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The impact of monitoring and the affective relationship between parents and adolescents on problem behavior in high school

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The Impact of Monitoring and the Affective Relationship between Parents and Adolescents on
Problem Behavior in High School

by

Kathleen Hlavaty

Thesis

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Abstract

Some researchers have suggested that the parent/adolescent affective relationship is key to understanding adolescent disclosure to parents regarding their activities (Kerr, Stattin, & Burk, 2010); however, other researchers do not feel that the parent/adolescent affective relationship explains enough variance in adolescent disclosure (Fletcher, Steinberg, & Williams-Wheeler, 2004). These models, however, have not tested for sex differences, which previous researchers suggest exist (Keijers, Branje, Finkenauer, & Meeus, 2010). Participants ($N = 464$; 50% female) were part of the Childhood and Beyond Study, which began during the 1986-87 school year. Data were collected from three different cohorts of participants across 13 years. This study focused on data collected from Wave 5 (1993-94) through Wave 9 (1998-99), when participants were in middle and high school. This study also examined two related models of parenting behaviors across time. The first model examined the effects of each parenting practice (monitoring and the affective relationship) on Problem Behavior separately. The second model looked at how the co-occurrence of these parenting behaviors over time affects Problem Behavior. Results indicate that both the relationship with parents and Monitoring Success are important in predicting Problem Behaviors during senior year.

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Literature Review

Researchers have focused on parenting practices, especially parental monitoring, as an important predictor of problem behavior during adolescence (Dishion & McMahon, 1998; Laird, Pettit, Bates, & Dodge, 2003; Li et al., 2002; Patterson, Reid, & Dishion, 1992). Additionally, researchers have developed models that examine the relationship between monitoring and the quality of the parent/adolescent relationship from the perspective of the adolescent to better understand how these parenting behaviors function. Some current models have been able to examine the interaction between parental monitoring and the affective relationship longitudinally, but few have looked at sex differences. Additionally, researchers have looked at the direct effects of these variables (Fletcher, Steinberg, & Williams-Wheeler, 2004) as well as the interactive effects of these variables over time (Kerr, Stattin, & Burk, 2010; Stattin & Kerr, 2000). However, no researchers have proposed a model to examine the cumulative effects of these parenting practices across time.

This study examined how the parent/adolescent affective relationship and parental monitoring impacted adolescent problem behavior. This study examined two models of this relationship. The first model examined the overall effects of each parenting practice (affective relationship and monitoring) on senior year problem behavior separately. The second model proposed examined the effects of co-occurring parenting practices across adolescence on senior year problem behavior. Both models examined the effects of the predictors on engagement in problem behavior during senior year of high school.

Problem Behaviors in Adolescence

For the purpose of this study, *Problem Behavior* was defined as behavior that is socially problematic or is a source of concern (Donovan & Jessor, 1985). Donovan and Jessor defined

problem behavior as drug and tobacco use, alcohol consumption, deviant behaviors, and risky sexual behaviors (1985). The researchers found that these four groups of behaviors were all highly correlated with each other within time and to themselves across time. They believed that these results provided support for the concept of a problem behavior syndrome. Donovan, Jessor, and Costa (1988) repeated this study in 1988 using the same questionnaire they used in their 1985 study; the researchers observed the same significant correlations among the behaviors. In addition, they found that a common latent variable seemed to explain 47.5% of the variance for males and 37.4% for females when examining the four variables in a Maximum Likelihood Procedure (Donovan, Jessor, & Costa, 1988). These findings support the use of these four groups of behaviors as a unitary construct of problem behavior.

Further research, however, has not supported the results found in Donovan and Jessor's work (Farrell, Danish, & Howard, 1992; Gillmore, Hawkins, Catalano, Day, Moore, & Abbott, 1991; Osgood, Johnston, O'Malley, & Bachman, 1988; Willoughby, Chalmers, & Busseri, 2004). While researchers agree that these behaviors tend to occur concurrently, they have indicated that there is weak support for one latent variable or underlying syndrome that causes these behaviors. A similar developmental pathway or combination of risk factors are suggested instead (Farrell et al., 1992; Gillmore et al., 1991; Osgood, Johnston, O'Malley, & Bachman, 1988; Willoughby, Chalmers, & Busseri, 2004). There is also evidence that engaging in one subset of problem behavior does not guarantee engagement in another. For example, alcohol use does not predict shoplifting or property damage.

Nevertheless, more recent research has continued to provide evidence that problem behaviors co-occur, and engaging in problem behaviors early in adolescence predicts later engagement (Boles, Biglan, & Smolkowski, 2006; Broidy et al., 2003; Willoughby, Chalmers, &

Busseri, 2004). Further, researchers have found that males engage in more subsets of problem behaviors and in higher frequency than females (Farrell, Danish, & Howard, 1992; Willoughby et al., 2004). Additionally, older adolescents tend to engage in more risky sexual behavior and consume alcohol more often as compared to younger adolescents. Researchers have also found that individual problem behaviors are highly correlated with each other (Ary, Duncan, Bliglan, Metzler, Noell, & Smolkowski, 1999; Boles et al., 2006). However, the percentage of adolescents who engage in high frequencies of more than one problem behavior is low (Boles et al., 2006).

For this study, a series of problem behaviors, including drinking alcohol, skipping school, contact with police, and being involved in a fist-fight were examined. In previous research, these behaviors have been shown to be related across age and sex. In an attempt to predict engagement in problem behaviors, researchers have examined models that include a variety of risk factors. Some risk factors include exposure to deviant peers, parents, schools, and neighborhood (Ary, Duncan, Bliglan, Metzler, Noell, & Smolkowski, 1999; Farrell, Danish, & Howard, 1992; Jessor, Van De, Bos, Vanderryn, Costa, & Turbin, 1995). This study focused on parenting as it relates to problem behaviors. Two common risk factors related to parenting included in previous models are the parent/adolescent affective relationship and parental monitoring (Ary, Duncan, Bliglan, Metzler, Noell, & Smolkowski, 1999; Fletcher, Steinberg, & Williams-Wheeler, 2004; Patterson, Reid, & Dishion, 1992; Stattin & Kerr, 2000).

Parent/Adolescent Affective Relationship

Researchers have found that the way parents emotionally connect with their children from infancy to adolescence can have significant implications for later development (Ainsworth, Bell, & Stayton, 1971; Baumrind, 2005; Maccoby, 1992; Steinberg, Lamborn, Darling, Mounts,

& Dornbusch, 1994; Stattin & Kerr, 2000). As important as the parent/adolescent emotional connection is, current literature has not yet explicitly identified the most effective way of measuring this emotional connection. This study used the parent/adolescent affective relationship as the measure of this emotional connection. Maccoby (1992) defined the affective relationship as parents showing love and empathy towards their child. However, no specific definition has been given for adolescents. This study examined the affective relationship through adolescent reports of the quality of their relationship with both their mother and their father.

Researchers have used a variety of measures to examine the emotional connection between parents and adolescents. Such terms as *parental warmth*, *attachment*, *responsiveness*, and *involvement/acceptance* (Ainsworth, Bell, & Stayton, 1971; Baumrind, 2005; Maccoby & Martin, 1983) have all been used to describe similar but somewhat distinct definitions of the emotional connectedness between parents and adolescents. Currently, there is no evidence that any one of these measures is a better predictor of positive outcomes in adolescence than another, and there is no research examining how stable these measures are across time. It is important to understand two of these measures for the present study. Stattin and Kerr (2000; 2010) used a measure of parental warmth, while Fletcher, Steinberg, and Williams-Wheeler (2004) used a measure of parental involvement/acceptance in their studies. It is important for the present study to examine the differences in these constructs and associated measures and how they may impact the results.

Parental warmth is commonly used as an index of the adolescent/parental emotional connection. Parental warmth was identified as a key factor in positive child development in psychological theory as early as Freud's theory of psychosexual development (Freud, 1933). Maccoby and Martin (1983) noticed that the definition of parental warmth seemed to change

depending on the theoretical approach that the researchers used. However, they noted that across all of the definitions of parental warmth, the basic characterization of parental warmth seemed to include parents interacting with their children in a caring, affectionate, and empathetic way (Ainsworth, Bell, & Stayton, 1971; Baumrind, 2005; Maccoby & Martin, 1983).

Two early researchers attempted to create good measures of parental warmth (Becker, 1962; Schaefer, 1965). Becker (1962) used exploratory factor analysis to examine how different parenting practices are related to one another. One of the factors formed in this analysis was identified as warmth/hostility. This factor included regular use of praise, acceptance of child, and reporting an emotional connection with the child (Becker, 1962). In 1965, Schaefer created the Children's Report of Parents' Behavior Inventory (CRPBI) using the same approach. The Acceptance/Rejection subscale of this inventory included ratings of emotional support, expressions of affection, and positive evaluations (Schaefer, 1965). However, a factor analysis of the items included in the Acceptance/Rejection subscale has never been replicated for an adolescent sample.

Other researchers have conceptualized the emotional connection as more than just the affective responsiveness of the parents. Baumrind (2005) suggested that parental acceptance included not only warmth, but support and involvement as well. This involves the parent being responsive to the adolescent's needs, showing concern and being involved in their lives, and supporting the adolescent in his or her activities. The purpose of this definition was to identify large groups of parents by their parenting style, not necessarily to understand the effects of warmth on adolescent outcomes.

Kerr, Stattin, and Burk (2010) used a measure of parental warmth that consisted of six items: "How often do you feel disappointed with your mother," "How well do you and your

mother/father understand each other,” “Do you wish that your mother/father was different,” “Do you and your mother/father quarrel and fight with each other,” “How often do you feel proud of your mother/father,” “Do you accept your mother/father the way she is,” “How often do you feel angry or irritated by your mother/father,” and “Does your mother/father support and encourage you?” Fletcher, Steinberg, and Williams-Wheeler (2004) used a scale of involvement/acceptance that consisted of six items taken from a Lamborn et al. scale (1991). The scale included the questions, “When you get a good grade, do your parents praise you,” “When you get a poor grade, do your parents encourage you,” “I can count on my father/mother to help me out, if I have some kind of problem,” “My father/mother helps me with my school work if there is something I don't understand,” and “When my father/mother wants me to do something, he/she explains why.”

The measure used by Kerr, Stattin, and Burk focuses more on the adolescent's emotional response to his or her parents, while Fletcher, Steinberg, and Williams-Wheeler's measure focuses more on activities that the parent and adolescent engage in together. Previous research indicates that these are not two separate measures of the quality of the parent/adolescent relationship and do not predict separate outcomes (Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994). The measure included in this study examined the quality of the parent/adolescent relationship from the perspective of the adolescent and was similar to the Fletcher, Steinberg, and Williams-Wheeler measure. In addition, this study only included adolescent reports of the affective relationship, as previous research has documented significant differences in ratings of warmth from parents and adolescents (Noller, Seth-Smith, Bouma, & Schweitzer, 1992; Paulson, 1994).

A poor relationship with parents has been implicated in an increase in problem behavior during adolescence (Scaramella, Conger, & Simons 1999). There is also evidence that a preadolescent/parent relationship without much warmth is a risk factor for early engagement in problem behavior (Patterson, Crosby, & Vuchinich, 1992). Similarly, Conger et al. (1992) found that parents who are harsh, critical, and coercive tend to have adolescent males who engage in more problem behaviors at a younger age. Conger et al. conducted their study a second time, examining the effects of this type of parenting on adolescent females, and the same results were found (Conger et al., 1993). The relationship between a high quality parent/adolescent relationship and the lack of problem behavior does not seem to be as strong for minority adolescents who live in low income areas, but the strength of the relationship differs across behaviors and needs to be examined more closely (Mason, Cauce, Gonzales, & Hirga, 1996).

Adolescent reports of a strong parent/adolescent relationship are related to lower levels of drinking, as well as less association with peers who drink (Nash, McQueen, & Bray, 2005). Further, a strong parent/adolescent relationship has been noted as a significant protective factor against drinking during adolescence. Parental warmth is a strong protective factor for African American and Latino adolescents (Jordan & Lewis, 2005; Mogro-Wilson, 2007). Additionally, hostility from parents (arguably the opposite of parental warmth) has been shown to significantly increase drinking in adolescent males (Johnson & Pandina, 1991). In urban youth, a poor relationship with parents, especially mothers, was found to increase engagement with peers who pressure adolescents into using drugs (Farrell & While, 1998).

A strong parent/adolescent relationship has also been associated with positive adolescent outcomes and behaviors. A high quality relationship has been associated with an increase in adolescents' involvement in community activities and sports (Fletcher, Elder, & Mekos, 2000;

Fredrick & Eccles, 2004). It is also predictive of achievement in high school, as indicated by GPA and school involvement (Steinberg, Lamborn, Dornbusch, & Darling, 1992). Steinberg, Lamborn, Darling, Mounts, and Dornbusch (1994) looked at the effects of warmth, acceptance, and involvement across adolescence. The researchers found that adolescents who reported continuously high levels of all three parenting practices, as compared to adolescents who reported continuously low levels or inconsistent levels, had higher scores on academic achievement and psychosocial development and lower scores on internal distress and problem behaviors (Steinberg et al., 1994).

Finally, concerns have been raised about the lack of longitudinal studies examining the impact of the parent/adolescent relationship across adolescence. Paulson and Sputa (1996) raised concerns that research on the parent/adolescent relationship and other parenting practices has not focused enough on examining this associations across adolescence. The researchers suggested that more research should focus on the cumulative effects of parenting practices over time. Paulson and Sputa cautioned against examining the quality of the parent/adolescent relationship and adolescent outcomes over a relatively short period of time and then generalizing to all of adolescence. The researchers called for more longitudinal studies that follow the same participants throughout adolescence so that new models can take into account normative changes in the parent/adolescent relationship that occur as adolescents mature (Paulson & Sputa, 1996). The current study addresses this concern by using multiple time points to assess the impact of multiple parenting practices, including the parent/adolescent relationship, on problem behavior.

Parental Monitoring

Parents' knowledge of their children's activities is important throughout childhood and adolescence. Parental monitoring is defined broadly as the set of parenting behaviors used to

track the child or adolescent's activities and whereabouts, which may involve both structuring the adolescent's environment and tracking the adolescent's activities (Dishion & McMahon, 1998).

For a long time researchers used parent reports of their monitoring behaviors as a predictor of problem behavior (Patterson & Stouthamer-Loeber, 1984). However, parent reports of monitoring are no longer considered an appropriate predictor of adolescent problem behavior due to adolescents' ability to engage in more unsupervised activities (Laird, Pettit, Dodge, & Bates, 1998). Some researchers have indicated that adolescents plan their activities in order to make sure that they are unsupervised by parents or other adults (Stoolmiller, 1994). Adolescents may also lie more to their parents regarding their activities, and parents are not able to confirm their behaviors with other trusted adults due to the adolescent's ability to engage in activities outside of adult supervision (Warr, 2007). This has raised questions as to both the predictive validity and the reliability of parents' reports of monitoring behavior (Dishion & McMahon, 1998).

More researchers have begun to examine adolescent disclosure of their parents' actual knowledge of their activities, instead of using parents' reports of monitoring behavior (Fletcher, Steinberg, Williams-Wheeler, 2004; Stattin & Kerr, 2000). Using adolescent reports about their parents' actual knowledge of their behaviors, researchers are able to determine more accurately the adolescent's risk of becoming involved in problem behaviors (Soenens, Wavsteenkiste, Luychx, & Goossens, 2006; Stattin and Kerr, 2000). For the purposes of this study, two different aspects of parental monitoring were used. *Monitoring Attempts* was defined as the attempts of parents through direct questioning to know where their adolescent is during their free time, after school, and at night. *Monitoring Success* was determined by how often parents actually know (as

reported by the adolescent) where their adolescent is during these times. Both of these measures were obtained from adolescent reports.

This study focused on parental monitoring during three different times during the day, the adolescent's free time, after school, and at night. Research has shown that when parents are not monitoring their adolescents during these times, the adolescent is at a higher risk of engaging in more problem behaviors, including use of drugs and alcohol and engaging in risky sexual behaviors (Barnes, Hoffman, Welte, Farrell, & Dintcheff, 2007; Borawski, Ievers-Landis, Lovegreen, & Trapl, 2003; Farrell & Barnes, 2000). Hirschi's Social Control Theory (Hirschi, 2000) suggests that the lack of either parental monitoring or other adults being present during the adolescent's free time increases the risk for engagement in delinquent behavior. These times are also consistent with those measured by Fletcher, Steinberg, and Williams-Wheeler (2004) and Kerr, Stattin, and Burk (2010).

Researchers have consistently shown that a lack of parental monitoring leads to an increase in problem behaviors in adolescence (Patterson, Reid, & Dishion, 1992). Lack of parental knowledge of adolescents' activities has also been shown to put adolescents at a higher risk of becoming involved with anti-social peers and to be more susceptible to their influence (Dishion, Capaldi, Spracklen, & Li, 1995; Fridrich & Flannery, 1995). Intervention studies have suggested that when parents are instructed in more effective monitoring behaviors, problem behaviors decrease over time; however, if parents stop monitoring or use less effective monitoring behaviors, the adolescent may begin to engage in more problem behaviors (Li, Stanton, & Feigelman, 2000; Li et al., 2002).

