, 3, or 4. Because of a concern that the adolescents would not be able to complete their surveys properly without assistance, an issue which might jeopardize their confidentiality, we chose not to
have the relocated adolescents complete their surveys by mail. Finally, data were
excluded for 2 dyads which had missing data on one or more variables used for the
present study.

At each year of data collection, a packet consisting of self-report parenting mea-
sures was mailed to the mother to be completed one week before the laboratory
visit. This was done to reduce the amount of material the mother had to complete
during the visit. Mothers and their adolescents independently and separately com-
pleted additional self-report measures during each laboratory visit. The dyads were
paid $30.00 for their participation in year one, $40.00 in year two, $50.00 in year
three, and $60.00 in year four. The study measures were administered in identical
forms each year. Mothers provided information regarding marital conflict, and both
the adolescents and their mothers completed measures to assess maternal parenting
behaviors and adolescent behavior conduct competence.

Measures

Respondents completed self-report questionnaires to assess overt marital conflict,
maternal awareness, maternal behavior control, and adolescent behavior conduct
competence. Descriptive statistics and reliabilities for all study measures in all years
are presented in Tables 1 and 2 for mother and adolescent reports, respectively.

Overt marital conflict. Marital conflict was assessed at all four years of the study
with mother reports on the O’Leary-Porter Scale (OPS; Porter & O’Leary, 1980).
The OPS is a widely used 10-item scale that assess frequency of overt marital conflict
in the presence of the adolescent (Porter & O’Leary, 1980). Mothers indicated how
often conflict with her husband occurs in front of her adolescent using a Likert-type
scale ranging from 1 (never) to 5 (very often) for nine of the ten items. A sample
item included, “How often do you or your husband display verbal hostility in front
of your child?” The tenth item asked mothers to report the percentage of arguments with her husband that take place in front of the adolescent on a 5-point scale ranging from less than 10% to more than 75%. All items were scaled so that higher scores indicated greater conflict in front of the adolescent. Across the four years of data collection, alpha values ranged from .85 to .88. See Appendix A for complete scale.

Maternal awareness. Maternal awareness at all time points was measured using a 9-item scale that assessed the degree to which the mother was aware of the adolescent’s whereabouts, acquaintances, and behaviors (Bonds, Gondoli, Sturge-Apple, & Salem, 2002; Holleman, Gondoli, & Bonds, March 2004; Sturge-Apple et al., 2003). Adolescent and mother perceptions of maternal awareness were measured with parallel items. The awareness scale was very closely based on other highly similar scales that have been widely used to assess parental awareness with adolescents (e.g., Barber, 1996; Barber & Thomas, 1996; Brown et al., 1993; Fauber et al., 1990; Fletcher et al., 1995; Jacobson & Crockett, 2000; Kerr & Stattin, 2000; Laird, Pettit, Bates, & Dodge, 2003; Laird, Pettit, Dodge, & Bates, 2003; Patterson & Dishion, 1985; Patterson & Stouthamer-Loeber, 1984; Pettit & Laird, 2002; Pettit et al., 2001; Stattin & Kerr, 2000; Steinberg, Fletcher, & Darling, 1994). In other studies, the scale has consisted of five items assessing how much parents know about their adolescents’ activities and behaviors. For the present study, four items were added to help better measure maternal involvement in pre- and early-adolescents’ lives (e.g., “How often do you know the parents’ of your child’s friends?” and “How often do you know the names of your child’s teachers?”) 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 adolescents responded to each item using a five-point Likert-type scale ranging from “never” to “always.” Items were scored such that higher scores indicated greater awareness.
Across the four years of data collection, alpha values ranged from .68 to .79 for mother reports, and .78 to .82 for adolescent reports. See Appendix B (adolescent version) and Appendix C (mother version) for complete scale.

*Maternal behavior control.* Maternal behavior control was measured using a 7-item scale developed by Barber et al. (1994). Barber et al. (1994) selected items from the Child Report of Parental Behavior Inventory (Schaefer, 1965) firm versus lax parental control subscale to form their behavior control scale. Sample items included, “My mom gives me as much freedom as I want” and, “I let my child go out any night he or she wants.” Mothers and adolescents responded using a five-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 four years of data collection, alpha values ranged from .64 to .73 for mother reports, and .59 to .82 for adolescent reports. See Appendix D (adolescent version) and Appendix E (mother version) for complete scale.

*Adolescent behavior conduct competence.* Adolescent behavior conduct competence was measured using the behavior conduct competence subscale of the Self-Perception Profile for Children (SPCC; 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-, parent-, teacher-, and peer-perceptions of child and adolescent competence in various domains including behavior conduct competence (Cole, Gondoli, & Peeke, 1998; Harter, 1985). In this study, adolescents and mothers both rated behavior conduct competence. The adolescent version of the subscale consisted of 6 items and the mother version of the subscale consisted of 3 items (Cole et al., 1998; Harter, 1985). Responding to each item was a two-step process. First, respondents indicated whether the adolescent was more similar to some ado-
adolescents who are behaviorally competent or more similar to others who are not (e.g., “Some kids usually get in trouble because of things they do” or, “Other kids usually don’t do things that get them in trouble”). 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 behavior conduct competence. Across the four years of data collection, alpha values ranged from .69 to .76 for mother reports, and .83 to .86 for adolescent reports. See Appendix F (adolescent version) and Appendix G (mother version) for complete scale.
RESULTS

Descriptive statistics and correlations

Descriptive statistics, including minimum and maximum scores, mean, standard deviations, and reliability values (Cronbach’s alpha) for the study variables are presented in Tables 1 and 2 for adolescent and mother reports, respectively. Correlations among the study variables for adolescent and mother reports, respectively, are reported in Table 3 and Table 4.

Model testing

The EQS 6.1 program was used to estimate relations among the variables, assess model fit and compare models (Bentler & Wu, 1995). The fit of the models was assessed using the chi-square statistic, the Comparative Fit Index (CFI; Bentler, 1990), and the Root Mean Square Error of Approximation (RMSEA; Steiger, 1990). According to Hu and Bentler (1999), models that provide a good fit to the data have nonsignificant ($p > .05$) chi-square values, comparative fit indices (CFIs) greater than .95, and root mean square errors of approximation (RMSEAs) less than .06. Akaike’s information criteria (AIC) can also be used to compare different models for the same data, with lower AIC values indicating better fitting models. Thus, models were compared based on a combination of the chi-square value, the alternative fit indices, and the AIC value.

Traditionally, mediation has been tested using a model based on Baron and Kenny (1986). However, this model does not explicitly apply to data obtained
from longitudinal designs (Cole & Maxwell, 2003). For this reason, the method used in the present analyses made use of measurements of each variable at each of the four available time points, in order to control for prior levels of each variable (see Figure 1 for the hypothesized model). Models for both the adolescent report and mother report were tested to determine whether parental awareness mediated the relation between marital conflict and adolescent behavior conduct competence. In addition, as described previously, several alternative and theoretically plausible models were tested and compared to the hypothesized model in order to determine the best-fitting, most parsimonious model to represent the data.