Parental monitoring is a protective factor against substance use, including alcohol and tobacco (Fletcher, Darling, & Steinberg, 1995; Griffin, Botvin, Scheier, Diaz, & Miller, 2000;

Waizenhofer, Buchanan, & Jacson-Newsom, 2004). Low levels of parental monitoring have been identified as a risk factor for early onset of drug sampling, which some studies suggest can occur as early as 10 years of age when parents are not yet monitoring their children as they would for an adolescent (Dishion, Reid, & Patterson, 1988). Poor monitoring across time is also predictive of an increase in substance use across adolescence and more association with peers who use drugs (Chassin, Pillow, Curran, Molina, & Barrera, 1993; Fletcher, Darling, & Steinberg, 1995).

While the relationship of monitoring and problem behavior is strong, researchers are just beginning to understand how monitoring affects internalizing problems during adolescence. Monitoring has been associated with lower scores on self-reports of depression and anxiety in some studies (Barber, Olsen, & Shagle, 1994; Jacobson & Crockett, 2000; Pettit, Laird, Dodge, Bates, & Criss, 2001), but in others there was not a significant relationship between monitoring and these measures (Linver & Silverberg, 1995). There is also some evidence that lack of parental monitoring is a risk factor for low self-esteem in adolescence (Parker & Benson, 2004).

Parental monitoring may also have some implications for academic achievement during adolescence. Studies have suggested that when parents monitor their adolescents, adolescents perform better in school and are more involved in school activities (Steinberg, Lamborn, Dornbusch, & Darling, 1992). In addition, when parents monitor school activity, adolescents feel more positive about school, have more positive academic self-conceptions, spend more time on their homework, and are less likely to cheat on schoolwork (Lamborn, Mounts, Steinberg, & Dornbusch, 1991). It is important to note, however, that these results are not consistent across socio-economic status and ethnic group. The link between monitoring and school achievement

seems to be strongest for Asian adolescents, and the relationship seems to be weak at best for African American adolescents who attend schools in low socio-economic areas (Spera, 2005).

Although parental monitoring is understood to be an important protective factor against many negative adolescent outcomes, little research has been done on the effects of monitoring on prosocial behaviors and engagement in extra-curricular or community activities. Some studies have indicated that parental monitoring increases these behaviors and engagement in these activities; however, more research needs to be conducted in order for these results to be reliable (Heubner & Mancini, 2003; Kerr, Beck, Shattuck, Kattar, & Uriburu, 2003).

While parental monitoring is a significant predictor of both negative and positive outcomes in adolescence, there are still gaps in the literature. Researchers have identified adolescent disclosure to be a more accurate predictor of problem behavior than are parent reports of attempts to know what their adolescent is doing. However, one question researchers have yet to unravel is, what prompts an adolescent to disclose accurate information to his/her parents? Is this disclosure simply an artifact of the quality of the parent/child relationship, or do some kids disclose accurately regardless of the strength of the relationship? The next section reviews the literature on this issue, as this question was a central purpose of this research project.

Parent/Adolescent Affective Relationship and Monitoring

Recent research on the impact of parenting behaviors on adolescent outcomes has highlighted two competing theories to explain the association between the parent-adolescent affective relationship and monitoring. Stattin and Kerr (2000; 2010) suggest that monitoring, specifically parents' actual knowledge of their adolescent's activities, is only effective when there is a strong parent/adolescent relationship. However, Fletcher, Steinberg, and Williams-Wheeler (2004) disagree with Stattin and Kerr's findings. They suggest that the parent/adolescent

affective relationship is not a strong enough predictor of parents' actual knowledge of their adolescent's activities. Rather, they found evidence that parental monitoring and attempts at monitoring have an effect on adolescent outcomes beyond the effects of the strength of the parent-adolescent relationship.

The tension between the relative impact of parental warmth/support and parental monitoring/control has a long history in the literature on the effects of parenting on children. Baumrind (1967) first characterized the importance of both emotional support and parental control for positive outcomes in childhood and adolescence. Baumrind suggested that the key to positive child and adolescent outcomes was the balance of parental control and emotional support, as in authoritative parenting. Too much control and too little emotional support, authoritarian parenting, was harmful to development as was the opposite extreme, permissive parenting, which is characterized by little control and high emotional support (Baumrind, 1967). While emotional support is important, Baumrind suggested that parental control was more important for development (Baumrind, 1967).

However, other researchers have challenged Baumrind's belief that parental control is more important than communication and emotional support. Lewis (1981) suggested that external parental control could not explain why adolescents internalize parental beliefs. Lewis' research indicated that, while parental control is important, authoritative parenting leads to positive outcomes because authoritative parents are open to communication and offer emotional support as well as control (Lewis, 1981). Although it has been over three decades since Lewis' research, it is still unclear what the association is between the parent/adolescent affective relationship and parental monitoring.

Darling and Steinberg (1993) examined past research regarding the association between parental monitoring and the parent/adolescent attachment relationship and suggested a model to understand how these parenting characteristics are related. In their study, *parenting style* consisted of parental warmth and acceptance; *parenting practices* included discipline strategies, control mechanisms, and parental involvement with the adolescent. The model proposed suggested that parenting style acts as a moderator with the relationship between parenting practices and adolescent outcomes in two different ways. The first way in which parenting style acts as a moderator is that it affects how adolescents and parents interact with each other. Parents who engage in effective parenting practices and have a warm parenting style have adolescents who score high on outcome measures of adolescent adjustment. Without a warm parenting style, the impact that effective parenting practices have on adolescent outcomes is not as strong. The second way that parenting style acts as a moderator between parenting practices and measures of adolescent adjustment is in making adolescents more welcoming to their parents' influence. Darling and Steinberg (1993) suggest that parenting practices are more effective with a warm style because the adolescents may feel like they are involved in the decision making instead of parents making all the decisions.

Recent research suggests that the Darling and Steinberg model does not accurately portray the relationship between monitoring and the parent/adolescent affective relationship. Stattin and Kerr (2000) suggest that monitoring needs to be redefined, not as a parenting practice, but as a behavior that the adolescent engages in. They examined the effects of parental solicitation for information regarding adolescents' activities, parent-adolescent relationship quality, and adolescent disclosure of information regarding their activities on problem behavior. Stattin and Kerr found that the most important predictor of low levels of problem behavior is

adolescent disclosure of information (2000). Stattin and Kerr suggested that to receive truthful information from adolescents, parents must first have a strong affective relationship with their adolescent. This model suggests that when the adolescent and parent build a good relationship, the adolescent will disclose more information about his or her activities. More disclosure from the adolescent will lead to fewer problem behaviors and will assist in maintaining the strong parent/adolescent relationship (Stattin & Kerr, 2000).

Stattin and Kerr sought to replicate this result in an additional study (Kerr, Stattin, & Burk, 2010). The researchers had 713 adolescents and parents from central Sweden answer questions regarding adolescent disclosure (how much adolescents disclose information about where they are and what they do during free time), parental solicitation (parents' attempts to gain knowledge of the adolescents' activities), parental control (establishment of household rules regarding behavior), and parent/adolescent relationship quality. Two years later, the researchers contacted the participants, asking them to answer the same questions. The results indicated that scoring high on any of the variables at Time 1, such as parental monitoring, predicted high scores on that same variable at Time 2. However, while adolescent disclosure of their activities was related to parental knowledge of their activities and a decrease in problem behavior, parents' attempts at soliciting the information were not related to adolescent disclosures. The relationship between solicitation, adolescent disclosures, and problem behavior was only significant when the quality of the parent/adolescent relationship (warmth) was controlled for. Stattin and Kerr believe that this is evidence that the adolescent/parent relationship acts as a moderator for the relationship between monitoring and problem behavior (Kerr, Stattin, & Burk, 2010), although their analyses found only one modest interaction between monitoring and the affective relationship in 24 regression models with various outcomes. Stattin and Kerr did not look at the

mediating effect of the parent-adolescent affective relationship on the impact of monitoring on the adolescent outcomes, as would be suggested by their initial results.

Regardless, other researchers have supported the observation that monitoring is only effective when the quality of the parent-adolescent relationship is good. Studies suggest that an increase in parental knowledge regarding an adolescent's engagement in problem behavior is related to an increase in time parents and adolescents spend together and less problem behavior (Laird, Pettit, Dodge, & Bates, 2003). Similarly, Eaton, Krueger, Johnson, McGue, and Iacono (2009) examined the relationship between parental solicitation for information, adolescent disclosure, and problem behavior in a sample that consisted of almost half adopted Asian adolescents. They found that parents' solicitation only related to adolescent disclosure and problem behavior when the parent/adolescent relationship was strong (Eaton et al., 2009).

In response to Stattin and Kerr, Fletcher, Steinberg, and Williams-Wheeler (2004) conducted a study examining the influence of parental warmth, parental control (the establishment of family rules about curfew, reporting in, etc.), and parents' attempts to know about their adolescent's activities on parents' actual knowledge of their adolescent's activities. The study included 2,568 students from Wisconsin and California who were followed for two consecutive school years (1987-1988 and 1988-1989). All measures were self-report measures and administered during the school day; parents were not included in this study. In support of Stattin and Kerr's findings, the researchers found that parents' actual knowledge of their adolescent's activities was the strongest predictor of problem behavior. However, while they concluded that parental warmth explained some of the variance of parental knowledge, parental control (having family rules) explained more variance. The researchers suggested that other influences, or a combination of factors, better explain how parents gain knowledge about their

adolescent's activities than does the parent/adolescent relationship alone (Fletcher, Steinberg, & Williams-Wheeler, 2004).

Another study suggests that a lack of parental control and monitoring leads to an increase in problem behaviors, which, in turn, leads to a breakdown of the parent/adolescent relationship (Laird et al., 2003). Stattin and Kerr assessed the relationship between monitoring and the affective relationship at one time point during adolescence, and they were not able to control for previous monitoring and changes in deviant behavior or the affective relationship. While Fletcher, Steinberg, and Williams-Wheeler assessed problem behavior at two different time points, the changes in parenting behaviors and parent/adolescent relationship were not controlled for. The current study examined the overall effects of parenting behaviors across time, as well as the impact of the changes in monitoring and the relationship at each time point.

Sex Effects

While Fletcher, Steinberg, and Williams-Wheeler did not examine sex differences in their study, Kerr, Stattin, and Burk (2010) found that the sex of the adolescent played a significant role in the importance of the parent/adolescent relationship in their model. In general, there is evidence that suggests that males engage in more problem behaviors than females do (Windle, 2000). Some research has indicated that monitoring has different effects on problem behavior in females and males (Vitaro, Brendgen, & Tremblay, 2001). However, female participants in research on risky and anti-social behavior are often lacking, and so the differential impact of monitoring on males and females has not been confirmed (Dornbusch, Erickson, Laird, & Wong, 2001; Vitaro, Brendgen, & Tremblay, 2001).

Laird, Pettit, Bates, and Dodge (2003) examined the relationship between sex, adolescent disclosure, and problem behavior in a sample of 585 high school students from Tennessee and

Indiana. The researchers found that in early adolescence, males engaged in more problem behaviors than females. As they aged from ninth to twelfth grade, not only did males continue to engage in more of these behaviors, but also their engagement in these behaviors increased. In addition, Laird et al. (2003) also saw evidence that while females continued to disclose the same amount of information to their parents across adolescence, males tended to disclose less information to their parents. The researchers were unable to identify whether or not this was due to the males' increase in problem behavior or if another variable hindered adolescent disclosure.

Differences in the relationships or the importance of the relationship that adolescent males and females have with their parents may explain this issue. During early adolescence, males and females report less parental warmth and more conflicts compared to reports in childhood, with males reporting that this change occurs more quickly and earlier than do females (McGue, Elkins, Walden, & Iacono, 2005). As adolescents move towards adulthood, both males and females begin to have stronger attachments to peers than to parents and to use peers more for support. However, females still use their mothers for proximity and support more than males do (Paterson, Field, & Pryor, 1994). While there is no evidence that males and females differ in rates of secure attachment across adolescence, females seem to be more emotionally connected and dependent on their parents (Ma & Huebner, 2008; Patterson et al., 1994). While these studies examined secure attachment, previous researchers have noted that that these two concepts are similar and good indicators of the parent-adolescent relationship (Maccoby & Martin, 1983).

Keijers, Branje, Frijns, Finkenauer, and Meeus (2010) looked at the relationship between sex, adolescent lying, and the parent/adolescent relationship in a sample of 309 Dutch adolescents. They found that, for both sexes, secrecy increases across adolescence while the relationship with both parents remains stable. However, there was a significant increase in lying

to parents for females when there was a poor parent/adolescent relationship (Keijers et al., 2010). The rating of the parent/adolescent relationship was not a significant predictor of lying when the adolescent was male (Keijers et al., 2010).

Not only might the sex of the child affect how much parents impact adolescent outcomes, but the sex of the parent may affect them as well. Research in early childhood suggests that parents use different discipline techniques for males and females, but little research has been done exploring male/female parenting differences in adolescence (Meier, Slutske, Heath, & Martin, 2009). During adolescence, males and females treat their parents in very similar ways; however, they report spending more time with their mother, feeling closer to their mother, but also fighting more with their mother (Holmbeck, Paikoff, & Brooks-Gunn, 1995; Larson & Richards, 1994; Steinberg & Silk, 2002; Williams & Kelly, 2005).

The implications of the studies reviewed in this section highlight the importance of examining the relationship between parental monitoring, the parent/adolescent affective relationship, and problem behavior separately for males and females and mothers and fathers. Consequently, the researcher controlled for sex of adolescent because of two separate issues. First, separating the analyses for males and females removed any statistical issues that came from sex differences in overall problem behavior. Second, running separate analyses for males and females revealed any sex differences in how the parent/adolescent affective relationship and monitoring impacted adolescent problem behavior. Given the research reviewed above, we anticipated such sex differences and that the relation of these variables differed by sex of child and sex of parent (i.e., mother/child versus father/child affective relationship).

Age Differences

The current study also separated the participants included by age cohort. Previous research provides evidence that there are age differences that may influence the results of the current study.

The first area where age differences may influence results is in ratings of engagement in problem behaviors. Previous researchers have found that older adolescents engage in more problem behaviors than do younger adolescents; however, those behaviors are also different problem behaviors than those exhibited by younger adolescents (Boles, Biglan, & Smolkowski, 2006; Broidy et al., 2003; Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995; Laird, Pettit, Bates, & Dodge, 2003). For example, Boles, Biglan, and Smolkowski (2006) examined differences in prevalence of multiple problem behaviors in 38,726 8th and 11th graders from Oregon. The researchers found that the 11th graders engaged in more drug use, sexual behaviors, and skipped school more often than the 8th graders (Boles, Biglan, & Smolkowski, 2006).

Age differences are also observed in adolescent ratings of their affective relationship with their parents. Adolescent ratings of their relationship with their parents decrease during middle adolescence and begin to increase after age 18 (De Goede, Branje, and Meeus, 2009; Shanahan, McHale, Crouter, & Osgood, 2007). De Goede, Branje, and Meeus (2009) followed 1,341 adolescents, divided into early and late adolescents, across four years. The researchers found that throughout early adolescence, adolescents report higher levels of conflict and less support, while older adolescents report less conflict and more support from their parents.

Last, researchers have found that parental monitoring changes as adolescents age (Dishion, Patterson, Stoolmiller, & Skinner, 1991; Laird, Pettit, Dodge, & Bates, 1998; Laird, Criss, Pettit, Bates, & Dodge, 2009). As adolescents age, they spend less time under adult

supervision and disclose less information regarding their activities to their parents (Dishion & McMahon, 1998; Laird, Pettit, Dodge, & Bates, 1998; Laird, Pettit, Bates, & Dodge, 2003; Patterson & Stouhamer-Loeber, 1984). Due to the increase in time that adolescents spend unsupervised by adults, parents are no longer able to use the same monitoring strategies as when their adolescents were younger (Stoolmiller, 1994; Warr 2007). Instead of relying on direct supervision by themselves or other trusted adults during early adolescents, parents begin using distal monitoring, which relies more on adolescents' disclosures and honesty (Dishion, Patterson, Stoolmiller, & Skinner, 1991; Laird, Pettit, Dodge, & Bates, 1998; Laird, Criss, Pettit, Bates, & Dodge, 2009). Distal monitoring includes more communication regarding rules the adolescent is to follow outside the home, parents' solicitation for information regarding friends and activities, and adolescent participation in monitoring by disclosing information.