The hypothesized model: Marital conflict - awareness - behavior conduct

The first hypothesized model proposed that the relation between marital conflict and adolescent behavior conduct competence would be mediated by maternal awareness. When the original hypothesized model was tested, using mother reports of marital conflict and adolescent reports of maternal awareness and behavior conduct competence, the model fit was poor ($\chi^2(36) = 83.864, p < .001; \text{CFI} = .949; \text{RMSEA} = .100, \text{AIC} = 11.864$). There was, however, evidence of a mediating pattern for time one to time three, but not for time 2 to time 4. Examination of the magnitude of the standardized residuals provided by EQS indicated that additional autoregressive paths linking non-adjacent time points for the three study variables were needed to improve the fit of the model.

Figure 3 shows the results for the hypothesized model with the additional autoregressive paths included in the analysis. The additional autoregressive paths have not been depicted in the figures in order to make them more readable. The fit indices for this model indicated a good fit to the data, providing support for the hypothesized model ($\chi^2(27) = 30.809, p = .279; \text{CFI} = .996; \text{RMSEA} = .033$,
AIC = -23.191). After inclusion of the additional autoregressive paths, there was still evidence of a mediating pattern from time one to time three, with maternal awareness as a mediator of the relation between marital conflict and adolescent behavior conduct competence. The standardized path coefficient between time one marital conflict and time two maternal awareness was statistically significant and in the expected direction ($\gamma = -0.162$). This indicated that as marital conflict at time one increased, the adolescent report of maternal awareness at time two decreased. The standardized path coefficient between time two maternal awareness and time three behavior conduct competence was also statistically significant and in the expected direction ($\gamma = 0.194$). This indicated that as maternal awareness at time two increased, adolescent behavior conduct competence at time three also increased. The standardized path coefficient between time two marital conflict and time three awareness was not statistically significant ($\gamma = -0.038$). The standardized path coefficient between time three maternal awareness and time four behavior conduct competence approached statistical significance and in the expected direction ($\gamma = 0.146, p < .10$). The reciprocal paths between adolescent behavior conduct competence and maternal awareness were statistically significant and in the expected direction for time one to time two ($\gamma = 0.173$), and time two to time three ($\gamma = 0.194$).

When the hypothesized model was testing using all mother reports of the study variables, the model fit was poor ($\chi^2(36) = 136.241, p<.001; \text{CFI} = .910; \text{RMSEA} = .145, \text{AIC} = 64.241$). For the mother model, there did not appear to be support for the hypothesized mediating pattern for time one to time three, or for time two to time four. As in the adolescent model, examination of the standardized residuals indicated a need for the additional autoregressive paths between non-adjacent time points. The addition of the autoregressive paths for each of the study variables (see Figure 4) improved the fit of the model, but still did not lend support for the
hypothesized mediating pattern ($\chi^2(27) = 40.865, p = .042; \text{CFI} = .988; \text{RMSEA} = .062, \text{AIC} = -13.135$).

In summary, when adolescent reports of maternal awareness and adolescent behavior conduct competence were utilized, the hypothesized model fit well and demonstrated the expected mediating pattern from time one to time three, but not from time two to time four (see Figure 3). This model also included the reciprocal paths between maternal awareness and adolescent behavior conduct competence. When using all mother reports, the model fit was acceptable, but the hypothesized mediating pattern was not apparent for any combination of time points (see Figure 4). Several alternative models were tested next. In each of the alternative models, the additional autoregressive paths were included based on the results of the hypothesized models which indicated that these paths are necessary for obtaining an acceptable model fit. However, these paths will not be shown in the figures for the sake of clarity.

*Alternative model 1: Marital conflict - behavior conduct - awareness*

The first alternative model proposed that adolescent behavior conduct competence mediated the relation between marital conflict and maternal awareness. The results for this model using adolescent reports of maternal awareness and behavior conduct competence are shown in Figure 5. This model was a good fit to the data ($\chi^2(27) = 35.712, p = .122; \text{CFI} = .991; \text{RMSEA} = .049, \text{AIC} = -18.288$), but it did not support the proposed mediating pattern. None of the standardized paths leading from marital conflict to adolescent behavior conduct competence were statistically significant. The standardized path coefficients between time one behavior conduct competence and time two maternal awareness ($\gamma = .164$) and between time two behavior conduct competence and time three maternal awareness ($\gamma = .195$) were
significant in the expected direction. The reciprocal standardized path coefficient between time two maternal awareness and time three behavior conduct competence was also statistically significant and in the expected direction ($\gamma = .157$).

Figure 6 shows the results for this alternative model using mother reports on all three variables. The model had an acceptable fit to the data ($\chi^2(27) = 41.030, p = .041; \text{CFI} = .987; \text{RMSEA} = .063, \text{AIC} = -12.970$), but did not lend support for the proposed mediating pattern. The standardized path coefficient from time one marital conflict to time two behavior conduct competence was statistically significant and in the expected direction ($\gamma = -.150$), and the reciprocal path from time two maternal awareness to time three behavior conduct competence was also statistically significant and in the expected direction ($\gamma = .225$). However, none of the other mediating or reciprocal paths reached statistical significance.

**Alternative model 2: Behavior conduct - awareness - marital conflict**

The second alternative model proposed maternal awareness as a mediator of the relation between adolescent behavior conduct competence and marital conflict. The results for this alternative model, utilizing adolescent reports of maternal awareness and behavior conduct competence, are shown in Figure 7. Although the fit of the model was good ($\chi^2(27) = 35.496, p = .127; \text{CFI} = .991; \text{RMSEA} = .049, \text{AIC} = -18.504$), the standardized path coefficients do not support the proposed mediating pattern. The paths from time one behavior conduct competence to time two maternal awareness ($\gamma = .164$) and time two behavior conduct competence to time three maternal awareness ($\gamma = .196$) were statistically significant and in the expected direction. In addition, the reciprocal paths from maternal awareness at time two to adolescent behavior conduct competence at time three ($\gamma = .173$) and maternal awareness at time three to adolescent behavior conduct competence at
time four \((\gamma = .151)\) were statistically significant and in the expected direction. However, none of the standardized path coefficients for maternal awareness leading to marital conflict were statistically significant.

The results for the second alternative model utilizing all mother reports are shown in Figure 8. The model had an acceptable fit to the data \((\chi^2(27) = 46.111, p = .012; \text{CFI} = .983; \text{RMSEA} = .073, \text{AIC} = -7.889)\), but did not lend support for the proposed mediating pattern. The reciprocal path from time two maternal awareness to time three behavior conduct competence was statistically significant and in the expected direction \((\gamma = .225)\). However, none of the other mediating or reciprocal paths reached statistical significance.

*Alternative model 3: Awareness - behavior conduct - marital conflict*

The third alternative model proposed adolescent behavior conduct competence as a mediator of the relation between maternal awareness and marital conflict. Figure 9 shows the results for this alternative model, using adolescent reports of maternal awareness and adolescent behavior conduct competence. This model was a good fit to the data \((\chi^2(27) = 34.321, p = .157; \text{CFI} = .992; \text{RMSEA} = .045, \text{AIC} = -19.679)\), but again it did not provide support for the proposed mediating pattern. The standardized path coefficient from maternal awareness at time two to adolescent behavior conduct competence at time three was statistically significant and in the expected direction \((\gamma = .173)\). The reciprocal paths from adolescent behavior conduct competence at time one to maternal awareness at time two \((\gamma = .172)\) and from adolescent behavior conduct competence at time two to maternal awareness at time three \((\gamma = .199)\) were also statistically significant and in the expected direction. However, none of the paths leading from adolescent behavior conduct competence to marital conflict reached statistical significance.
The results for this third alternative model using only mother reports are shown in Figure 10. The model was a good fit to the data ($\chi^2(27) = 28.040$, $p = .409$; CFI = .999; RMSEA = .017, AIC = -25.960), but did not lend support for the proposed mediating pattern. The path from time two maternal awareness to time three behavior conduct competence was statistically significant and in the expected direction ($\gamma = .226$). The paths from time one adolescent behavior conduct competence to time two marital conflict ($\gamma = -.153$) and from time two adolescent behavior conduct competence to time three marital conflict ($\gamma = .100$) were also statistically significant. Interestingly, the path from time two adolescent behavior conduct competence to time three marital conflict was not in the expected direction, in this case indicating that increased adolescent behavior conduct competence at time two led to increased marital conflict at time three. None of the other mediating or reciprocal paths reached statistical significance.

*Alternative model 4: Marital conflict - maternal behavior control - behavior conduct*

The fourth alternative model proposed maternal behavior control as a mediator of the relation between marital conflict and adolescent behavior conduct competence. This model parallels the original hypothesized model, using behavior control as the measure of parenting. Figure 11 shows the results for this alternative model, using adolescent reports of maternal behavior control and adolescent behavior conduct competence. This model was a good fit to the data ($\chi^2(27) = 29.746$, $p = .373$; CFI = .998; RMSEA = .022, AIC = -25.254), but it did not provide support for the proposed mediating pattern. None of the mediating or reciprocal paths reached statistical significance.

The results for this alternative model using only mother reports are shown in Figure 12. The model was an acceptable fit to the data ($\chi^2(27) = 43.168$, $p =$
Alternative model 5: Marital conflict - behavior conduct - maternal behavior control

The fifth alternative model proposed adolescent behavior conduct competence as a mediator of the relation between marital conflict and maternal behavior control. This model is parallel to the second alternative model. Figure 13 shows the results for this alternative model, using adolescent reports of adolescent behavior conduct competence and maternal behavior control. This model was a good fit to the data ($\chi^2(27) = 27.835$, $p = .420$; CFI = .999; RMSEA = .015, AIC = -26.165), but it did not provide support for the proposed mediating pattern. None of the mediating or reciprocal paths reached statistical significance.

The results for this alternative model using only mother reports are shown in Figure 14. The model was an acceptable fit to the data ($\chi^2(27) = 37.261$, $p = .090$; CFI = .991; RMSEA = .054, AIC = -16.739), but did not lend support for the proposed mediating pattern. Only the path from time one marital conflict to time two maternal behavior control was statistically significant and in the expected direction ($\gamma = -.180$). None of the other mediation or reciprocal paths were statistically significant.

Alternative Model 6: Behavior conduct - maternal behavior control - marital conflict

The sixth alternative model proposed maternal behavior control as a mediator of the relation between adolescent behavior conduct competence and marital conflict. This model parallels the second alternative model, using behavior control as the measure of parenting. Figure 15 shows the results for this alternative model, using
adolescent reports of maternal behavior control and adolescent behavior conduct competence. This model was a good fit to the data ($\chi^2(27) = 27.445, \ p = .440; CFI = .999; RMSEA = .011, AIC = -26.555$), but it did not provide support for the proposed mediating pattern. None of the mediating or reciprocal paths reached statistical significance.

The results for this alternative model using only mother reports are shown in Figure 16. The model was an acceptable fit to the data ($\chi^2(27) = 43.634, \ p = .023; CFI = .986; RMSEA .068, AIC = -10.366$), but did not lend support for the proposed mediating pattern. None of the mediating or reciprocal paths reached statistical significance.

**Alternative Model 7: Maternal behavior control - behavior conduct - marital conflict**

The final alternative model proposed maternal behavior control as a mediator of the relation between adolescent behavior conduct competence and marital conflict. This model parallels the third alternative model, using behavior control as the measure of parenting. Figure 17 shows the results for this alternative model, using adolescent reports of maternal behavior control and adolescent behavior conduct competence. This model was a good fit to the data ($\chi^2(27) = 29.469, \ p = .339; CFI = .997; RMSEA = .026, AIC = -24.531$), but it did not provide support for the proposed mediating pattern. None of the mediating or reciprocal paths reached statistical significance.

The results for this alternative model using only mother reports are shown in Figure 18. The model was a good fit to the data ($\chi^2(27) = 26.741, \ p = .478; CFI = 1.00; RMSEA < .001, AIC = -27.259$), but did not lend support for the proposed mediating pattern. Only the paths between time one behavior conduct competence and time two marital conflict ($\gamma = -.152$) and, time two behavior
conduct competence ($\gamma = .099$) were statistically significant. As in alternative model three, the path from time two adolescent behavior conduct competence to time three marital conflict was not in the expected direction, indicating that increased adolescent behavior conduct competence at time two led to increased marital conflict at time three. None of the other mediating or reciprocal paths reached statistical significance.

*Direct effects and full models*

Direct effects and full models were tested for each of the alternative orderings of variables. For the original hypothesized model and the fourth alternative which examines maternal behavior control as an alternative measure of parenting, the direct effect of marital conflict and adolescent behavior conduct competence using adolescent reports is presented in Figure 19. The full model for the original hypothesized model using adolescent reports is shown in Figure 20, and the full model for the fourth alternative using adolescent reports is shown in Figure 21. All remaining direct and full models are presented in Appendix H and Appendix I, respectively. For the purposes of the present study, we have selected the original hypothesized model and the fourth alternative model to further consider whether there is evidence of mediation. These two models were selected in order to directly compare whether maternal awareness, maternal behavior control, or both, mediate the relation between marital conflict and adolescent behavior conduct competence. This allows us to make a more direct comparison between these two variables and determine what the pattern of relations between the study variables may be.

The direct effect of marital conflict at time one on adolescent behavior conduct competence approached statistical significance ($p < .10$, see Figure 19). With a larger sample, and thus, more power, it is likely that this relation would have been
statistically significant. The standardized path coefficient for this effect was negative ($\gamma = -0.131$), indicating that higher marital conflict at time one predicts greater decrease in adolescent behavior conduct competence.