In sum, previous research provides evidence that adolescents report important differences in problem behaviors, the affective relationship with their parents, and parental monitoring across adolescence. These age differences indicate important factors that were examined in the current study. First, there is evidence from previous research that adolescents who are in 7th grade will behave differently than will adolescents in 10th grade. The current study did not assume that the two age cohorts provide equivalent reports on these outcome measures. In addition, previous research has provided evidence that parents should change their parental monitoring techniques across adolescence in order to maintain effective parenting. To prevent age from becoming a confounding variable in the current study, analyses were done separately for each age cohort in the study.

Hypotheses

This study examined the relationship between Monitoring Success, Monitoring Attempts, the parent/adolescent affective relationship, and Problem Behavior in adolescence.

Specifically, this study examined the sex differences on these measures for two cohorts of adolescents, as well as the relationship among the variables of interest separately for sex and age cohort. The researcher predicted that there would be significant differences in mean responses by gender (Hypothesis 1a) such that girls would report more monitoring and a better relationship with both parents. In addition, the researcher predicted that there would be significant gender differences in the relationship among these variables (Hypothesis 1b). Specifically, the researcher hypothesized that the affective relationship would be more strongly related to parents' actual knowledge of their adolescents' activities (Monitoring Success) and Problem Behaviors for girls than it would be for boys. This is in keeping with Keijers et al. (2010) and Stattin, Kerr, and Burk (2010), who found that the parent-adolescent relationship predicted higher levels of adolescent disclosure in females only.

This study also sought to understand the relative predictive power of each predictor for the outcome, Problem Behavior. Similar to the study conducted by Fletcher, Steinberg, and Williams-Wheeler (2006), this study suggested that a strong affective relationship with both parents and Monitoring Attempts would predict Monitoring Success looking within the same time frame (See Figure 1). It was predicted that the affective relationship with parents, Monitoring Attempts, and Monitoring Success would predict Problem Behavior in senior year differently for males and females (Hypothesis 2). It was predicted that for females the affective relationship with parents would be related to Monitoring Success but not necessarily Monitoring Attempts. In contrast, it was hypothesized that for males, Monitoring Attempts would directly

predict Problem Behavior, but affective relationship with parents would not directly predict the outcome. For both males and females, it was hypothesized that Monitoring Success would predict Problem Behavior. For this study, the relative power of the predictors was compared by examining the significance of the beta weights and the significance of each R^2 change separately for each gender and for the two cohorts examined.

Finally, this study examined two different models that included the parent/adolescent affective relationship and monitoring predicting senior year Problem Behavior. The first model examined the cumulative effects of parenting across adolescence, while the second model examined the individual effects of each parenting practice (Hypothesis 3a; see Figures 2, 3, and 4). The first model examined all parenting practices during the same wave of data, with each step of the model adding another year of parenting practices. This model, titled the *Cumulative Parenting Model*, accounts for changes across time in both parental monitoring and the parent/adolescent affective relationship, including developmentally appropriate changes in parenting practices. The changes in R^2 at each step demonstrate the relative impact of each year of parenting on the outcome variable. It was hypothesized that although the parenting practices that are closest in time to the outcome variable would contribute the most to the overall variance explained, parenting practices earlier in time would also contribute significantly to the overall model. The second model, titled the *Individual Parenting Practices Model*, assessed the individual effects of Monitoring Attempts, Monitoring Success, and the affective relationship separately across the time studied (Hypothesis 3b). This model did not assess the effects of these parenting practices individually across time per se but examined the relative impact of these parenting practices on adolescent outcomes. We had no a priori hypothesis concerning the

relative contribution of each set of parenting behaviors on the outcome variable but wanted to see the relative contribution of each parenting practice across time on the overall model.

Methods

Participants

The participants in this study were part of the Childhood and Beyond Study (CAB), a longitudinal research project conducted at The University of Michigan from 1986-1999. All participants were recruited from 10 elementary schools in four school districts in Southeastern Michigan. Researchers chose these school districts in order to remove poverty as a possible confounding variable (Simpkins, Fredricks, & Eccles, 2012). The complete sample was 93% Caucasian and the median household income was \$50,000-\$59,999. The original sample at Wave 1 consisted of 987 families, 723 of whom had at least one parent who participated. At each wave of data collection, all original participants were invited to participate again; 82% of the original sample participated in at least one other wave of data collection. Researchers tracked families using Department of Motor Vehicle records, Social Security numbers, friends and family contacts, and forwarding addresses from the local postal offices. Consent forms were sent by mail to parents at the beginning of each funding cycle, Waves 1 and 5. At each data collection wave, adolescents gave assent before beginning the survey (see Appendix A).

Data were collected on three cohorts of children over a 12-year period until the youngest cohort completed 12th grade. The youngest cohort, Cohort 1, consisted of 187 total participants, 98 males and 89 females. At Wave 1, this cohort was in Kindergarten, and at Wave 5, in the 7th grade. The next oldest cohort, Cohort 2, consisted of 342 participants, 178 females and 164 males. They were in 1st grade at Wave 1 and 8th grade at Wave 5. The last cohort, Cohort 3, consisted of 227 participants, 143 females and 134 males. At Wave 1, they were in the 3rd grade

and at Wave 5 they were in the 10th grade. Senior year research retention rates for Cohort 1 (seniors at Wave 9) was 61%, for Cohort 2 (seniors at Wave 8) 22%, and for Cohort 3 (seniors at Wave 7) 66%. Due to the low retention rate, Cohort 2 was not used in this study. Table 1 presents the grades and data collection years for each cohort.

An appropriate effect size for the analyses planned in this study was set at a medium effect size, $f^2 = .15$; alpha for all analyses was set equal to .05, and power was set equal to .80 (Cohen, 1992). Because all analyses were completed separately for four groups, e.g., Cohort 1 females, Cohort 1 males, and so on, to obtain the predetermined statistical power, each group must have contained a sample size of at least 76 participants during their senior year of high school for the analysis for the first two hypotheses. In order to test the two models proposed in this study, Cohort 1 needed 146 participants in each sex group and Cohort 3 needed 127 in each group. At this sample size, the current study could predict the significance of each statistical test accurately: a series of *t*-tests, correlations, and regressions. To ensure adequate sample size, the data were imputed. The imputation methods are described below in the Data Cleaning section.

Design

The data used in this study were taken from the Childhood and Beyond data set, which is a longitudinal study that began in 1986 and was completed in 1999. Collection waves were spaced at one-year intervals with the exception of a four-year gap between Wave 4 and Wave 5 due to a gap in funding, as well as a two-year interval between Wave 7 and Wave 8 in order to collect data from Cohort 2 during their senior year of high school. This study is part of the Gender and Achievement Research Program at the University of Michigan Institute for Social Research.

Procedures

Data used in the current study were collected starting during the 1993-1994 school year, when Cohort 1 was in 7th grade and Cohort 3 was in 10th grade, and ended during the 1998-1999 school year. During the spring of each school year, researchers from the Gender and Achievement Research Program went into the schools included in the study to administer a paper and pencil survey. The survey was administered during the school day, and participants were removed from classes in order to complete the survey. Before starting the survey, participants signed an assent form and were informed that they would receive \$10 after completing the survey. The survey obtained data on a variety of topics, including self-efficacy regarding a variety of school subjects, problem behaviors, relationships with peers, and goals for the future. There was no time limit for the completion of the survey.

In addition, during Wave 6, interviews were conducted with the adolescents in person and their parents over the phone. At Wave 7, information regarding the school was collected from the respective principals. None of these data were used in the current study.

Measures

Data from the Childhood and Beyond Study are available on a public domain website. Gender and Achievement Research Program researchers developed many of the scales used in this study. Information on the factor analyses and reliabilities of these scales is available on the website. Descriptive statistics and reliabilities for all measures at each time point can be found in Table 2 for Cohort 1 and Table 3 for Cohort 3.

Predictors

Parent/Adolescent Affective Relationship. Adolescents rated how positive their relationship was with their mother and father at Waves 5, 6, 7, and 9. This scale consisted of

seven questions that were adapted from two previous questionnaires. Four of the questions came from the Iowa Youth and Family Inventory (Conger et al., 1986). These questions are, “How often does your mom/dad listen to your point of view,” “How often does your mom/dad help you do something important to you,” “How often does your mom/dad let you know s/he really cares,” and “How often does your mom/dad tell you s/he is proud of the things you do.”

Adolescents rated how often these four things occurred within the past month, 1=*never*, 2= *1-2 times*, 3=*2-3 times*, 4=*a couple times a week*, 5=*almost every day*. The researchers for the CAB study created three additional items (Eccles, Blumenfeld, Harold, & Wigfield, 1990). These questions were, “How much do you want to be like your mom/dad,” “How much do you respect your mom/dad,” and “How close do you feel to your mom/dad.” Adolescents were asked to rate these question on a four point scale: 1=*not at all*, 2=*just a little*, 3=*quite a lot*, 4=*a lot*.

In order to create the scales, responses were transformed into a z-score and the mean of the seven items was calculated. None of the questions required reverse scoring, with higher scores indicating a more positive affective relationship with that parent. Scores for mothers and fathers were computed separately so that every adolescent had a score for their relationship with their mother and their father.

The test-retest reliability was measured at a one-year interval using Wave 5 and Wave 6 data. Test-retest reliability for the affective relationship with the mother for Cohort 1 is $r(331) = .38, p = .001$; the reliability for Cohort 3 is $r(429) = .48, p = .001$. Test-retest reliability for the affective relationship with father for Cohort 1 is $r(331) = .36, p = .001$; the reliability for Cohort 3 is $r(429) = .54, p = .001$. Convergent validity was examined by comparing this measure with the Family Environment Scale (FES; Moos & Moos, 1981). Data for both measures were collected at Wave 6. The correlation between the FES and affective relationship with mother for

Cohort 1 is $r(331) = .52, p = .001$, while the correlation for Cohort 3 is $r(429) = .56, p = .001$.

The correlation between the FES and affective relationship for Cohort 1 is $r(331) = .34, p = .001$; for Cohort 3 the correlation is $r(429) = .36, p = .001$. Internal consistency for this measure was adequate (see Tables 2 and 3).

Monitoring Attempts. Adolescents in the study responded to three questions regarding their parents' attempts to know their whereabouts and activities. Questions included, "How often do your parents try to know where you go at night," "...what you do in your free time," and "...where you are in the afternoon after school." These items were asked during Waves 6, 7, and 9. Participants answered using a scale that ranged from 1=*never* to 5=*always*. Scores were created by calculating the mean of the three responses. None of the items was reverse scored, and higher scores indicate that the adolescent reported more overall attempted monitoring by his or her parents.

The test-retest reliability was measured at a one-year interval, using Wave 6 and Wave 7 data. Test-retest reliability for Cohort 1 is $r(331) = .36, p = .001$; the reliability for Cohort 3 is $r(429) = .49, p = .001$. Internal consistency for this measure was adequate (see Tables 2 and 3).

Monitoring Success. For Waves 6, 7, and 9, participants responded to three different questions about their parents' actual knowledge of their whereabouts and activities. The three questions were: "How often do your parents actually know where you go at night," "...what you do in your free time," "...where you are in the afternoon after school." Answers were given using a scale that ranged from 1=*never* to 5=*always*. The scores were created by calculating the mean of the three responses. None of the questions required reverse scoring, and higher scores indicate more success at monitoring by parents.

The test-retest reliability was measured at a one-year interval, using Wave 5 and Wave 6. Test-retest reliability of Monitoring Success for Cohort 1 is $r(331) = .49, p = .001$ and for Cohort 3 $r(429) = .54, p = .001$. Internal consistency for this measure was adequate (see Tables 2 and 3).

Outcome variable

Problem Behavior. Participants indicated how often in the past six months they engaged in 12 Problem Behaviors using questions adapted from the Monitoring the Future study of adolescent drug, tobacco, and alcohol use and other problem behavior (Bachman, Johnston, & O'Malley, 2011). Each behavior was rated on a Likert-type scale: 1=never, 2=once, 3=2-3 times, 4=4-6 time, 5=7-10 time, 6=11-20 times, 7=21-30 times, 8=31 or more times. Behaviors included skipping school, doing something dangerous for the thrill of it, having contact with police, damaging property, being drunk, getting suspended, disobeying parents about something important, doing something risky, lying to parents about something important, getting into a fist fight, and getting sent to the principal's office. The total score of the scale was calculated by taking the average of all 12 answers. Higher scores indicate that the adolescent engaged in these behaviors more often.

The test-retest reliability was measured at a one-year interval, using Wave 5 and Wave 6. Test-retest reliability for Cohort 1 is $r(331) = .39, p = .001$ and for Cohort 3 is $r(429) = .45, p = .001$. Internal consistency for this measure was adequate (see Tables 2 and 3).

Analysis

Data Cleaning

Before beginning the analyses, participants whose responses to questions were beyond the 95% confidence interval calculated from the mean of each individual predictor and the outcome were removed from the data set. After these outliers were removed, missing data points

were imputed using the maximum likelihood approach within the statistic software used for the analyses. Data points were only imputed if participants returned questionnaires in Waves 2 and 5. At Wave 5, Cohort 1 females had 142 participants and at Wave 9 had 58 participants. Cohort 1 males had 144 participants at Wave 5 and 42 at Wave 9. At Wave 5, Cohort 3 females had 134 participants and 95 participants at Wave 7. Males in Cohort 3 had 120 participants in Wave 5 and 69 participants in Wave 7. After imputation at Wave 9, Cohort 1 females had 142 data points and males had 144 data points. Cohort 3 females had 134 data points at Wave 7 after imputation, and males had 120 data points.

When examining previous research, it was noted that one of the reasons why Stattin and Kerr (2000; 2010) and Fletcher, Steinberg, and Williams-Wheeler (2004) found different results in their respective studies was due to using different measures of the parent/adolescent relationship. The Stattin and Kerr measure focused on the emotional connection an adolescent has for his or her parents, while the Fletcher and colleagues' measure focused on the behavioral interactions between parents and adolescents. For this study, a series of factor analyses were conducted to explore whether or not the items used for the Affective relationship with parent were identifying separate aspects of the parent/adolescent relationship. The factor analysis indicated that the seven items, three of which resembled the measure from Stattin and Kerr and four of which are similar to Fletcher, Steinberg, and Williams-Wheeler's measure, were measuring the same underlying construct. Previous research had indicated that these two measures were similar when predicting outcomes (Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994). The use of multiple measures of the parent/adolescent relationship and the lack of research examining the comparative strengths and weaknesses of each has led to some confusion in understanding the patterns of findings in the research. It would be beneficial for

researchers to explore current measures of the parent/adolescent relationship and suggest an overall measure to be widely used so that research findings can be synthesized more easily.

Exploratory factor analyses, using a Varimax orthogonal rotation, were conducted to examine both the affective relationship with mother and the affective relationship with father items. These analyses were run separately for each sex by age cohort group at Wave 6 and senior year (Wave 7 for Cohort 3 and Wave 9 for Cohort 1); this resulted in eight separate factor analyses. Results from these factor analyses indicated that all seven questions loaded onto one factor for all groups at both time points (See Appendix A for all factor analyses). These findings support the use of one construct in using these seven items.

Across Cohort Analyses

One of the purposes of this study was to examine the parent/adolescent relationship across time using two separate cohorts of participants. We examined the mean level differences in responses between the two cohorts for each variable measured when they were in Grade 12 (Wave 9 for Cohort 1 and Wave 7 for Cohort 3) using a simple *t*-test to evaluate how similar these cohorts were to each other. There were no significant mean differences between females in the two cohorts on Affective Relationship with Mother, $t(243) = .10, p = .92$, Affective Relationship with Father, $t(247) = -.09, p = .93$, and Monitoring Success, $t(263) = -.92, p = .36$. Females in Cohort 1 reported more Monitoring Attempts, $t(221) = 2.42, p = .02$, and more Problem Behavior, $t(274) = 2.99, p < .01$, than females in Cohort 3 did. Males in Cohort 1 reported significantly more Monitoring Attempts, $t(230) = 2.08, p < .05$, than males in Cohort 3 did. There were no significant differences between the two age cohorts of males in Affective Relationship with Mother, $t(201) = -.09, p = .92$, Affective Relationship with Father, $t(262) = .58, p = .56$, Monitoring Success, $t(262) = .16, p = .87$, and Problem Behavior, $t(200) = -1.06, p$

= .27. Consequently, these analyses indicate that the two age cohorts are relatively similar with some minor differences.

Hypothesis 1a

Hypothesis 1A examined gender differences in the predictors and outcome variable. Descriptive statistics are reported separately by sex within cohort (see Tables 2 and 3). A series of t-tests were run in order to examine mean differences in all predictors and the outcome variable, Problem Behavior, by sex within each cohort.

For Cohort 1 (see Table 2), there were significant sex differences in mean responses for the Affective Relationship with Mother when the adolescents were in grades 7, 8, and 12, but not in Grade 9. That is, females reported a significantly more positive relationship with their mothers during these grades than did males. For the Affective Relationship with the Father, males reported a more positive relationship with their fathers in Grades 9 and 12 than did females in these grades; the differences in the quality of the relationship in Grades 7 and 8 were nonsignificant. Females reported more Monitoring Attempts and Monitoring Success than males did across the three waves (Waves 6, 7, and 9) for which this was measured. Not surprisingly, males reported higher rates of Problem Behavior than did females for grades 7, 8, and 9, but this difference was nonsignificant by 12th grade.

For Cohort 3 (see Table 3), females reported a significantly more positive relationship with their mothers than did males for Grade 11, but not for Grades 10 or 12. Males compared to females reported a more positive relationship with their fathers across all three grade levels, with this relationship becoming more positive across the high school years. Similar to Cohort 1, females reported significantly more Monitoring Attempts and Success than did males for Grades

11 and 12, when these constructs were first measured. Finally, as was similar in Cohort 1, males reported more involvement in Problem Behaviors in Grades 10, 11, and 12 than did females.

Hypothesis 1b

Correlations were also run between predictors and the outcome within each time. For within time intercorrelations for Cohort 1, see Table 4; for Cohort 3 within time correlations, see Tables 5. As is evident from Tables 4 and 5, girls' reports of the Affective Relationship with their Mothers was related to the Affective Relationship with their Fathers and Monitoring Success (but not Monitoring Attempts) for all waves of data collection for both cohorts. The Affective Relationship with Mother was also negatively related to Problem Behavior within each time point for girls in both cohorts, except for Cohort 3 in 12th grade (see Table 5), such that girls who reported a positive relationship with their mothers also reported fewer Problem Behaviors compared to girls with a less positive maternal relationship. For the Affective Relationship with Father, girls' reports of how close and warm they felt towards their fathers was positively related to Monitoring Success and negatively related to Problem Behaviors in both cohorts across all time points. Relationships with father was inconsistently related to Monitoring Attempts. Interestingly, Monitoring Attempts was related to Monitoring Success for Cohort 3, but not for Cohort 1 except for when the adolescents were in 12th grade. Also interesting to note is that Monitoring Attempts is positively related to Problem Behavior in Cohort 1 when the girls were in 8th and 9th grades, but negatively related to Problem Behavior when they were in 11th and 12th grade. It may be that the girls' Problem Behaviors are prompting more monitoring by the parents in early adolescence, and that the positive results of these attempts do not come to fruition until later adolescence. Finally, Monitoring Success was significantly negatively related to Problem Behaviors across all grades and for both cohorts for girls. That is, when adolescent girls reported

that their parents really did know where they were and who they were with (in contrast to attempting to know this information), they were less likely to get involved in problem behaviors in and out of school.

Similar to females, male's reports of the Affective Relationship with their Mothers was related to the Affective Relationship with their Fathers for both cohorts across all waves of data (see Tables 4 and 5). Affective relationship with Mother was also associated with Monitoring Attempts, however, only during 8th and 12th grade for Cohort 1 and 12th Grade for Cohort 3. For Cohort 1, Affective Relationship with Mother was only associated with Monitoring Success during 8th and 9th Grade; for Cohort 3 this association was there for all waves. The Affective Relationship with Mother was not associated with less problem behavior for any wave or cohort. Affective Relationship with Father was associated with Monitoring Attempts for both cohorts for all waves. Affective Relationship with Father was only associated with Monitoring Success during 8th grade for Cohort 1 and 11th grade for Cohort 3. It was associated with less Problem Behavior during 12th grade for Cohort 1, but never for Cohort 3. Monitoring Attempts was associated with Monitoring Success at all waves for both cohorts. Monitoring Attempts was associated with Problem Behavior for Cohort 1 during 8th and 9th grade; however this association was not significant during any wave for Cohort 3. Monitoring Success was associated with less Problem Behavior for both cohorts during all waves.

Correlation coefficients between sexes within each age cohort were compared using a Fisher's z transformation; several significant differences between correlation coefficients were found. Most notably, for Cohort 1, the strong negative relationship between the Affective Relationship with Mother and Problem Behaviors for girls was significantly different from the nonsignificant relationship between these two constructs for boys; this was not the case for

Cohort 3. Nevertheless, for both cohorts across all waves of data collection, the relationship between the Affective Relationship with Father and Problem Behavior for girls is significantly more relevant than it is for boys. Additionally, the negative relationship between Monitoring Success and Problem Behaviors is more strongly correlated for girls than it is for boys, especially in the early grades. This suggests that girls may be more affected by monitoring as compared to boys.

Hypothesis 2

A series of multiple regressions were run to examine the effect of each predictor within time on Problem Behavior. For the first step of all regressions, previous Problem Behavior was controlled for; for Cohort 1, Wave 7 Problem Behavior was controlled for and for Cohort 3, Wave 6 Problem Behavior was controlled for. A regression was run using Affective Relationship with Mother, Affective Relationship with Father, and Monitoring Attempts to predict Monitoring Success. Next, another regression was run that included Monitoring Success in addition to the first set of predictors to predict Problem Behavior. Figures 5 and 6 present the path analyses for Cohort 1 females and males, respectively; Figures 7 and 8 present these paths for Cohort 3 females and males, respectively.

For Cohort 1 Females, the overall model predicting Monitoring Success was significant, $R^2 = .35$, $F(4, 137) = 18.25$, $p < .001$ (see Figure 5). Only the Affective Relationship with Mother predicted Monitoring Success, although Affective Relationship with Father and Monitoring Attempts were related to Monitoring Success at the zero-order level (see Table 4, Wave 9 data). For the full model predicting Problem Behavior, the model was also significant, $R^2 = .38$, $F(5, 136) = 16.65$, $p < .001$, with the Affective Relationship with Mother and Father, as well as Monitoring Success, having direct, significant relationships with the outcome variable;

interestingly, the direction of the relationship was positive with mothers but negative with fathers. At the zero-order level, the correlation between Relationship with Mother and Problem Behavior was highly significant in the negative direction (see Table 4, Wave 9 data). This suggests that in the presence of the other variables, the direction of effect changes significantly.

The first model predicting Monitoring Success was also significant for Cohort 1 Males, $R^2 = .27$, $F(4, 139) = 12.95$, $p < .001$ (see Figure 6). Monitoring Attempts positively predicted Monitoring Success in the expected direction, but having a positive relationship with one's father predicted *less* Monitoring Success, while controlling for the other two variables. These results are similar to those found at the zero-order level. The overall model predicting Problem Behavior for Males was also significant, $R^2 = .31$, $F(5, 164) = 15.88$, $p < .001$. The Affective Relationship with Mother and Father, Monitoring Attempts, and Monitoring Success all significantly predicted Problem Behavior in the expected directions. These relationships reflect a similar pattern to those seen at the zero-order level (see Table 4, Wave 9). However, the Relationship with Mother was not significant with Problem Behavior at the zero-order level, but was when controlling for the other variables in the model.

For Cohort 3 Females, the model predicting Monitoring Success was significant, $R^2 = .27$, $F(4, 218) = 21.13$, $p < .001$ (see Figure 7). The Affective Relationship with Mother and Monitoring Attempts were both significant predictors, in the expected direction, of Monitoring Success. These results are similar to those found at the zero-order level. The second model, predicting Problem Behavior, was also significant, $R^2 = .23$, $F(5, 217) = 13.86$, $p < .001$. The Affective Relationship with Father had direct, significant relationship with Problem Behavior in the expected direction. Again, these results are similar to those found at the zero-order level.

The model predicting Monitoring Success was also significant for Cohort 3 males, $R^2 = .34$, $F(4, 201) = 27.72$, $p < .001$ (see Figure 8). The Affective Relationship with Mother had direct, significant relationship with Monitoring Success in the expected direction. These results are similar to those found at the zero-order level. The second model, predicting Problem Behavior, was also significant, $R^2 = .27$, $F(5, 200) = 16.23$. Monitoring Attempts and Monitoring Success were both significant predictors of Problem Behavior in the expected direction. At the zero-order level, Monitoring Attempts was not significantly associated with Problem Behavior, but the coefficient was indicated more Monitoring Attempts was related to more Problem Behavior. Monitoring Success was significantly associated with less Problem Behavior at the zero-order level.

Hypothesis 3A

The first proposed model, the Cumulative Parenting Practices Model, was examined using hierarchical regression. The model attempts to examine how successive years of combined parenting behaviors (the Affective Relationship with Mother and Father, Monitoring Attempts, and Monitoring Success) impact late adolescent outcomes. Senior year Problem Behavior for Cohort 1 was from Wave 9 and for Cohort 3, from Wave 7. For Step 1 of the regression, we controlled for earlier Problem Behavior by including the earliest wave that Problem Behavior was reported; for Cohort 1, this was from Wave 5 when the adolescents were in Grade 8, and for Cohort 3, this was when the adolescents were in Grade 10. The second step of the regression included all predictors from Wave 5. All predictors from Wave 6 were included in the third step of the regression. The fourth step of the regression included all predictors from Wave 7. For Cohort 1, a fifth step containing all predictors from Wave 9 was included in the regression.

For Cohort 1 Females, the overall model is significant, $R^2 = .39$, $F(13, 128) = 6.25$, $p < .001$ (see Table 8). Additionally, each step of the model significantly contributes to the overall variance accounted for, suggesting that each year of parenting has a cumulative effect on the overall outcome of Problem Behavior for girls. Interestingly, no individual parenting behavior at Step 2 is significant, but the overall combination of these parenting behaviors are. For Step 3, the Affective Relationship with Father and Monitoring Attempts were significant for the overall model. Additionally, the Affective Relationship with Father and Monitoring Success at Step 4 was related to the overall model.

The Cumulative Parenting model was also significant for Cohort 1 Males, $R^2 = .38$, $F(13, 130) = 6.22$, $p < .001$. See Table 7 for individual predictor strength. For this group, only the parenting behaviors at Wave 9 (Step 4) were significant in predicting the overall model, although Monitoring Success at Wave 7 was also predictive. Of note is that all the predictors at Step 4 were significant. Oddly, having a positive relationship with one's mother was related to *more* Problem Behavior, while having a positive relationship with one's father was related to *less* Problem Behavior. Additionally, more Monitoring Attempts were related to more behavior problems for this sample of boys, while Monitoring Success was related to fewer problems.

The model is also significant for Cohort 3 Females, $R^2 = .31$, $F(9, 124) = 6.06$, $p < .001$. Individual predictor strength is reported in Table 8. Step 1, which contained Wave 5 Problem Behavior, was a significant predictor of senior year Problem Behavior in the expected direction. The only other predictor that was a significant predictor of Problem Behavior was Monitoring Success at Wave 6. None of the senior year predictors, included in Step 3, were significant predictors of Problem Behavior.

For Cohort 3 Males, the overall model is significant, $R^2 = .31$, $F(9, 110) = 5.40$, $p < .001$ (see Table 9). Like Cohort 3 Females, reports of more Problem Behavior in Wave 5 was a significant predictor of more senior year Problem Behavior. The only other predictor that was a significant predictor of Problem Behavior was Monitoring Attempts during senior year, included in Step 3.

The only group for which Monitoring Success during senior year was not a significant predictor of senior year Problem Behavior was Cohort 3 females. In addition, after controlling for previous Problem Behavior and with the exception of Cohort 3 females, predictors from senior year accounted for the largest amount of variance when compared to the previous waves of predictors.

Hypothesis 3B

The second proposed model, the Individual Parenting Practices Model, was also examined using hierarchical regression. The model examined the relative strength of individual parenting practices (i.e., Affective Relationship with Mother and Father, Monitoring Attempts, Monitoring Success) on senior year Problem Behavior. The first step of the regression included Problem Behavior from Wave 5. The remaining steps of the regression included sets of individual predictors collected from Waves 5, 6, 7, and 9 for Cohort 1 and Waves 5, 6, and 7 for Cohort 3. The second step of the equation included the Affective Relationship with Mother for all waves, while the third step contained the Affective Relationship with Father from all waves. Monitoring Attempts for all waves were included in the fourth step. The final step of the regression contained Monitoring Success from all waves.

The overall Individual Parenting Practices Model was significant for Cohort 1 Females, $R^2 = .39$, $F(13, 128) = 6.35$, $p < .001$. For the strength of each individual predictor in the model

see Table 10. While Step 3 was overall a significant predictor of the outcome, only reports of a better relationship with father during Waves 7 and 9 were significant predictors of less Problem Behavior during senior year. Only Monitoring Attempts during Wave 7 was a significant predictor of the outcome, although Step 4 overall accounted for a significant amount of variance. Finally, while Step 5 accounted for a significant amount of variance, only Monitoring Success during senior year was significant.

For Cohort 1 Males, the overall model was significant, $R^2 = .38$, $F(13, 130) = 6.22$, $p < .001$ (see Table 11). Step 3 accounted for a significant amount of the variance in the outcome. However, only the Affective Relationship with Father during senior year was significant. While Monitoring Attempts during senior year was significant, overall Step 4 did not account for a significant level of variance. Step 5 accounted for a significant amount of variance for the outcome, with Monitoring Success during Waves 7 and 9 being significant predictors of Problem Behavior.

The overall model was also significant for Cohort 3 Females, $R^2 = .31$, $F(9, 124) = 6.06$, $p < .001$. For individual predictor strength, see Table 12. Problem Behavior during Wave 5 was a significant predictor of senior year Problem Behavior and Step 1 accounted for a significant amount of variance of the outcome. Step 3 overall accounted for a significant level of Problem Behavior although none of the individual predictors were significant. Monitoring Success during Wave 6 was a significant predictor of Problem Behavior in the expected direction, however, Step 5 overall did not account for a significant level of the variance in the outcome.

Finally, the Individual Parenting Practices Model was significant for Cohort 3 Males, $R^2 = .31$, $F(9, 110) = 5.40$, $p < .001$ (see Table 13). Like females in Cohort 3, Problem Behavior during Wave 5 was a significant predictor of senior year Problem Behavior and Step 1 accounted

for a significant amount of variance of the outcome. Step 4 overall accounted for a significant amount of variance of the outcome, however only Monitoring Attempts during Wave 7 was a significant predictor of the outcome.

Discussion

The purpose of this study was to understand how parental monitoring and the parent/adolescent relationship are associated and how they affect adolescents' problem behavior in their senior year of high school. The results from the analyses support several of the hypotheses included in this study. The first hypothesis, Hypothesis 1A, which stated that there would be significant differences in mean responses by sex, was supported by the analyses (Table 3). Females in both cohorts reported more Monitoring Attempts and success across all waves compared to males. Male participants reported more Problem Behavior across most waves and both age cohorts. Hypothesis 1b predicted gender differences in the strength of the relationship between the predictors and the outcome (Tables 4 and 5). This hypothesis was supported for adolescents in Cohort 1 but not in Cohort 3. For female participants in Cohort 1, the affective relationship with both parents and Monitoring Success was associated more strongly with less Problem Behavior than it was for males.

Hypothesis 2 examined the relationship between Affective relationship with mother, Affective relationship with father, Monitoring Attempts, and Monitoring Success in predicting Problem Behavior for Senior year data only using hierarchical regression analysis. It was predicted that for female participants, the affective relationship with both parents would be related to Monitoring Success for senior year data. This was partially supported in that the relationship with mother, but not the relationship with father, was significantly related to Monitoring Success for both cohorts. However, for both cohorts, the affective relationship with

father significantly negatively predicted Problem Behavior. Further, for male participants, it was predicted that Monitoring Attempts would be related to Monitoring Success. This hypothesis was also supported. This hypothesis was supported in the analysis for Cohort 1, although for males in Cohort 1, the affective relationship with father was also related to both Monitoring Success and Problem Behavior. This hypothesis was not supported during the analysis for Cohort 3. For specific analyses, see Figures 7 and 8. Hypothesis 2b stated that for both males and females, Monitoring Success would be related to Problem Behavior. This hypothesis was supported, except for Cohort 3 females.

The final hypotheses, Hypothesis 3a and Hypothesis 3b, were both supported by the analysis; the overall models, the Cumulative Parenting Model and the Individual Parenting Practices Model, predicted senior year Problem Behavior. Results from the Cumulative Parenting Model suggest that the parenting practices nearest in time to Problem Behavior are the strongest predictors for males, but that predictors from earlier time points are stronger predictors for females. There were mixed results for the Individual Parenting Practices Model. For Cohort 1 males and females, Monitoring Success was the only parenting practice that predicted Problem Behavior during senior year. However, for Cohort 3 males and females, no single parenting practice predicted Problem Behavior in senior year. The comparison of the two models will be examined in more depth later in this section.