When maternal awareness was included as a mediator of this effect, this standardized path coefficient was reduced to non-significance ($\gamma = -0.086$). Moreover, the two indirect paths, between marital conflict at time one and maternal awareness at time two, and maternal awareness at time two and adolescent behavior conduct competence were both statistically significant and in the expected direction ($\gamma = -0.162, \gamma = -0.155$). These findings suggest that maternal awareness mediates the relation between marital conflict and adolescent behavior conduct competence over time. A further test of this mediating effect is demonstrated by the results presented in Figure 3, and discussed previously. After removing the direct effect from the model, the fit of the model is still good, and the indirect paths remain statistically significant. Further, the model presented in Figures 3 and 20 are nested, with a difference of two degrees of freedom. The chi-square value for the mediation model presented in Figure 3 was 30.809 with 27 degrees of freedom. The chi-square value for the full model presented in Figure 20 was 28.812 with 25 degrees of freedom. A chi-square difference test indicates that the difference between these models is not statistically significant ($\chi^2(2) = 1.997, p > .05$). Thus the mediation model is an equally good-fitting, yet more parsimonious representation of the data.

When maternal behavior control was included as a mediator of the direct effect of marital conflict on adolescent behavior conduct competence, the standardized coefficient for the direct path was statistically significant and negative ($\gamma = -0.141$, Figure 21. The two indirect paths, between marital conflict at time one and behavior control at time two, and between behavior control at time two and adolescent behavior conduct competence at time three, were not statistically significant ($\gamma = 0.104$, Figure 21.
\( \gamma = .066 \), respectively). Thus, maternal behavior control does not appear to mediate the relation between marital conflict and adolescent behavior conduct competence. When this full model is compared to the mediation model presented in Figure 11, a chi-square difference test indicates that there is no significant difference in fit (\( \chi^2(2) = 0.105, p > .05 \)). However, comparison of the other fit indices indicates that the full model is a better fit to the data. While the mediation model fits well, it does not explain any relations among the variables. The full model shows that marital conflict and adolescent behavior conduct competence are related, but that the relation is not mediated by maternal behavior control.

**Summary: Model comparisons**

For the models which utilized both mother and adolescent reports, only the original hypothesized model (Figure 3) showed evidence of the expected mediating pattern. This mediating pattern was supported by examination of the direct and full models (Figures 19 and 20). This model proposed that maternal awareness would mediate the relation between marital conflict and adolescent behavior conduct competence. The model shown in Figure 3 utilized mother reports of marital conflict, and adolescent reports of maternal awareness and adolescent behavior conduct competence. The proposed mediating pathways were only supported for time one to time three, and not for time two to time four reports on the three study variables. This model was among the best-fitting of all of the models tested. In particular, the original hypothesized model (Figure 3) and all four of the alternative models which utilized behavior control as an alternative measure of parenting were very similar in fit (see Table 5 for comparisons of adolescent models). However, none of the alternative models examined showed the hypothesized mediating pattern. Closer examination of the alternative model which paralleled the origi-
nal hypothesized model (Figure 11) showed that maternal behavior control did not mediate the relation between marital conflict and adolescent behavior conduct competence (see Figures 19 and 21). In particular, when maternal behavior control was included as a mediator in this model, the direct path from marital conflict at time one to adolescent behavior conduct competence at time three was not reduced.

The best-fitting models for the mother, based on all of the fit indices examined, were the third and seventh alternative models which are depicted in Figures 10 and 18 (see Table 6 for model comparisons). In these models, marital conflict was hypothesized as the outcome, rather than the predictor. In the third alternative, adolescent behavior conduct competence is proposed to mediate the relation between maternal awareness and marital conflict. In the seventh alternative, adolescent behavior conduct competence is examined as a mediator of the relation between maternal behavior control and marital conflict. However, despite their good fit, none of the mother models lent support for the proposed mediating pattern.
DISCUSSION

Relations between marital conflict, parenting and adolescent outcome were assessed in the present paper. The original hypothesized model proposed that the effect of marital conflict on adolescent outcome would be mediated by parenting. Specifically, we proposed that maternal awareness or knowledge of the adolescent’s activities, whereabouts, and acquaintances would mediate the effect of overt marital conflict on adolescent behavior conduct competence. In addition to the original model, a number of alternative models were tested, using both mother and adolescent reports of the study variables.

The proposed mediating pattern was only supported for the original hypothesized model, and only when adolescent reports of maternal awareness and behavior conduct competence were utilized (see Figure 3). The mediating pathways were statistically significant and in the expected direction for time one marital conflict, time two maternal awareness and time three adolescent behavior conduct competence. Thus, as predicted, increases in marital conflict at time one predicted decreased maternal awareness at time two. In turn, decreased awareness at time two predicted decreased adolescent behavior conduct competence at time three, or increased awareness at time two was related to increased behavior conduct competence at time three. In other words, awareness was positively related to subsequent adolescent behavior conduct competence. In addition, the reciprocal paths between behavior conduct competence and maternal awareness were supported, consistent with the hypothesis that adolescent outcomes would influence subsequent parenting.
behaviors. As expected, these variables were positively related, such that increased behavior conduct competence predicted increased awareness at a subsequent time point.

None of the alternative models examined provided support for the hypothesized mediating pattern. The first three alternative models explored the possibility that a different ordering of the study variables might provide a better explanation of their relations with one another. In the first alternative, adolescent behavior conduct competence does not appear to mediate the relation between marital conflict and parenting. In the second alternative, we explored the possibility that marital conflict was the outcome, rather than the source of the lack of awareness or low behavior competence. However, neither of these models were supported. For the adolescent, each of the first three alternative models fit well, but this is likely due to the strength of the autoregressive paths, and the paths linking awareness and behavior conduct competence. For the mother, the third and seventh alternatives fit better than any of the other alternatives.

The fit of the hypothesized model was very similar to the fit of the four alternative models which utilized maternal behavior control as an alternative measure of parenting. If one considers the fit alone in choosing the best model, these five models are nearly equal, with a slight edge to the sixth alternative, which proposed maternal behavior control as a mediator of the relation between behavior conduct competence and marital conflict (see Figure 15). However, one of the goals of the present paper was to determine a process by which marital conflict has an effect on adolescent behavior conduct competence. In fact, there have been a number of authors who have indicated that there is a need for more process-oriented research in this area, in order to identify the causal processes and pathways that may explain the association between marital conflict and adolescent adjustment over time.
(e.g. Cummings & Davies, 2002; Cummings et al., 2000, 2001). Only the original hypothesized model provides evidence of such a process.

The final four alternative models explored whether a measure of maternal behavioral control functioned similarly to maternal awareness. There has been some discussion in the literature regarding whether maternal awareness is part of a larger parenting control construct, or whether it is more related to a parenting involvement construct (e.g., Barber & Thomas, 1996; Crouter & Head, 2002; Crouter et al., 1990; Fauber et al., 1990; Patterson & Stouthamer-Loeber, 1984; Pettit & Laird, 2002; Pettit et al., 2001; Steinberg & Silk, 2002). Several recent authors have suggested that it is more similar to a measure of involvement, and also that it is less of a parenting behavior per se. In the past, this construct was often called “monitoring,” implying that it is an active and control-oriented behavior on the part of the parents. However, it has recently been called a variety of different things, such as “monitoring relevant knowledge” (Laird, Pettit, Dodge, & Bates, 2003), “awareness” (Beck et al., 1999; Gondoli, Grundy, Bonds, Sturge-Apple, & Salem, under review), and “knowledge” (Crouter & Head, 2002; Crouter et al., 1999). These terms imply that this construct is measuring less active monitoring or supervisory behaviors of the parents, and more parenting involvement. The questions in the measure ask parents and their adolescents how much the parents “really know,” rather than what they do to get that knowledge. Thus, we included four additional alternative models to assess the way in which maternal awareness and maternal behavior control behave similarly or differently.

None of the alternative models showed the mediating pattern proposed by the original hypothesized model. None of the mediating paths in these models were statistically significant. However, these models were among the best-fitting of all of the adolescent models assessed. Moreover, the fit of the original hypothesized
model (Figure 3) was very similar to the fit of these models, and only the original model showed the expected mediating pattern. Given these results, we believe that the awareness construct is more likely to be assessing some aspect of the parent-adolescent relationship than the degree of control exercised by parents. Like Crouter et al. (1990) and Crouter and Head (2002) have suggested, we believe that maternal knowledge is more likely to develop in the context of a supportive, trusting, and accepting mother-adolescent relationship. However, the awareness construct is not measuring only the quality of the relationship, but also the degree to which parents are involved in, or proximal to, their adolescents’ daily activities. This maternal involvement and concern is expressed by the adolescent in their perception of how much their mother knows about them and what they are doing, or, possibly in how well they think their mothers know and understand them.

These findings suggest that adolescents whose mothers report high levels of marital conflict perceive their mothers as less aware. This perceived lack of awareness may lead the adolescents to feel less behaviorally competent, which in turn heightens their perception that their mothers are not aware. It is possible that this measure of awareness taps into a larger underlying construct of maternal involvement with, or interest in, the adolescent. The perceived lack of awareness may cause the adolescent to feel as if his or her mother is uninvolved or uninterested, which may lead to feelings of decreased competence. The more negatively the adolescent perceives him or herself, the less he or she feels that the mother is aware or involved. Moreover, the behavior conduct competence measure can be viewed as a measure of adolescent’s ability to regulate their own behavior in social situations. This regulation ability is likely to be strongly influenced by parenting. In particular, supportive, attentive parenting evidenced by an aware and involved mother may be important for the development of this ability to regulate one’s own behavior.
The statistically significant reciprocal paths shown in the original hypothesized model suggest that increases in behavioral conduct competence over time predict increases in maternal awareness over time. Likewise, decreases in behavioral conduct competence predict decreases in parental awareness over time. This finding is similar to the findings of several other studies, which have shown that parents whose adolescents are engaging in delinquent activities actually decrease in their awareness over time (Laird, Pettit, Bates, & Dodge, 2003; Kerr & Stattin, 2000). Laird, Pettit, Bates, and Dodge (2003) suggested that as their adolescents become more delinquent, parents may disengage and decrease their attempts to be aware for a number of reasons. Parents may stop asking their adolescents for information in order to avoid negative interactions, or they may stop seeking information from other sources, such as teachers and the parents’ of their adolescents’ friends because of embarrassment or frustration about their adolescents’ behavior (Laird, Pettit, Bates, & Dodge, 2003). Parents may also find it more difficult to maintain high levels of awareness because their adolescents make a greater effort to hide their problem behaviors from their parents. As other authors have suggested, certain behavioral characteristics of adolescents may make it more or less difficult to be an effective parent (e.g., Belsky, 1984; Kerr & Stattin, 2000). Since some findings have shown that the best predictor of parental awareness is adolescent self-disclosure (Kerr & Stattin, 2000; Kerr et al., 1999; Stattin & Kerr, 2000), it is not surprising that adolescents who report that they get in trouble more than other kids their age, or that they do things they know they are not supposed to do, have parents who are less aware. It is also important to note that we measured adolescent and mother perceptions of awareness. However, although the adolescents’ behavior conduct competence was related to their own report of maternal awareness, the relation was not found when we used mother reports of maternal awareness.
The models which proposed that marital conflict may actually be an outcome rather than a predictor were, in general, not supported. For both mother and adolescent reports of maternal awareness, there was no evidence that maternal awareness predicted marital conflict. However, for mother reports of adolescent behavior conduct competence there was some evidence that the adolescent’s behavior predicts marital disagreements. This finding is consistent with Fincham et al. (1994), who suggested that adolescents and children who are poorly behaved create greater disagreement about how to parent, and also may cause greater tension in the marital relationship. Fincham et al. (1994) indicated that only longitudinal research could address this potential reciprocal relationship, and indeed, the data seems to support this hypothesis. However, even in the mother-reported model, the mediating pattern was not supported. In this case, there was no evidence that maternal awareness predicted adolescent behavior conduct competence, as reported by the mother.

One possible reason for the models which utilized only mother reports not showing the proposed mediating pattern is that the mother reports of all of the study variables showed a much greater degree of stability over time than the adolescent reports. This stability is exhibited in the large standardized path coefficients for the autoregressive paths. The mother reports do not appear to exhibit a great deal of rank-order change over time. It is difficult to predict change in a variable when there a only a small amount of change taking place. In addition, we are attempting to predict rank-order change in one variable from level of another variable, and none of the mother-reported variables are showing much rank-order change, including the predictors. Other authors have had similar difficulties when utilizing mother reports (e.g., Crouter & Head, 2002). Crouter and Head (2002) reported that there was only a modest relation between parental and adolescent reports on the awareness measure in a number of studies, and suggested that perhaps parental reports are more
influenced by social desirability (see also, Stattin & Kerr, 2000). Webster-Stratton and Hammond (1999) indicated that mother reports of adolescent behavior may be biased due to the effects of marital distress on their perceptions of the adolescent. Others have suggested that mother reports may be unreliable because they tend to exaggerate parental acceptance and firm discipline (Schwarz, Barton-Henry, & Pruzinsky, 1985). In addition, adolescents may be better reporters of their own behavior because they are likely to be more sensitive to changes in their behaviors than their parents. Regardless of the possible bias in mother reports, it is important to consider the possibility that it may be more informative to use adolescent reports of parenting because their perceptions of their parents’ behaviors may have even more influence on their behavior than their parents’ actual behaviors (Bronfenbrenner, 1979; Chilcoat & Anthony, 1996; Laird, Pettit, Bates, & Dodge, 2003; Schaefer, 1965; Steinberg, Lamborn, Dornbusch, & Darling, 1992).