Affective Relationship

This study supports previous research that found adolescent reports of a more positive relationship with their parents were associated with lower ratings of Problem Behavior (Patterson, Crosby, & Vuchinich, 1992; Scaramella, Conger, & Simons, 1999). Surprisingly, however, for females and males in Cohort 1, reports of a better relationship with their mother

seems to be associated with more Problem Behavior (see Table 6). This was especially unexpected because when examining the zero-order correlation, reports of a better relationship with their mother was associated with fewer Problem Behaviors (see Table 4). It seems that a good relationship with their mother is associated with more successful monitoring and less problem behavior. However, there may be a developmentally appropriate level of closeness between adolescents and their mothers, at which point, mothers are able to obtain information about their activities and monitor the adolescent successfully which reduces problem behavior. When the relationship is not close enough, the adolescents may not be willing to open up to their mothers and the mothers will not be able to monitor their adolescents effectively. However, mothers may also be too involved with their adolescents and involvement in the adolescent's life past what is necessary to monitor the adolescent successfully may increase problem behaviors. Previous research has indicated that parents can be too emotionally overbearing towards their adolescent, inhibiting the individualization process and leading to poor outcomes, such as anxiety, depression, and poor impulse control (Allen et al., 1994; Allen & McElhaney, 2000; Steinberg, 1990). Research also suggests that more engagement in Problem Behaviors is associated with anxiety, depression, and poor impulse control (Donovan & Jessor, 1985).

Adolescents' relationships with their fathers was also found to be important in reducing problem behavior during senior year in high school. This finding is supported by previous research that found that a strong positive relationship between adolescents and their fathers across adolescence is important in reducing problem behavior and increasing psychological well-being (Mullen Harris, Furstenberg, & Marmer, 1998). Unlike mothers, adolescents' relationships with their father was not related to more problem behavior for any group at any time point. Current research has not extensively examined the differences in adolescent's relationships with

their mothers and fathers. However, this finding suggests that there may be some differences in the relationship adolescents have with their fathers and their mothers that is worth exploring in future research.

Parental Monitoring

This study supports previous research examining parental monitoring in several ways. This study found that parents' actual knowledge of their adolescent's activities seems to decrease the adolescent's engagement in Problem Behaviors, while parents' attempts to monitor do not seem to have an impact on Problem Behaviors. Previous research has also supported this finding, noting that as adolescents age parents' attempts at monitoring are rarely predictive of Problem Behaviors (Dishion & McMahon, 1998; Laird, Pettit, Dodge & Bates, 1998; Warr, 2007). However, it should be noted that for males in both age cohorts, higher ratings of Monitoring Attempts was related to more engagement in Problem Behaviors, suggesting that parents are attempting to monitor their adolescent sons more when they are engaging in more Problem Behaviors. Monitoring Attempts may not be useful in predicting adolescent's engagement in Problem Behavior, but it does seem to give some insight into parenting practices during adolescence. This finding suggests that parents' monitoring behaviors adjust based on the behaviors and needs for their child, but it is unclear how these changes in parenting practices affect engagement in Problem Behaviors and other outcomes. More research should be conducted to understand how these changes across time impact behaviors and other outcomes.

Parents' actual knowledge of their adolescent's activities, however, has been found to be consistently predictive of adolescent's engagement in Problem Behavior (Soenens, Wavsteenkiste, Luyckx, & Goossens, 2006; Stattin and Kerr, 2000). Findings from the current study continue to support previous research. With the exception of Cohort 3 females,

adolescents' reports of more Monitoring Success predicted less engagement in Problem Behavior during senior year in high school. Cohort 3 females have the lowest rate of Problem Behavior of all four groups, so Monitoring Success may not have predicted Problem Behaviors in this group because they are not engaging in Problem Behaviors.

A goal of this study was to understand whether the affective relationship with parents or parent's attempts at monitoring were better predictors of successful monitoring in adolescence. The results from this study suggest that there is not a definitive answer. Stattin and Kerr (2000; 2010) indicated that the relationships adolescents have with their parents are more important than their attempts at monitoring. They argue that when parents build a strong relationship with their adolescent over time, they do not need to actively seek information about their adolescent's activities because their adolescent will be open about their activities with their parents. Fletcher, Steinberg, and Williams-Wheeler (2004), on the other hand, argue that while a good relationship with parents is important for positive outcomes in adolescence, parents actively seeking information about their child's activities is more predictive of their actual knowledge of their adolescent's activities. For Cohort 1 males, parents' attempts at monitoring were more strongly associated with parents' actual knowledge of their adolescent's activities, while for females in both age cohorts the relationship that they have with their mother is a stronger predictor of their parent's actual knowledge of their activities. In addition, it seems that the association between the parent/adolescent relationship, monitoring, and problem behavior is more complex than previously modeled. For males in both cohorts, more parental attempts at monitoring were associated with more problem behavior, similar to previous research that indicates that more engagement in problem behavior breaks down the parent/adolescent relationship (McGue,

Elkins, Walden, & Iacono, 2005). More research should be conducted to understand the complexity of these associations.

Cumulative and Individual Parenting Models

This study suggested two models that would examine the effects of the parent/adolescent relationship and monitoring on senior year problem behavior. The first of these two models was the Cumulative Parenting model. This model examined developmental adjustments in the parent/adolescent relationship and monitoring and their combined effects on problem behavior during senior year of high school. In general, the analyses revealed that each year of parenting has a cumulative effect on adolescent behavior. This is in keeping with previous research that found that adolescent reports of their relationship with their parents indicates less warmth and more conflict in early adolescence, but that this trend reverses in later adolescence (De Goede, Branje, & Meeus, 2009). In addition, monitoring also needs to adjust across adolescence as adolescents spend less time under adult supervision especially since they no longer rely on their parents for transportation (Dishion, Patterson, Stoolmiller, & Skinner, 1991; Laird, Criss, Pettit, Bates, & Dodge, 2009). For males, senior year predictors were the strongest predictors of senior year Problem Behavior. For females, however, earlier time points were stronger predictors of senior year Problem Behavior. This difference in timing may be due to differences in the social and emotional maturity of males and females during senior year, where males may need more parental controls to reduce Problem Behaviors compared to females.

The second model proposed in this study examined the effects that the individual parenting behaviors had on senior year Problem Behavior. The results from the analyses do not indicate a definitive conclusion regarding the importance of a single parenting practice in reducing Problem Behavior. The relationship with mother was not a significant predictor of

Problem Behavior for any group. However, all of the other predictors (relationship with father, Monitoring Attempts, and Monitoring Success) were all significant predictors of Problem Behavior, but not consistently for all groups. This suggests that there is no one parenting behavior that has more impact on Problem Behavior than another during adolescence.

While the results are inconsistent, it seems that these models provide support for the results found in Fletcher, Steinberg, and William-Wheeler's (2004) article. Both sets of analyses indicate that parent's actual knowledge of their adolescent's activities seems to be the strongest predictor of Problem Behavior during senior year. In addition, both parents' attempts at monitoring and the parent/adolescent relationship play an important role in parents' knowledge of their adolescent's activities. Results from Fletcher, Steinberg, and Williams-Wheeler (2004) suggest a stronger association than what was found in this study; however, the sample used in their study was larger and more diverse than the sample used in the current sample. Unlike Fletcher, Steinberg, and Williams-Wheeler (2004), the current study examined sex difference among these associations.

Sex Differences

The current study supports previous research examining sex differences in monitoring and the parent/adolescent relationship. As in previous research (Vitaro, Brendgen, & Tremblay, 2001), males generally reported more engagement in problem behaviors than females did. Additionally, in keeping with previous research (Laird et al., 2003; Ma & Huebner, 2008; Patterson et al., 1994), females reported that their parents attempted to monitor them more and have more knowledge of their actual activities than did their male peers. Nevertheless, there was no difference between males and females in their reports of their relationship with their mothers and fathers. This was an unexpected finding as previous research suggested that females would

report closer relationships with their parents, particularly their mother, than would males (McGue, Elkins, Walden, & Iacono, 2005). Although the reported affective relationships were similar, how the relationships were correlated with Monitoring Success and Problem Behavior did differ between males and females. For females, the affective relationships quality was generally correlated with reported Problem Behavior, as well as Monitoring Success. For males, these relationships were not correlated with Problem Behavior consistently, but were related to Monitoring Success. It may be that for males, the affective relationship with parents is only indirectly related to Problem Behavior through Monitoring Success, whereas for females the affective relationship with parents is both directly and indirectly related. These results indicate that the relationship between monitoring, the parent/adolescent relationship, and Problem Behavior should be examined separately by sex; however, few studies have done this.

Previous research has indicated that for female adolescents, the parent/adolescent relationship has a stronger association with parents' actual knowledge of their activities than the association for male adolescents (Keijers et al., 2010; Kerr, Stattin, & Burk, 2010). These differences were not seen in the analyses examined in this study. However, the correlations provide evidence that the relationship with parents has a stronger association with both parents' actual knowledge of the adolescent's activities and Problem Behavior across all time points and both age cohorts for females than males. In addition, parents' attempts at monitoring are associated with parents' actual knowledge of their adolescent's activities and problem behavior for males more often than they are associated for females. This suggests that there is a pattern of sex differences similar to those in previous research in these associations that were not evident in the final analyses.

Limitations

There are some limitations of the current study, the first of which is the lack of diversity within the sample. All participants were recruited from a small area and a vast majority of the participants were of the same socioeconomic status and the same race. This limits the generalizability of the current study's results. In addition, Cohort 1 and Cohort 3 answered the survey while they were in different grades. This makes identifying consistent developmental patterns across the two cohorts more difficult and may account for some of the inconsistent patterns in the findings across the two cohorts.

Future Research

Future research should continue to focus on two areas addressed in this study. The first of these is to continue to examine the associations between monitoring and the parent/adolescent relationship across time. Previous research has indicated that both of these areas change across time, but few studies have attempted to examine how these changes affect outcomes across adolescence. In addition, future studies should also focus on examining what affect sex has on the association between monitoring and the parent/adolescent relationship. There is evidence that there are sex differences that affect these relationships, but the literature in this area is not extensive. It is also important that both the developmental changes and sex differences in the association between monitoring and the parent/adolescent relationship be examined in a large, diverse sample, as previous research has used a limited sample.

Conclusion

The results from this study indicate that parents' actual knowledge of their adolescent's activities is important in reducing problem behaviors. Results also suggest that both the parent/adolescent relationship and parents' attempts to gain information on their adolescent's

activities is important in obtaining true knowledge regarding their adolescent's activities. This study was able to support previous research in this area and provided some evidence for sex differences in the association between parental monitoring and the parent/adolescent relationship. However, the models proposed in this study yielded inconsistent results, which the author suggests is the result of the limited sample used in this study.

References

- Ainsworth, M. D. S., Bell, S. M., & Stayton, D. J. (1971). Individual differences in strange situation behavior of one-year-olds. In H. R. Schaffer (Ed.), *The origins of human social relations* (pp. 17-58). Oxford, England: Academic Press.
- Allen, J. P., Hauser, S. T., Bell, K. L., & O'Connor, T. G. (1994). Longitudinal assessment of autonomy and relatedness in adolescent-family interactions as predictors of adolescent ego development and self-esteem. *Child Development, 65*, 179 – 194.
- Armsden, G. C., & Greenberg, M. T. (1987). The inventory of parent and peer attachment: Relationships to well-being in adolescence. *Journal of Youth and Adolescence, 16*, 427 – 454.
- Ary, D. V., Duncan, T. E., Biglan, A., Metzler, C. W., Noell, J. W., & Smolkowski, K. (1999). Development of adolescent problem behavior. *Journal of Abnormal Child Psychology, 27*(2), 141-150.
- Barber, B. K., Olsen, E., & Shagle, S. C. (1994). Associations between parental psychological and behavioral control and youth internalized and externalized behaviors. *Child Development, 65*, 1120–1136.
- Barnes, G. M., Hoffman, J. H., Welte, J. W., Farrell, M. P., & Dintcheff, B. A. (2007). Adolescents' time use: Effects on substance use, delinquency, and sexual activity. *Journal of Youth and Adolescence, 36*, 697-710.
- Baumrind, D. (1967). Child care practices anteceding three patterns of preschool behavior. *Genetic Psychology Monographs, 75*, 43-88.
- Baumrind, D. (2005). Patterns of parental authority and adolescent autonomy. *New Directions for Child and Adolescent Development, 108*, 61-69.

- Becker, W. C., Peterson, D. R., Luria, Z., Shoemaker, D. J., & Hellmer, L. A. (1962). Relations of factors derived from parent-interview ratings to behavior problems of five-year-olds. *Child Development, 33*(3), 509-535.
- Boles, S., Biglan, A., & Smolkowski, K. (2006). Relationships among negative and positive behaviours in adolescence. *Journal of Adolescence, 29*, 33-52.
- Borawski, E. A., Ievers-Landis, C. E., Lovegreen, L. D., & Trapl, E. S. (2003). Parental monitoring, negotiated unsupervised time, and parental trust: The role of perceived parenting practices in adolescent health risk behaviors. *Journal of Adolescent Health, 33*, 60-70.
- Bowlby, J. (1969). *Attachment and loss: Vol. 1. Attachment*. New York: Basic Books.
- Bowlby, J. (1988). *A secure base: Clinical applications of attachment theory*. London: Tavistock.
- Broidy, L. M., Nagin, D. S., Tremblay, R. E., Bates, J. E., Brame, B., Dodge, K. A., ... Vitaro, F. (2003). Developmental trajectories of childhood disruptive behaviors and adolescent delinquency: A six-site, cross national study. *Developmental Psychology, 39*(2), 222-245.
- Chassin, L., Pillow, D. R., Curran, P. J., Molina, B. S. G., & Barrera, M. (1993). Relation of parental alcoholism to early adolescent substance use: A test of three mediating mechanisms. *Journal of Abnormal Psychology, 102*(1), 3-19.
- Conger, R. D., Conger, K. J., Elder, G. H., Lorenz, F. O., Simons, R. L., & Whitbeck, L.B. (1992). A family process model of economic hardship and adjustment of early adolescent boys. *Child Development, 63*(3), 526-541.
- Conger, R. D., Conger, K. J., Elder, G. H., Jr., Lorenz, F. O., Simons, R. L., & Whitbeck, L. B. (1993). Family economic stress and adjustment of early adolescent girls. *Developmental*

Psychology, 29, 206–219.

Darling, N., & Steinberg, L. (1993). Parenting style as context: An integrative model.

Psychological Bulletin, 113, 487-496.

De Goede, I. H. A., Branje, S. J. T., & Meeus, W. H. J. (2009). Developmental changes in adolescents' perceptions of relationships with their parents. *Journal of Youth and Adolescence, 38*(1), 75-88.

Dishion, T. J., Reid, J. B., & Patterson, G. R. (1988). Empirical guidelines for a family intervention for adolescent drug use. *Journal of Chemical Dependency Treatment, 1*, 189-222.

Dishion, T. J., Patterson, G. R., Stoolmiller, M., & Skinner, M. L. (1991). Family, school, and behavioral antecedents to early adolescent involvement with antisocial peers. *Developmental Psychology, 27*(1), 172-180.

Dishion, T. J., Capaldi, D., Spracklen, K. M., & Li, F. (1995). Peer ecology of male adolescent drug use. *Development and Psychopathology, 7*, 803-824.

Dishion, T. J., & McMahon, R. J. (1998). Adolescent problem behavior: A conceptual and empirical formulation. *Clinical and Family Psychology Review, 1*(1), 61 – 75.

Donovan, J. E., & Jessor, R. (1985). Structure of problem behavior in adolescence and young adulthood. *Journal of Consulting and Clinical Psychology, 53*(6), 890-904.

Donovan, J. E., Jessor, R., & Costa, F. M. (1988). Syndrome of problem behavior in adolescence: A replication. *Journal of Consulting and Clinical Psychology, 56*(5), 762-765.

Dornbusch, S. M., Erickson, K. G., Laird, J., & Wong, C. A. (2001). The relation of family and

- school attachment to adolescent deviance in diverse groups and communities. *Journal of Adolescent Research, 16*, 396–422.
- Eaton, N. R., Krueger, R. F., Johnson, W., McGue, M., & Iacono, W. G. (2009). Parental monitoring, personality, and delinquency: Further support for a reconceptualization of monitoring. *Journal of Research in Personality, 43*, 49-59.
- Eccles, J., Blumenfeld, P., Harold, R., & Wigfield, A. (1990). Ontogeny of self and task concepts and activity choice. (Grant No. RO1 HD17553-06). Bethesda, MD: National Institute of Child Health and Human Development.
- Farrell, A. D., & White, K. S. (1998). Peer influences and drug use among urban adolescents: Family structure and parent-adolescent relationship as protective factors. *Journal of Consulting and Clinical Psychology, 66*(2), 248-258.
- Farrell, A. D., Danish, S. J., & Howard, C. W. (1992). Relationship between drug use and other problem behaviors in urban adolescents. *Journal of Consulting and Clinical Psychology, 60*(5), 705-712.
- Farrell, M. P., & Barnes, G. M. (2000). Family stress and adolescent substance abuse. In: McKenry, P., & Price, S. J. (Eds.) *Family and change: Coping with stressful life events and transitions* (pp 208–228). Thousand Oaks, CA: Sage.
- Fletcher, A. C., Darling, N., & Steinberg, L. (1995). Parental monitoring and peer influences on adolescent substance use. In J. McCord (Ed), *Coercion and punishment in long-term perspectives* (pp. 259-271). New York: Cambridge University Press.
- Fletcher, A. C., Elder, G. H., & Mekos, D. (2000). Parental influences on adolescent involvement in community activities. *Journal of Research on Adolescence, 10*, 29-48.
- Fletcher, A. C., Steinberg, L., & Williams-Wheeler, M. (2004). Parental influences on adolescent

- problem behavior: Revisiting Stattin and Kerr. *Child Development*, 75(3), 781-796.
- Fredricks, J. A., & Eccles, J. S. (2004). Parental influences on youth involvement in sports. In M. R. Weiss (Ed.) *Developmental sport and exercise psychology: A lifespan perspective* (pp. 145-164) Morgantown, West Virginia, USA: Fitness Information Technology, Inc.
- Freud, S. (1933). *New introductory lectures in psychoanalysis*. New York: Norton.
- Fridrich, A. H., & Flannery, D. J. (1995). The effects of ethnicity and acculturation on early adolescent delinquency. *Journal of Child and Family Studies*, 4, 69-87.
- Gillmore, M. R., Hawkins, D., Catalano, R. F., Day, L. E., Moore, M., & Abbott, R. (1991). Structure of problem behaviors in preadolescence. *Journal of Consulting and Clinical Psychology*, 59(4), 499-506.
- Griffin, K. W., Botvin, G. J., Scheier, L. M., Diaz, T., & Miller, N. L. (2000). Parenting practices as predictors of substance use, delinquency, and aggression among urban minority youth: Moderating effects of family structure and gender. *Psychology of Addictive Behaviors*, 14(2), 174-184.
- Heubner, A. J., & Mancini, J. A. (2003). Shaping structure out-of-school time use among youth: The effects of self, family, and friend systems. *Journal of Youth and Adolescence*, 32(6), 453-463.
- Hirschi, T. (1969/2002). *Causes of delinquency*. Originally published in 1969 by University of California Press. 2002 edition with a new introduction by the author. Transaction Publishers, New Brunswick, NJ
- Jacobson, K. C., & Crockett, L. J. (2000). Parental monitoring and adolescent adjustment: An ecological perspective. *Journal of Research on Adolescence*, 10(1), 65-97.
- Jessor, R., Van Den Bos, J., Vanderryn, J., Costa, F. M. & Turbin, M. S. (1995). Protective

- factors in adolescent problem behavior: Moderator effects and developmental change. *Developmental Psychology*, *31*(6), 923-933.
- Johnson, V., & Pandina, R. J. (1991). Effects of the family environment on adolescent substance use, delinquency, and coping styles. *American Journal of Drug and Alcohol Use*, *17*(1), 71-88.
- Jordan, L. C., & Lewis, M. L. (2005). Paternal relationships quality as a protective factor: Preventing alcohol use among African American adolescents. *Journal of Black Psychology*, *31*, 152-171.
- Keijsers, L., Branje, S. J.T., VanderValk, I. E., & Meeus, W. (2010). Reciprocal effects between parental solicitation, parental control, adolescent disclosure, and adolescent delinquency. *Journal of Research on Adolescence*, *20*(1), 88-113.
- Kerr, M., & Stattin, H. (2000). What parents know, how they know it, and several forms of adolescent adjustment: Further support for a reinterpretation of monitoring. *Developmental Psychology*, *36*(3), 366-380.
- Kerr, M. H., Beck, K., Shattuck, T. D., & Kattar, C. (2003). Family involvement, problem and prosocial behavior outcomes of Latino youth. *American Journal of Health Behavior*, *27*, 55-65.
- Kerr, M., Stattin, H., & Burk, W. B. (2010). A reinterpretation of parental monitoring in longitudinal perspective. *Journal of Research on Adolescence*, *20*(1). 39-64.
- Laird, R. D., Pettit, G. S., Dodge, K. A., & Bates, J. E. (1998). The social ecology of school-age child care. *Journal of Applied Developmental Psychology*, *19*, 341-360.
- Laird, R. D., Pettit, G. S., Bates, J. E., & Dodge, K. A. (2003). Parents' monitoring-relevant knowledge and adolescents' delinquent behavior: Evidence of correlated developmental

- changes and reciprocal influences. *Child Development*, 74(3), 752-768.
- Laird, R. D., Criss, M. M., Pettit, G. S., Bates, J. E., Dodge, K. A. (2009). Developmental trajectories and antecedents of distal parental supervision. *Journal of Early Adolescence*, 29(2), 258-284.
- Lamborn, S. D., Mounts, N. S., Steinberg, L., & Dornbusch, S. M. (1991). Patterns of competence and adjustment among adolescents from authoritative, authoritarian, indulgent, and neglectful families. *Child Development*, 62, 1049-1065.
- Lewis, C. C. (1981). The effects of parental firm control: A reinterpretation of the findings. *Psychological Bulletin*, 90, 547-563.
- Li, X., Stanton, B., & Feigelman, S. (2000). Impact of perceived parental monitoring on adolescent risk behavior over 4 years. *Journal of Adolescent Health*, 27, 49-56.
- Li, X., Stanton, B., Galbraith, J., Burns, J., Cottrell, L., & Pack, R. (2002). Parental monitoring intervention: Practice makes perfect. *Journal of the National Medical Association*, 94(5), 364-370.
- Linver, M. R., & Silverberg, S. B. (1995). Parenting as a multidimensional construct: Differential prediction of adolescents' sense of self and engagement in problem behavior. *Journal of Adolescent Medicine and Health*, 8, 29-40.
- Ma, C. Q., & Huebner, E. S. (2008). Attachment relationships and adolescents' life satisfaction: Some relationships matter more to girls than boys. *Psychology in the Schools*, 45(2), 177-190
- Maccoby, E. E., & Martin, J. A. (1983). Socialization in the context of the family: Parent-child interaction. In P. H. Mussen (Series Ed.) & E. M. Hetherington (Vol. Ed.), *Handbook of child psychology: Vol. 4. Socialization, personality, and social development* (4th ed., pp.

- 1 -101) New York: Wiley.
- Maccoby, E. E. (1992). The role of parents in the socialization of children: A historical overview. *Developmental Psychology, 28*(6), 1006-1017.
- Mason, C. A., Cauce, A., Gonzales, N., & Hiraga, Y. (1996). Neither too sweet nor too sour: Problem peers, maternal control, and problem behavior in African American adolescents. *Child Development, 67*(5), 2115-2130.
- McGue, M., Elkins, I., Walden, B., & Iacono, W. G. (2005). Perceptions of the parent-adolescent relationship: A longitudinal investigation. *Developmental Psychology, 41*(6), 971-984.
- Mogro-Wilson, C. (2008). The influence of parental warmth and control on Latino adolescent alcohol use. *Hispanic Journal of Behavioral Sciences, 30*, 89-105.
- Nash, S. G., McQueen, A., & Bray, J. H. (2005). Pathways to adolescent alcohol use: Family environment, peer influence, and parental expectations. *Journal of Adolescent Health, 37*(1), 19-28.
- Noller, P., Seth-Smith, M., Bouma, R., & Schweitzer, R. (1992). Parent and adolescent perceptions of family functioning: A comparison of clinic and nonclinic families. *Journal of Adolescence, 15*(2), 101-114.
- Osgood, D. W., Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (1988). Generality of deviance in late adolescence and early adulthood. *American Sociological Review, 53*(1), 81-93.
- Parker, J. S., & Benson, M. J. (2004). Parent-adolescent relationships and adolescent functioning: Self-esteem, substance abuse, and delinquency. *Adolescence, 39*(155), 519-530.
- Paterson, J. E., Field, J., & Pryor, J. (1994). Adolescents' perceptions of their attachment

- relationships with their mothers, fathers, and friends. *Journal of Youth and Adolescence*, 23(5), 579-600.
- Patterson, G. R., & Stouthamer-Loeber, M. (1984). The correlation of family management practices and delinquency. *Child Development*, 55(4), 1299-1307.
- Patterson, G. R., Reid, J. B., & Dishion, T. J. (1992). *Antisocial boys*. Eugene, OR: Castalia.
- Paulson, S. E. (1994). Relations of parenting style and parental involvement with ninth grade student's achievement. *Journal of Early Adolescence*, 14, 250-267.
- Paulson, S. E., & Sputa, C. L. (1996). Patterns of parenting during adolescence: Perceptions of adolescents and parents. *Adolescence*, 31(122), 369-381.
- Pettit, G. S., Laird, R. D., Dodge, K. A., Bates, J. E., & Criss, M. M. (2001). Antecedents and behavior-problem outcomes of parental monitoring and psychological control in early adolescence. *Child Development*, 72(2), 583-589.
- Scaramella, L. V., Conger, R. D., & Simons, R. L. (1999). Parental protective influences and gender-specific increases in adolescent internalizing and externalizing problems. *Journal of Research on Adolescence*, 9(2), 111-141.
- Schaefer, E. S. (1965). A configurational analysis of children's reports of parent behavior. *Journal of Consulting Psychology*, 29(6), 552-557.
- Schafer, J. L., & Graham, J. W. (2002). Missing data: View of the state of the art. *Psychological Methods*, 7(2), 147-178.
- Simpkins, S. D., Fredricks, J. A., & Eccles, J. S. (2012, March 5). Charting the eccles' expectancy-Value model from mothers' beliefs in childhood to youths' activities in adolescence. *Developmental Psychology*. Advance online publication. doi: 10.1037/a0027468

- Shanahan, L., McHales, S. M., Crouter, A. C., & Osgood, D. W. (2007). Warmth with mothers and fathers from middle childhood to late adolescence: within and between-families comparisons. *Developmental Psychology, 43*(3), 551-563.
- Soenens, B., Vansteenkiste, M., Luyckx, K., & Goossens, L. (2006). Parenting and adolescent problem behavior: An integrated model with adolescent self-disclosure and perceived parental knowledge as intervening variables. *Developmental Psychology, 42*(2), 305-318.
- Spera, C. (2005). A Review of the relationship among parenting practices, parenting styles, and adolescent school achievement. *Educational Psychology Review, 17*(2), 125-146.
- Stattin, H., & Kerr, M. (2000). Parental monitoring: A reinterpretation. *Child Development, 71*(4), 1072-1085.
- Steinberg, L., Lamborn, S.D., Dornbusch, S. M., & Darling, N. (1992). Impact of parenting practices on adolescent achievement: Authoritative parenting, school involvement, and encouragement to succeed. *Child Development, 63*(5), 1266-1281.
- Steinberg, L., Lamborn, S. D., Darling, N., Mounts, N. S., & Dornbusch, S. M. (1994). Over-time changes in adjustment and competence among adolescents from authoritative, authoritarian, indulgent, and neglectful families. *Child Development, 65*(3), 754-770.
- Steinberg, L. (2001). We know some things: Parent-adolescent relationships in retrospect and prospect. *Journal of Research on Adolescence, 11*(1), 1-19.
- Stoolmiller, M. (1994). Antisocial behavior, delinquent peer association and unsupervised wandering for boys: Growth and change from childhood to early adolescence. *Multivariate Behavioral Research, 29*, 263-288.
- Vitaro, F., Brendgen, M., & Tremblay, R. E. (2001). Preventive intervention: Assessing its effects on the trajectories of delinquency and testing for mediational processes.

Applied Developmental Science, 5, 201–213.

Waizenhofer, R. N., Buchanan, C. M., & Jackson-Newsom, J. (2004). Mothers' and fathers' knowledge of adolescents' daily activities: Its sources and its linked with adolescent adjustment. *Journal of Family Psychology*, 18(2), 348-360.

Warr, M. (2007). The tangles web: Delinquency, deception, and parental attachment. *Journal of Youth and Adolescence*, 36, 607-622.

Willoughby, T., Chalmers, H., & Busseri, M. A. (2004). Where is the syndrome? Examining co-occurrence among multiple problem behaviors in adolescence. *Journal of Consulting and Clinical Psychology*, 72(6), 1022-1037.

Windle, M. (2000). A latent growth curve model of delinquent activity among adolescents. *Applied Developmental Science*, 4(4), 193-207.

Table 1

Data collection years with corresponding grades by age cohort

| | 1993-1994 | 1994-1995 | 1995-1996 | 1996-1997 | 1997-1998 | 1998-1999 |
|-----------|------------------|------------------|------------------|---------------|------------------|------------------|
| | Wave 5 | Wave 6 | Wave 7 | No Collection | Wave 8 | Wave 9 |
| Cohort 1 | 7 th | 8 th | 9 th | - | - | 12 th |
| Cohort 2* | 8 th | 9 th | 10 th | - | 12 th | - |
| Cohort 3 | 10 th | 11 th | 12 th | - | - | - |

* Cohort not used in analyses due to low N.

Table 2

Descriptive statistics of measure by wave and sex for Cohort 1

| | Females | | | | Males | | | | <i>t</i> (284) |
|---------------------------------|----------|-----|-----------|------------|----------|-----|-----------|------------|--------------------|
| | α | N | M(SD) | Range | α | N | M(SD) | Range | |
| Wave 5 (7 th Grade) | | | | | | | | | |
| Affective Mother | .79 | 142 | -.02(.48) | -1.34-1.26 | .72 | 144 | .00(.48) | -1.45-1.04 | -.21 ^{ns} |
| Affective Father | .83 | 142 | -.02(.52) | -1.58-1.49 | .76 | 144 | .00(.45) | -1.30-1.16 | -.54 ^{ns} |
| Problem Behavior | .87 | 142 | 1.22(.20) | 1.00-2.46 | .85 | 144 | 1.54(.39) | 1.00-3.23 | 8.74*** |
| Wave 6 (8 th Grade) | | | | | | | | | |
| Affective Mother | .90 | 142 | -.01(.51) | -1.63-1.35 | .86 | 144 | .01(.42) | -2.10-1.35 | -.54 ^{ns} |
| Affective Father | .82 | 142 | .00(.45) | -1.51-1.23 | .82 | 144 | -.07(.44) | -1.45-1.22 | 1.30 ^{ns} |
| Monitor Attempts | .81 | 142 | 3.50(.79) | 1.00-5.00 | .83 | 144 | 3.20(.82) | 1.00-5.00 | 1.89* |
| Monitor Success | .84 | 142 | 4.20(.53) | 2.00-5.00 | .86 | 144 | 3.62(.57) | 1.33-5.00 | 9.12*** |
| Problem Behavior | .85 | 142 | 1.55(.32) | 1.00-3.25 | .80 | 144 | 1.75(.37) | 1.00-4.25 | -4.88*** |
| Wave 7 (9 th Grade) | | | | | | | | | |
| Affective Mother | .89 | 142 | -.01(.53) | -1.76-1.33 | .82 | 144 | -.01(.46) | -1.44-1.33 | .00 ^{ns} |
| Affective Father | .92 | 142 | -.02(.58) | -1.68-1.54 | .82 | 144 | .03(.47) | -1.68-1.54 | -.93 ^{ns} |
| Monitor Attempts | .86 | 142 | 3.87(.75) | 1.33-5.00 | .89 | 144 | 3.15(.83) | 1.00-5.00 | 7.76*** |
| Monitor Success | .78 | 142 | 4.03(.55) | 2.33-5.00 | .90 | 144 | 3.31(.83) | 1.00-5.00 | 7.79*** |
| Problem Behavior | .88 | 142 | 1.87(.54) | 1.00-3.83 | .85 | 144 | 2.00(.51) | 1.00-4.08 | 1.94 ^{ns} |
| Wave 9 (12 th Grade) | | | | | | | | | |
| Affective Mother | .88 | 142 | .01(.48) | -2.57-1.34 | .83 | 144 | .00(.40) | -1.62-1.00 | .13 ^{ns} |
| Affective Father | .89 | 142 | -.02(.51) | -1.46-1.31 | .87 | 144 | .02(.43) | -1.22-1.18 | -.92 ^{ns} |
| Monitor Attempts | .88 | 142 | 3.89(.65) | 1.67-5.00 | .85 | 144 | 3.27(.71) | 0.00-5.00 | 7.64*** |
| Monitor Success | .82 | 142 | 4.08(.48) | 2.00-5.00 | .85 | 144 | 3.57(.53) | 1.67-5.00 | 6.11*** |
| Problem Behavior | .82 | 142 | 2.19(.56) | 1.00-4.67 | .84 | 144 | 2.17(.47) | 1.00-4.00 | .48 ^{ns} |

Note. * $p < .05$. ** $p < .01$.