The present paper has made several important contributions to the literature. First, we found support for our hypothesized mediating model using a new and more stringent method of mediation analysis for longitudinal data. This method allowed us to control for prior levels of the predictor, the mediator, and the outcome. More importantly, the longitudinal nature of the data allowed us to test a number of alternative models in order to rule out the possibility that the hypothesized direction of effects in our model was incorrect. In doing so, we were able to identify one process through which marital conflict may have an effect on adolescent behavior.

A second contribution is the consideration of a positive aspect of adolescent behavior as an indicator of adolescent adjustment. Most of the prior studies which have considered the association between marital conflict and adolescent adjustment have used problem behavior, such as delinquency, as the measure of adjustment. The sample in the present study was normative and quite high-functioning, and
thus allowed the exploration of a decrease in positive behaviors, rather than an increase in extreme antisocial behaviors such as drinking, drug use, aggression, or delinquency.

Assessment of the models which utilized behavior control as an alternative measure of parenting also allowed us to distinguish maternal awareness from maternal behavior control. It appears from these results that awareness is a distinct construct, rather than simply a facet of behavior control. It seems more likely that maternal awareness is a property of the mother-adolescent relationship. While it may reflect some aspects of parental control as well, it is perhaps more proximally tapping into maternal involvement and interest.

Limitations and future directions

The sample utilized in the present study consisted of 133 mothers and adolescents. The sample was predominantly European American, and the majority of the families in the sample were in the middle- to upper-middle class range. In addition, all of the mothers in the present study were married and never divorced. As a result, it is possible that only the most stable people, in particular, those with the least change in marital conflict, parenting, or adolescent behavior conduct competence over time were included in the present analyses. A larger, more diverse sample may have allowed broader generalizations of the findings. However, a conservative sample like the one in the present study makes the findings particularly compelling because we were able to detect a process through which marital conflict affects adolescent adjustment over time, even with a high degree of rank-order stability over time.

The present study also did not utilize latent variables in the mediation analyses. While latent variables would be preferable for the reduction of measurement error, it was not feasible to use them in the present analyses. In order to use latent variables it
would have been necessary to constrain a number of paths to be equal, thus reducing the number of parameters to be estimated. However, one of the interesting aspects of the design of the present study was that it allowed us to examine whether the relations between variables were different at different points in time. By constraining certain paths, we would have had to assume that, for instance, marital conflict at time one and maternal awareness at time two were related in exactly the same way as marital conflict at time two and maternal awareness at time three. In terms of latent variables, we would have had to assume that prior marital relationship variables were related to later parenting variables in the same way at every time point. Given the changes taking place during the transition to adolescence, we did not feel that it was appropriate to constrain these paths in such a way. Furthermore, the results showed that the relations among these variables do appear to be changing over time, supporting the conclusion that constraining these paths would be ill-advised.

Only mother reports of marital conflict were assessed in the present study. The decision was made to have only the mothers report on marital relationship and conflict variables in order to reduce the amount of forms the adolescent had to complete. In addition, only one type of marital conflict was considered, namely overt disagreements which may occur in front of the adolescents. Future research could examine whether marital satisfaction, or other aspects of the marriage such as resolution, disagreement which occurs behind closed doors, or avoidance of conflict. For instance, some authors have noted that aspects of the parental conflict, such as intensity (e.g., Grych & Fincham, 1993), constructive or destructive nature (e.g., Cummings, Goeke-Morey, Papp, & Dukewich, 2002; Goeke-Morey, Cummings, Harold, & Shelton, 2003), the topics of conflict (e.g., Emery, 1982; Grych & Fincham, 1990), and the degree of conflict resolution (e.g., Cummings, Ballard, El-Sheikh, & Lake, 1991; Cummings, Simpson, & Wilson, 1993) are all important predictors of children’s re-
actions to conflict. Future studies might also utilize observational data on marital conflict, parenting, and adolescent adjustment, or use additional reporters such as fathers or teachers.

These limitations notwithstanding, the present study makes an important contribution to the literature by using a sample of early adolescents, and utilizing a new and more stringent method for analyzing mediation with longitudinal data. Most importantly, we have identified one particular pathway through which marital conflict may affect adolescent adjustment over time, through its effect on maternal awareness.
TABLE 1

DESCRIPTIVE STATISTICS AND RELIABILITY VALUES FOR
ADOLESCENT REPORTS OF STUDY VARIABLES, N=133.

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TABLE 2

DESCRIPTIVE STATISTICS AND RELIABILITY VALUES FOR MOTHER REPORTS OF STUDY VARIABLES, $N=133$.

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INTERCORRELATIONS BETWEEN STUDY VARIABLES FOR ADOLESCENT MODELS (MOTHER REPORTS OF CONFLICT, ADOLESCENT REPORTS OF AWARENESS AND BEHAVIOR CONDUCT COMPETENCE), N=133.

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Note. * p<.05.
TABLE 4

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Note. Error variances at concurrent time points are correlated. Mediating paths are indicated in bold.

Figure 1. Hypothesized mediation model
Note. Error variances at concurrent time points are correlated. Mediating paths are indicated in bold.

Figure 2. Alternative model: Behavior control as an alternative measure of parenting
Figure 3. Adolescent model: Marital conflict - maternal awareness - behavior conduct competence

Note. Observed variables at time one and errors at concurrent time points are correlated.
* p < .05, ** p < .10
$\chi^2_{27} = 40.865, \ p = .042$
CFI = .988
RMSEA = .062
AIC = -13.135

**Note.** Observed variables at time one and errors at concurrent time points are correlated.
* $p < .05$, ** $p < .10$

Figure 4. Mother model: Marital conflict - maternal awareness - behavior conduct competence
Figure 5. Adolescent model: Marital conflict - behavior conduct competence - maternal awareness

Note. Observed variables at time one and errors at concurrent time points are correlated.
* p < .05, ** p < .10
\[ \chi^2 = 41.030, p = .041 \]
CFI = .987
RMSEA = .063
AIC = -12.970

Note. Observed variables at time one and errors at concurrent time points are correlated.
* \( p < .05 \)

Figure 6. Mother model: Marital conflict - behavior conduct competence - maternal awareness
\[
\chi^2 = 35.496, \ p = .127 \\
CFI = .991 \\
RMSEA = .049 \\
AIC = -18.504 
\]

*Observation variables at time one and errors at concurrent time points are correlated.

*p < .05

Figure 7. Adolescent model: Behavior conduct competence - maternal awareness - marital conflict
Note. Observed variables at time one and errors at concurrent time points are correlated.
*p < .05, **p < .10

Figure 8. Mother model: Behavior conduct competence - maternal awareness - marital conflict
Note. Observed variables at time one and errors at concurrent time points are correlated.

*p < .05, **p < .10

Figure 9. Adolescent model: Maternal awareness - behavior conduct competence - marital conflict
Note. Observed variables at time one and errors at concurrent time points are correlated.

*p < .05, **p < .10

Figure 10. Mother model: Maternal awareness - behavior conduct competence - marital conflict
Note. Observed variables at time one and errors at concurrent time points are correlated.

*p < .05

Figure 11. Adolescent model: Marital conflict - behavior control - behavior conduct competence
Marital Conflict Marital Conflict Marital Conflict Marital Conflict
Time 1 Time 2 Time 3 Time 4
.013                                         .054                                         .045
Behavior Control Behavior Control Behavior Control Behavior Control
Time 1 Time 2 Time 3 Time 4
-.062        -.022                        .072         .053                     .103**         -.013
Behav. Conduct Behav. Conduct Behav. Conduct Behav. Conduct
Time 1 Time 2 Time 3 Time 4

$\chi^2_{27} = 43.168, p = .025$
CFI = .986
RMSEA = .067
AIC = -10.832

Note. Observed variables at time one and errors at concurrent time points are correlated.
* $p < .05$, ** $p < .10$

Figure 12. Mother model: Marital conflict - behavior control - behavior conduct competence
Figure 13. Adolescent model: Marital conflict - behavior conduct competence - behavior control

Note: Observed variables at time one and errors at concurrent time points are correlated.

$p < .05$, ** $p < .10$
Note. Observed variables at time one and errors at concurrent time points are correlated.

\[
\chi^2 = 37.261, \ p = .090 \\
CFI = .991 \\
RMSEA = .054 \\
AIC = -16.739
\]

Figure 14. Mother model: Marital conflict - behavior conduct competence - behavior control
Figure 15. Adolescent model: Behavior conduct competence - behavior control - marital conflict

Note. Observed variables at time one and errors at concurrent time points are correlated.
* p < .05, ** p < .10
Note. Observed variables at time one and errors at concurrent time points are correlated.

*p < .05

Figure 16. Mother model: Behavior conduct competence - behavior control - marital conflict
Note. Observed variables at time one and errors at concurrent time points are correlated.

*p < .05

Figure 17. Adolescent model: Behavior control - behavior conduct competence - marital conflict
Note. Observed variables at time one and errors at concurrent time points are correlated.

*p < .05, **p < .10

Figure 18. Mother model: Behavior control - behavior conduct competence - marital conflict
Figure 19. Adolescent model: Direct effect of marital conflict on behavior conduct competence

Note. Observed variables at time one and errors at concurrent time points are correlated.
* $p < .05$, **$p < .10$
Figure 20. Adolescent full model: Marital conflict - maternal awareness - behavior conduct competence

Note. Observed variables at time one and errors at concurrent time points are correlated.
* $p < .05$, ** $p < .10$
Figure 21. Adolescent full model: Marital conflict - behavior control - behavior conduct competence

Note. Observed variables at time one and errors at concurrent time points are correlated.
* p < .05
APPENDIX A

OPS MARITAL CONFLICT SCALE

No matter how well couples get along, everyone has disagreements or arguments from time to time. These questions ask about how often you and your husband have arguments that your child may or may not be aware of. Please remember that “your child” means the child who is participating with you in the Great Transitions Study.

It is difficult in these days of inflation and tight budgets to confine financial discussions to specific times and places. How often would you say that you and your husband argue over money in front of your child?

Very often _____ Often _____ Occasionally _____ Rarely _____ Never _____

Child often go to one parent for money or for permission to do something after having been refused by the other parent. How often would you say your child approaches you or your husband in this manner with rewarding results?

Very often _____ Often _____ Occasionally _____ Rarely _____ Never _____

Husbands and wives often disagree on the subject of discipline. How often do you and your husband argue over discipline in your child’s presence?

Very often _____ Often _____ Occasionally _____ Rarely _____ Never _____

How often has your child heard you and your husband argue about the employment, household work, or parenting responsibilities you and your husband have or should have?

Very often _____ Often _____ Occasionally _____ Rarely _____ Never _____
How often has your child heard your husband complain to you about your personal habits (drinking, nagging, sloppiness, etc.)?

Very often _____  Often _____  Occasionally _____  Rarely _____  Never _____

How often has your child heard you complain to your husband about his personal habits?

Very often _____  Often _____  Occasionally _____  Rarely _____  Never _____

In every normal marriage there are arguments. What percentage of the arguments between you and your husband would you say take place in front of your child?

More than 75% _____  50-70% _____  25-50% _____  10-25% _____  Less than 10% _____

To varying degrees, we all experience almost irresistible impulses in times of great stress. How often is there physical expression of hostility between you and your husband?

Very often _____  Often _____  Occasionally _____  Rarely _____  Never _____

How often do your or your husband display verbal hostility in front of your child (yelling, put-downs, sarcasm, etc.)?

Very often _____  Often _____  Occasionally _____  Rarely _____  Never _____

How often do you and your husband display caring or good feelings for each other in front of your child?

Very often _____  Often _____  Occasionally _____  Rarely _____  Never _____
### APPENDIX B

**ADOLESCENT REPORT OF MATERNAL AWARENESS SCALE**

<table>
<thead>
<tr>
<th>How often does your mom know…</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who your friends are?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Where you go when you're not at home?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>How you spend your money?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>What you do with your free time?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Where you are during the afternoons after school?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Who you are with when you’re not at home?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Where your friends live?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>The names of your teachers?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Your friends’ parents?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
APPENDIX C

MOTHER REPORT OF MATERNAL AWARENESS SCALE

<table>
<thead>
<tr>
<th>How often do you know…</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who your child’s friends are?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Where your child goes when he or she is not at home?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>How your child spends his or her money?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>What your child does in his or her free time?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Where your child is during the afternoons after school?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Who your child is with when he or she is not at home?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Where your child’s friends live?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>The names of your child’s teachers?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>The parents of your child’s friends?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
APPENDIX D

ADOLESCENT REPORT OF MATERNAL BEHAVIOR CONTROL SCALE

<table>
<thead>
<tr>
<th>My mom…</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gives me as much freedom as I want</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Lets me do almost anything I want to do</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Lets me go out any night I want to</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Is firm when it comes to rules</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Lets me go any place I want without asking her</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Lets me get away with a lot of things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Corrects my bad behavior</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
APPENDIX E

MOTHER REPORT OF MATERNAL BEHAVIOR CONTROL SCALE

<table>
<thead>
<tr>
<th>Statement</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>I give my child as much freedom as he or she wants</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I let my child do almost anything he or she wants to do</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I let my child go out any night he or she wants to</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I am firm when it comes to rules</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I let my child go any place he or she wants without asking me</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I let my child get away with a lot of things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I correct my child’s bad behavior</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
APPENDIX F

ADOLESCENT REPORT OF SPCC BEHAVIOR CONDUCT COMPETENCE SCALE

Which kinds of kids are more like you?