Table 3

Descriptive statistics of measure by wave and sex for Cohort 3

| | Females | | | | Males | | | | <i>t</i> (252) |
|---------------------------------|----------|-----|-----------|------------|----------|-----|------------|------------|--------------------|
| | α | N | M(SD) | Range | α | N | M(SD) | Range | |
| Wave 5 (10 th Grade) | | | | | | | | | |
| Affective Mother | .76 | 134 | .00(.66) | -1.42-1.38 | .79 | 120 | .00(.62) | -1.68-1.38 | .00 ^{ns} |
| Affective Father | .84 | 134 | .00(.71) | -1.58-1.17 | .79 | 120 | .02(.63) | -1.58-1.49 | -.29 ^{ns} |
| Problem Behavior | .86 | 134 | 1.54(.48) | 1.00-3.46 | .94 | 120 | 2.12(1.34) | 1.00-8.00 | -4.38** |
| Wave 6 (11 th Grade) | | | | | | | | | |
| Affective Mother | .90 | 134 | .00(.66) | -1.90-1.35 | .88 | 120 | .00(.56) | -2.10-1.35 | .06 ^{ns} |
| Affective Father | .78 | 134 | .00(.55) | -1.68-1.11 | .81 | 120 | .00(.48) | -1.51-1.34 | .06 ^{ns} |
| Monitor Attempts | .89 | 134 | 3.92(.94) | 1.00-5.00 | .91 | 120 | 3.52(.86) | 1.00-5.00 | 3.49** |
| Monitor Success | .91 | 134 | 3.82(.70) | 1.00-5.00 | .90 | 120 | 3.35(.69) | 1.00-5.00 | 2.32** |
| Problem Behavior | .87 | 134 | 1.71(.39) | 1.00-3.42 | .87 | 120 | 2.16(.69) | 1.00-4.67 | -6.04** |
| Wave 7 (12 th Grade) | | | | | | | | | |
| Affective Mother | .89 | 134 | .00(.66) | -2.07-1.33 | .89 | 120 | .00(.59) | -2.07-1.33 | .08 ^{ns} |
| Affective Father | .91 | 134 | -.01(.67) | -1.68-1.54 | .89 | 120 | .00(.54) | -1.68-1.54 | -.12 ^{ns} |
| Monitor Attempts | .93 | 134 | 3.63(.86) | 1.00-5.00 | .88 | 120 | 3.06(.86) | 1.00-5.00 | 4.68** |
| Monitor Success | .91 | 134 | 4.03(.63) | 2.00-5.00 | .84 | 120 | 3.56(.62) | 1.00-5.00 | 5.84** |
| Problem Behavior | .80 | 134 | 1.97(.64) | 1.00-4.42 | .84 | 120 | 2.25(.70) | 1.00-5.33 | -3.21** |

Note. * $p < .05$. ** $p < .01$.

Table 4

Intercorrelation of all variables within time for all waves for Cohort 1 Females and Males

| | 1 | 2 | 3 | 4 | 5 |
|---------------------------------------|---------|---------|--------|---------|---------|
| Wave 6 (8 th Grade) | | | | | |
| 1. Affective Relationship with Mother | - | .32*** | .24*** | .30*** | .07 |
| 2. Affective Relationship with Father | .55*** | - | .35*** | .22*** | -.05 |
| 3. Monitoring Attempts | .15 | .07 | - | .21* | .17* |
| 4. Monitoring Success | .42*** | .37*** | .02 | - | -.23** |
| 5. Problem Behavior | -.41*** | -.36*** | .24** | -.50*** | - |
| Wave 7 (9 th Grade) | | | | | |
| 1. Affective Relationship with Mother | - | .54*** | -.11 | .31*** | -.07 |
| 2. Affective Relationship with Father | .55*** | - | -.17* | -.02 | .00 |
| 3. Monitoring Attempts | -.08 | .08 | - | .20* | .21* |
| 4. Monitoring Success | .35*** | .28** | .07 | - | -.23** |
| 5. Problem Behavior | -.35*** | -.39*** | .23** | -.56*** | - |
| Wave 9 (12 th Grade) | | | | | |
| 1. Affective Relationship with Mother | - | .56*** | .31*** | .10 | .05 |
| 2. Affective Relationship with Father | .55*** | - | .08 | -.12 | -.17* |
| 3. Monitoring Attempts | .12 | .14 | - | .44*** | .14 |
| 4. Monitoring Success | .57*** | .34*** | .21* | - | -.32*** |
| 5. Problem Behavior | -.22** | -.44*** | -.15 | -.34*** | - |

Notes. Intercorrelations for Cohort 1 Male participants are reported above the diagonal, and intercorrelations for Cohort 1 Females are reported below the diagonal. Matching colored boxes represent statistically significant ($p < .05$) differences in the correlations for the male and female samples using a Fisher's z transformation.

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

Table 5

Intercorrelation of all variables within time across all waves for Cohort 3 Females and Males

| | 1 | 2 | 3 | 4 | 5 |
|---------------------------------------|---------|---------|-------|---------|---------|
| Wave 6 (11th Grade) | | | | | |
| 1. Affective Relationship with Mother | - | .31*** | .16 | .38*** | -.35** |
| 2. Affective Relationship with Father | .40*** | - | .23** | .35*** | .07 |
| 3. Monitoring Attempts | .08 | .24** | - | .26** | .15 |
| 4. Monitoring Success | .55*** | .33*** | .27** | - | -.26** |
| 5. Problem Behavior | -.30*** | -.20* | -.12 | -.51*** | - |
| Wave 7 (12th Grade) | | | | | |
| 1. Affective Relationship with Mother | - | .29*** | .26** | .58*** | -.24** |
| 2. Affective Relationship with Father | .30*** | - | .22* | .06 | -.08 |
| 3. Monitoring Attempts | .04 | .27*** | - | .17 | .11 |
| 4. Monitoring Success | .47*** | .20* | .26** | - | -.34*** |
| 5. Problem Behavior | -.14 | -.29*** | -.18* | -.21** | - |

Note. Intercorrelations for Cohort 3 Male participants are reported above the diagonal, and intercorrelations for Cohort 3 Females are reported below the diagonal. Matching colored boxes represent statistically significant ($p < .05$) differences in the correlations for the male and female samples using a Fisher's z transformation.

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

Table 6

Cumulative Parenting Practices Model results for Cohort 1 Females (N = 141, $R^2 = .39$)

| | B | S.E B | β | ΔR^2 |
|---|------|-------|---------|--------------|
| Step 1 | | | | .02 |
| Problem Behavior Wave 5 | -.06 | .25 | -.02 | |
| Step 2 | | | | .16*** |
| Affective Relationship with Mother Wave 6 | -.03 | .11 | -.02 | |
| Affective Relationship with Father Wave 6 | .12 | .12 | .10 | |
| Monitoring Attempts Wave 6 | .10 | .06 | .14 | |
| Monitoring Success Wave 6 | -.16 | .09 | -.16 | |
| Step 3 | | | | .12*** |
| Affective Relationship with Mother Wave 7 | .12 | .11 | .12 | |
| Affective Relationship with Father Wave 7 | -.27 | .10 | -.27** | |
| Monitoring Attempts Wave 7 | -.12 | .08 | -.13* | |
| Monitoring Success Wave 7 | .13 | .08 | -.13 | |
| Step 4 | | | | .09** |
| Affective Relationship with Mother Wave 9 | .18 | .12 | .15 | |
| Affective Relationship with Father Wave 9 | -.32 | .11 | -.29** | |
| Monitoring Attempts Wave 9 | -.09 | .07 | -.10 | |
| Monitoring Success Wave 9 | -.20 | .09 | -.21* | |

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 7

Cumulative Parenting Practices Model for Cohort 1 Males (N = 143, $R^2 = .38$)

| | B | S.E B | β | ΔR^2 |
|---|------|-------|---------|--------------|
| Step 1 | | | | .03 |
| Problem Behavior Wave 5 | .15 | .09 | .12 | |
| Step 2 | | | | .02 |
| Affective Relationship with Mother Wave 6 | -.08 | .10 | -.07 | |
| Affective Relationship with Father Wave 6 | .17 | .09 | .16 | |
| Monitoring Attempts Wave 6 | -.03 | .05 | -.04 | |
| Monitoring Success Wave 6 | .04 | .06 | .05 | |
| Step 3 | | | | .03 |
| Affective Relationship with Mother Wave 7 | -.17 | .11 | -.16 | |
| Affective Relationship with Father Wave 7 | .11 | .09 | .11 | |
| Monitoring Attempts Wave 7 | -.01 | .05 | -.02 | |
| Monitoring Success Wave 7 | .10 | .05 | .17* | |
| Step 4 | | | | .31*** |
| Affective Relationship with Mother Wave 9 | .34 | .12 | .29** | |
| Affective Relationship with Father Wave 9 | -.49 | .10 | -.46*** | |
| Monitoring Attempts Wave 9 | .23 | .06 | .35*** | |
| Monitoring Success Wave 9 | -.48 | .07 | -.54*** | |

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 8

Cumulative Parenting Practices Model for Cohort 3 Females (N = 133, $R^2 = .31$)

| | B | S.E B | β | ΔR^2 |
|---|------|-------|---------|--------------|
| Step 1 | | | | .20*** |
| Problem Behavior Wave 5 | .44 | .11 | .33*** | |
| Step 2 | | | | .09** |
| Affective Relationship with Mother Wave 6 | .15 | .12 | .15 | |
| Affective Relationship with Father Wave 6 | -.01 | .13 | -.01 | |
| Monitoring Attempts Wave 6 | -.08 | .06 | -.11 | |
| Monitoring Success Wave 6 | -.17 | .08 | -.24* | |
| Step 3 | | | | .02 |
| Affective Relationship with Mother Wave 7 | -.06 | .11 | -.06 | |
| Affective Relationship with Father Wave 7 | -.15 | .10 | -.16 | |
| Monitoring Attempts Wave 7 | .00 | .06 | .00 | |
| Monitoring Success Wave 7 | -.01 | .09 | -.01 | |

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 9

Cumulative Parenting Practices Model for Cohort 3 Males (N = 119, $R^2 = .31$)

| | B | S.E B | β | ΔR^2 |
|---|------|-------|---------|--------------|
| Step 1 | | | | .20*** |
| Problem Behavior Wave 5 | .20 | .05 | .38*** | |
| Step 2 | | | | .04 |
| Affective Relationship with Mother Wave 6 | .06 | .13 | .05 | |
| Affective Relationship with Father Wave 6 | -.19 | .15 | -.12 | |
| Monitoring Attempts Wave 6 | .05 | .07 | .06 | |
| Monitoring Success Wave 6 | -.06 | .10 | -.06 | |
| Step 3 | | | | .07* |
| Affective Relationship with Mother Wave 7 | -.09 | .14 | -.08 | |
| Affective Relationship with Father Wave 7 | -.05 | .13 | -.04 | |
| Monitoring Attempts Wave 7 | .18 | .07 | .22* | |
| Monitoring Success Wave 7 | -.20 | .11 | -.19 | |

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 10

Individual Parenting Practices Model for Cohort 1 Females (N = 141, $R^2 = .39$)

| | B | S.E B | β | ΔR^2 |
|---|------|-------|---------|--------------|
| Step 1 | | | | .02 |
| Problem Behavior Wave 5 | -.06 | .25 | -.02 | |
| Step 2 | | | | .05 |
| Affective Relationship with Mother Wave 6 | -.03 | .11 | .02 | |
| Affective Relationship with Mother Wave 7 | .12 | .11 | .12 | |
| Affective Relationship With Mother Wave 9 | .18 | .12 | .10 | |
| Step 3 | | | | .15*** |
| Affective Relationship with Father Wave 6 | .12 | .12 | .10 | |
| Affective Relationship with Father Wave 7 | -.27 | .10 | -.28** | |
| Affective Relationship with Father Wave 9 | -.32 | .11 | -.29** | |
| Step 4 | | | | .10*** |
| Monitoring Attempts Wave 6 | .10 | .06 | .14 | |
| Monitoring Attempts Wave 7 | .13 | .06 | .17* | |
| Monitoring Attempts Wave 9 | -.09 | .07 | -.10 | |
| Step 5 | | | | .06* |
| Monitoring Success Wave 6 | -.16 | .09 | -.16 | |
| Monitoring Success Wave 7 | -.12 | .08 | -.13 | |
| Monitoring Success Wave 9 | -.20 | .09 | -.21* | |

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 11

Individual Parenting Practices Model for Cohort 1 Males (N = 143, $R^2 = .38$)

| | B | S.E B | β | ΔR^2 |
|---|------|-------|---------|--------------|
| Step 1 | | | | .03 |
| Problem Behavior Wave 5 | .15 | .09 | .12 | |
| Step 2 | | | | .01 |
| Affective Relationship with Mother Wave 6 | -.08 | .10 | -.07 | |
| Affective Relationship with Mother Wave 7 | -.17 | .11 | -.16 | |
| Affective Relationship With Mother Wave 9 | .34 | .12 | .29 | |
| Step 3 | | | | .09** |
| Affective Relationship with Father Wave 6 | .17 | .09 | .16 | |
| Affective Relationship with Father Wave 7 | .11 | .09 | .11 | |
| Affective Relationship with Father Wave 9 | -.49 | .10 | -.46*** | |
| Step 4 | | | | .02 |
| Monitoring Attempts Wave 6 | -.03 | .05 | -.02 | |
| Monitoring Attempts Wave 7 | -.02 | .05 | -.04 | |
| Monitoring Attempts Wave 9 | .23 | .06 | .34*** | |
| Step 5 | | | | .24*** |
| Monitoring Success Wave 6 | .04 | .06 | .05 | |
| Monitoring Success Wave 7 | .10 | .05 | .17* | |
| Monitoring Success Wave 9 | -.48 | .07 | -.54*** | |

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 12

Individual Parenting Practices Model for Cohort 3 Females (N = 133, $R^2 = .31$)

| | B | S.E B | β | ΔR^2 |
|---|------|-------|---------|--------------|
| Step 1 | | | | .20*** |
| Problem Behavior Wave 5 | .44 | .11 | .33*** | |
| Step 2 | | | | .01 |
| Affective Relationship with Mother Wave 6 | .15 | .12 | .15 | |
| Affective Relationship with Mother Wave 7 | -.06 | .11 | -.06 | |
| Step 3 | | | | .04* |
| Affective Relationship with Father Wave 6 | -.01 | .13 | -.01 | |
| Affective Relationship with Father Wave 7 | -.15 | .10 | -.16 | |
| Step 4 | | | | .03 |
| Monitoring Attempts Wave 6 | -.08 | .06 | -.11 | |
| Monitoring Attempts Wave 7 | .00 | .06 | .00 | |
| Step 5 | | | | .03 |
| Monitoring Success Wave 6 | -.18 | .08 | -.24* | |
| Monitoring Success Wave 7 | -.01 | .09 | -.01 | |

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 13

Individual Parenting Practices Model for Cohort 3 Males

| | B | S.E B | β | ΔR^2 |
|---|------|-------|---------|--------------|
| Step 1 | | | | .20*** |
| Problem Behavior Wave 5 | .20 | .05 | .38*** | |
| Step 2 | | | | .03 |
| Affective Relationship with Mother Wave 6 | .06 | .13 | .05 | |
| Affective Relationship with Mother Wave 7 | -.09 | .14 | -.08 | |
| Step 3 | | | | .01 |
| Affective Relationship with Father Wave 6 | -.19 | .15 | -.13 | |
| Affective Relationship with Father Wave 7 | -.05 | .13 | -.04 | |
| Step 4 | | | | .05* |
| Monitoring Attempts Wave 6 | .05 | .07 | .06 | |
| Monitoring Attempts Wave 7 | .18 | .07 | .22* | |
| Step 5 | | | | .03 |
| Monitoring Success Wave 6 | -.06 | .10 | -.06 | |
| Monitoring Success Wave 7 | -.20 | .11 | -.19 | |

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 1. Proposed model predicting Problem Behavior within time.