For the following questions, please circle the statement that is more like you. Then check the box indicating whether that statement is “really like you” or “sort of like you”.

<table>
<thead>
<tr>
<th>Really True for Me</th>
<th>Sort of True for Me</th>
<th>Really True for Me</th>
<th>Sort of True for Me</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐☐</td>
<td>Some kids often do <em>not</em> like the way they behave</td>
<td>☐☐</td>
<td>Other kids usually <em>like</em> the way they behave</td>
</tr>
<tr>
<td>☐☐</td>
<td>Some kids usually do the right thing</td>
<td>☐☐</td>
<td>Other kids often don’t do the right thing</td>
</tr>
<tr>
<td>☐☐</td>
<td>Some kids usually act the way they know they are supposed to</td>
<td>☐☐</td>
<td>Other kids often <em>don’t</em> act the way they are supposed to</td>
</tr>
<tr>
<td>☐☐</td>
<td>Some kids usually get in <em>trouble</em> because of things they do</td>
<td>☐☐</td>
<td>Other kids usually <em>don’t</em> do things that get them in <em>trouble</em></td>
</tr>
<tr>
<td>☐☐</td>
<td>Some kids do things they know they <em>shouldn’t</em> do</td>
<td>☐☐</td>
<td>Other kids <em>hardly ever</em> do things they know they shouldn’t do</td>
</tr>
<tr>
<td>☐☐</td>
<td>Some kids behave themselves very well</td>
<td>☐☐</td>
<td>Other kids often find it hard to behave themselves.</td>
</tr>
</tbody>
</table>
APPENDIX G

MOTHER REPORT OF SPCC BEHAVIOR CONDUCT COMPETENCE SCALE

We are very interested in your opinion of your child’s strengths and weaknesses. For each of the questions below there are two sentences. Read each pair of statements and circle the statement that is more like your child. Then, check whether the statement is really true or sort of true for your child.

<table>
<thead>
<tr>
<th>Really True</th>
<th>Sort of True</th>
<th>Really True</th>
<th>Sort of True</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

☐ ☐ My child is usually well-behaved  Or  My child is often not well-behaved  ☐ ☐

☐ ☐ My child usually acts appropriately  Or  My child would be better if he/she acted differently  ☐ ☐

☐ ☐ My child often gets in trouble because of things he/she does  Or  My child usually doesn’t do things that get him/her into trouble  ☐ ☐
APPENDIX H

ADDITIONAL FIGURES DEPICTING DIRECT EFFECTS
Figure H.1. Mother model: Direct effect of marital conflict on behavior conduct competence

\[ \chi^2_{10} = 28.949, \ p = .001 \]
\[ CFI = .978 \]
\[ RMSEA = .120 \]
\[ AIC = 8.949 \]

Note. Observed variables at time one and errors at concurrent time points are correlated.

* \( p < .05 \)
Note. Observed variables at time one and errors at concurrent time points are correlated.

* $p < .05$

Figure H.2. Adolescent model: Direct effect of marital conflict on maternal awareness
Figure H.3. Mother model: Direct effect of marital conflict on maternal awareness

Note. Observed variables at time one and errors at concurrent time points are correlated.
* $p < .05$
Note. Observed variables at time one and errors at concurrent time points are correlated.
*p < .05

Figure H.4. Adolescent model: Direct effect of adolescent behavior conduct competence on marital conflict
Figure H.5. Mother model: Direct effect of adolescent behavior conduct competence on marital conflict

Note. Observed variables at time one and errors at concurrent time points are correlated.

\* \( p < .05 \)
Figure H.6. Adolescent model: Direct effect of maternal awareness on marital conflict
Figure H.7. Mother model: Direct effect of maternal awareness on marital conflict.

Note. Observed variables at time one and errors at concurrent time points are correlated. * p < .05
Figure H.8. Adolescent model: Direct effect of marital conflict on maternal behavior control

Note. Observed variables at time one and errors at concurrent time points are correlated.

* $p < .05$
Figure H.9. Mother model: Direct effect of marital conflict on maternal behavior control

Note. Observed variables at time one and errors at concurrent time points are correlated.
* $p < .05$
Note. Observed variables at time one and errors at concurrent time points are correlated.

* $p < .05$

Figure H.10. Adolescent model: Direct effect of maternal behavior control on marital conflict
Figure H.11. Mother model: Direct effect of maternal behavior control on marital conflict
APPENDIX I

ADDITIONAL FIGURES DEPICTING FULL MODELS
Figure I.1. Mother full model: Marital conflict - maternal awareness - behavior conduct competence
Note. Observed variables at time one and errors at concurrent time points are correlated.

* $p < .05$, ** $p < .10$

Figure 1.2. Adolescent full model: Marital conflict - behavior conduct competence - maternal awareness
Note. Observed variables at time one and errors at concurrent time points are correlated.

*p < .05, **p < .10

Figure I.3. Mother full model: Marital conflict - behavior conduct competence - maternal awareness
Figure I.4. Adolescent full model: Behavior conduct competence - maternal awareness - marital conflict
Figure I.5. Mother full model: Behavior conduct competence - maternal awareness - marital conflict

Note. Observed variables at time one and errors at concurrent time points are correlated.
* $p < .05$
Figure I.6. Adolescent full model: Maternal awareness - behavior conduct competence - marital conflict

\[
\chi^2 = 30.177, \ p = .218 \\
\text{CFI} = .994 \\
\text{RMSEA} = .040 \\
\text{AIC} = -19.823
\]

*Observed variables at time one and errors at concurrent time points are correlated.

*p < .05
Figure I.7. Mother full model: Maternal awareness - behavior conduct competence - marital conflict
Figure I.8. Mother full model: Marital conflict - behavior control - behavior conduct competence

Note. Observed variables at time one and errors at concurrent time points are correlated.

* $p < .05$
Figure I.9. Adolescent full model: Marital conflict - behavior conduct competence - behavior control

Note: Observed variables at time one and errors at concurrent time points are correlated.

* $p < .05$, ** $p < .10$
Figure I.10. Mother full model: Marital conflict - behavior conduct competence - behavior control
Note. Observed variables at time one and errors at concurrent time points are correlated.
* $p < .05$

Figure I.11. Adolescent full model: Behavior conduct competence - behavior control - marital conflict
Note. Observed variables at time one and errors at concurrent time points are correlated.
* p < .05

Figure I.12. Mother full model: Behavior conduct competence - behavior control - marital conflict
Figure I.13. Adolescent full model: Behavior control - behavior conduct competence - marital conflict

Note. Observed variables at time one and errors at concurrent time points are correlated.

\* p < .05
Figure I.14. Mother full model: Behavior control - behavior conduct competence - marital conflict

Note. Observed variables at time one and errors at concurrent time points are correlated.

*p < .05
REFERENCES