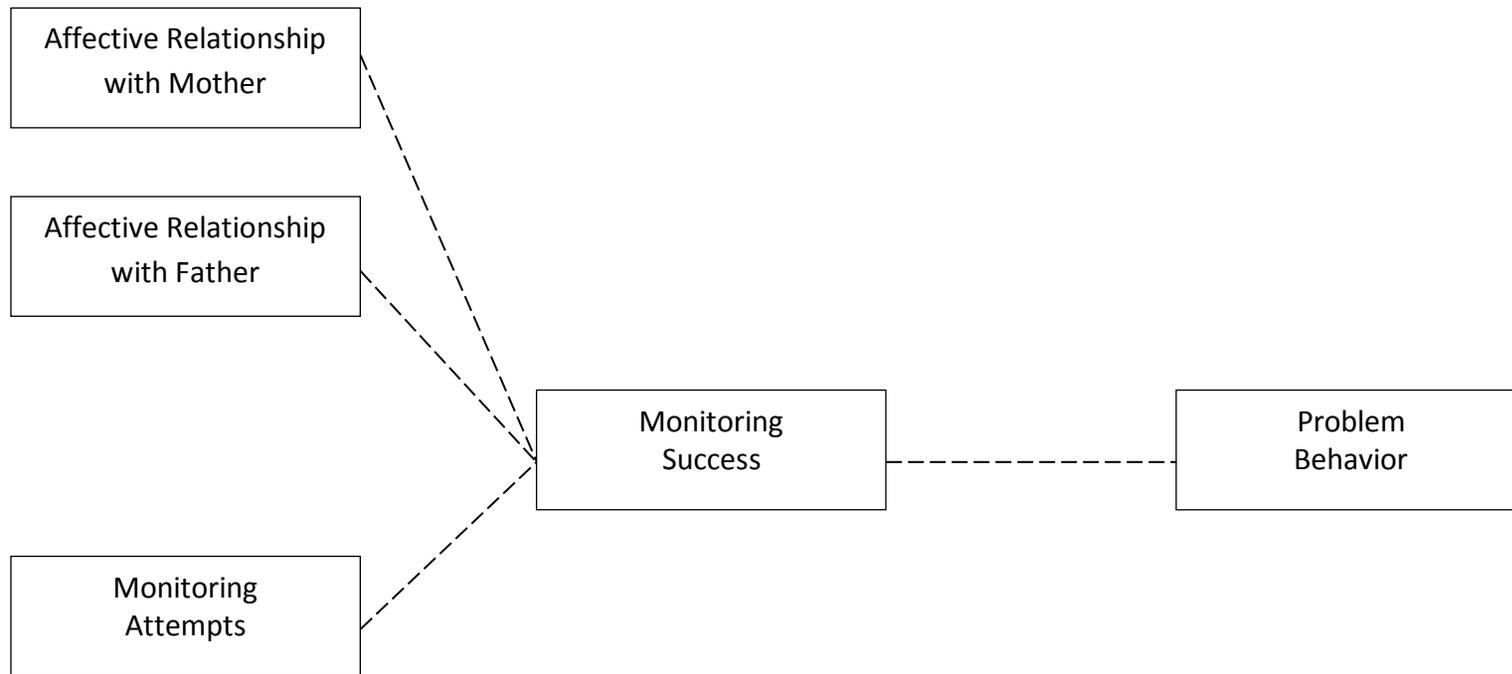


Figure 2. Proposed Cumulative Parenting Practices Model for Cohort 1

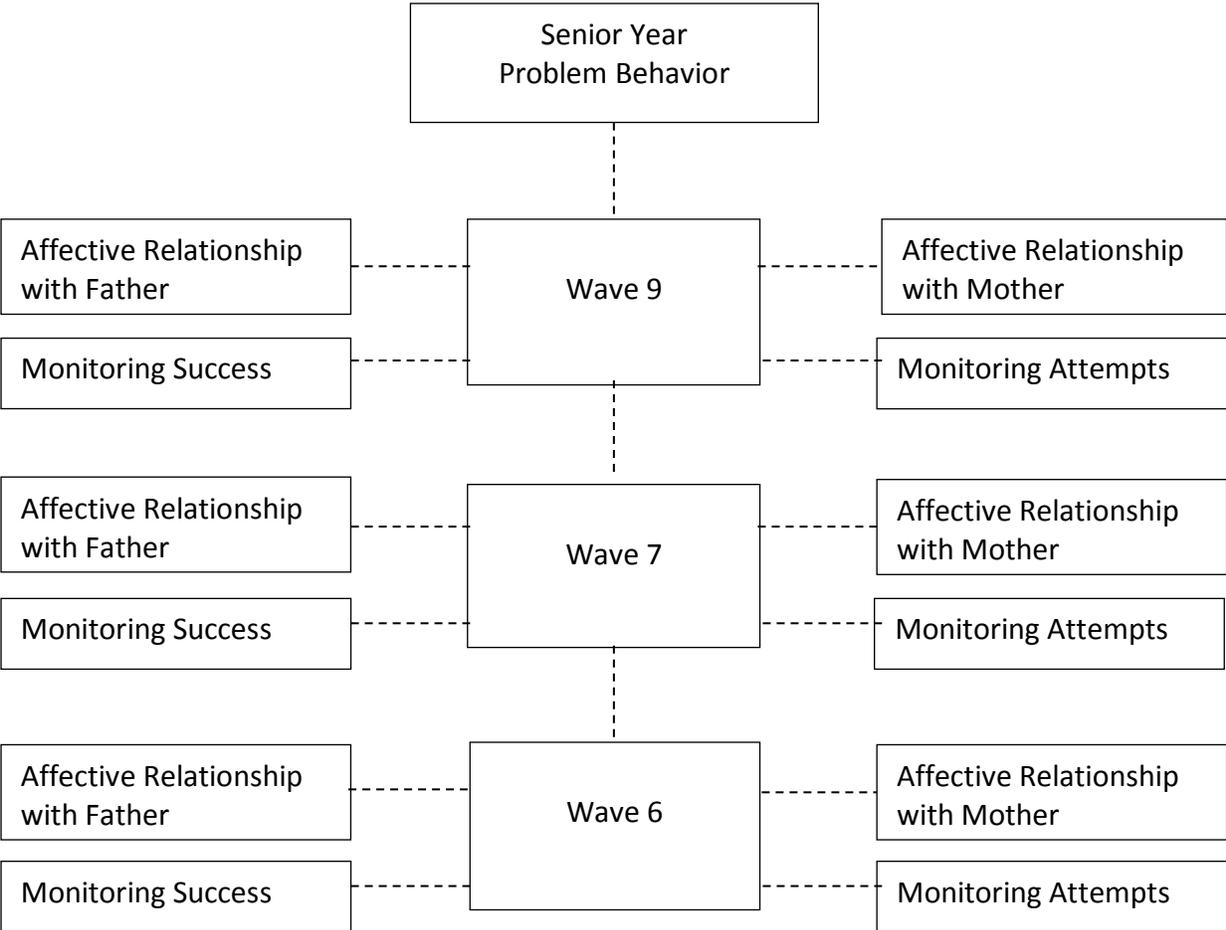


Figure 3. Proposed Cumulative Parenting Practices Model for Cohort 3

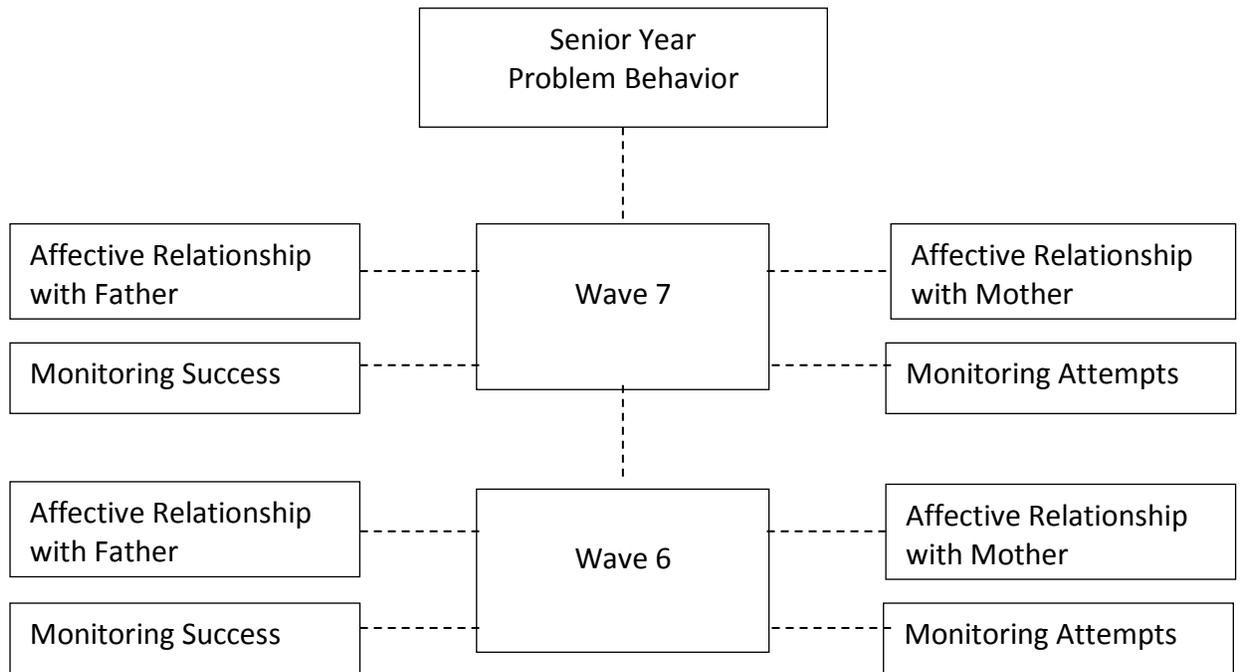


Figure 4. Proposed Individual Parenting Practices Model

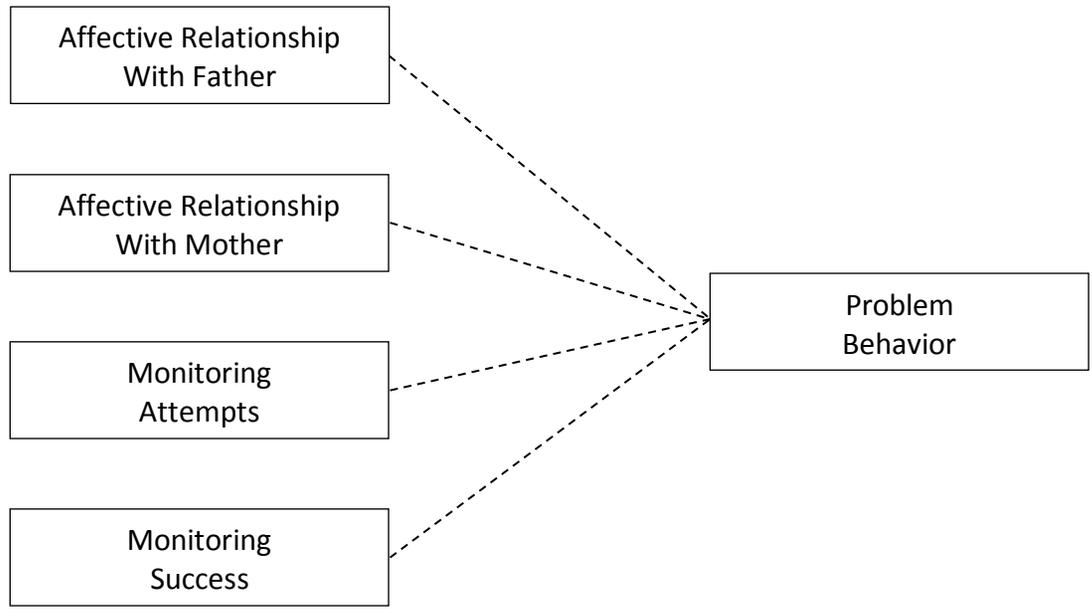
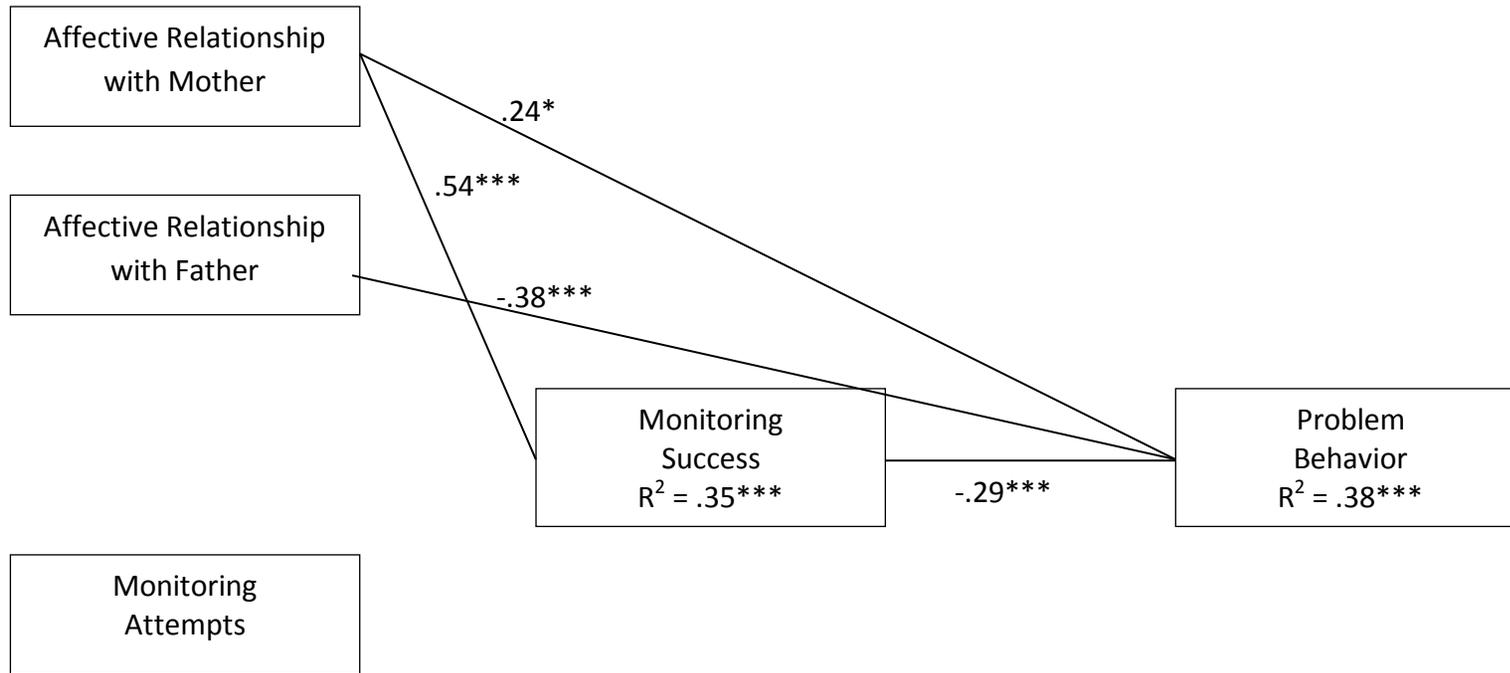
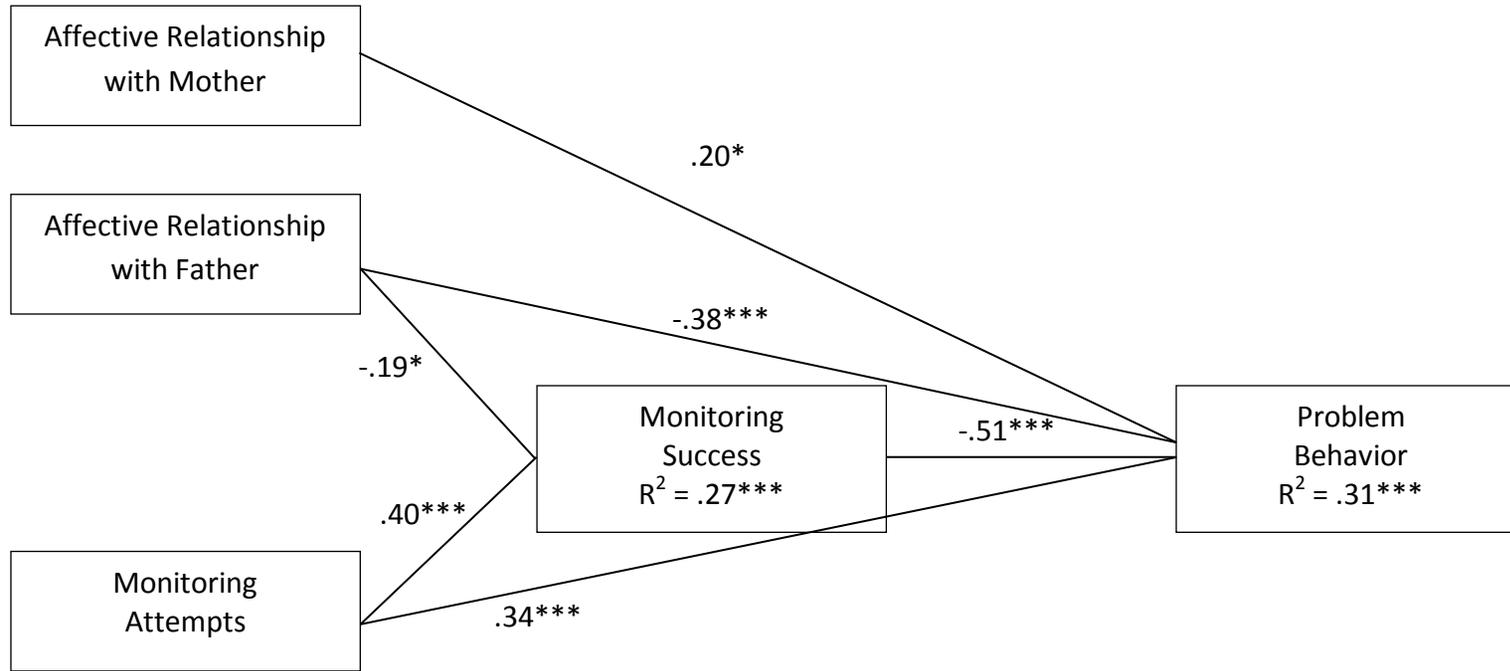


Figure 5. Model predicting Problem Behavior within time for Cohort 1 Females – Wave 9 (Senior year), N = 142



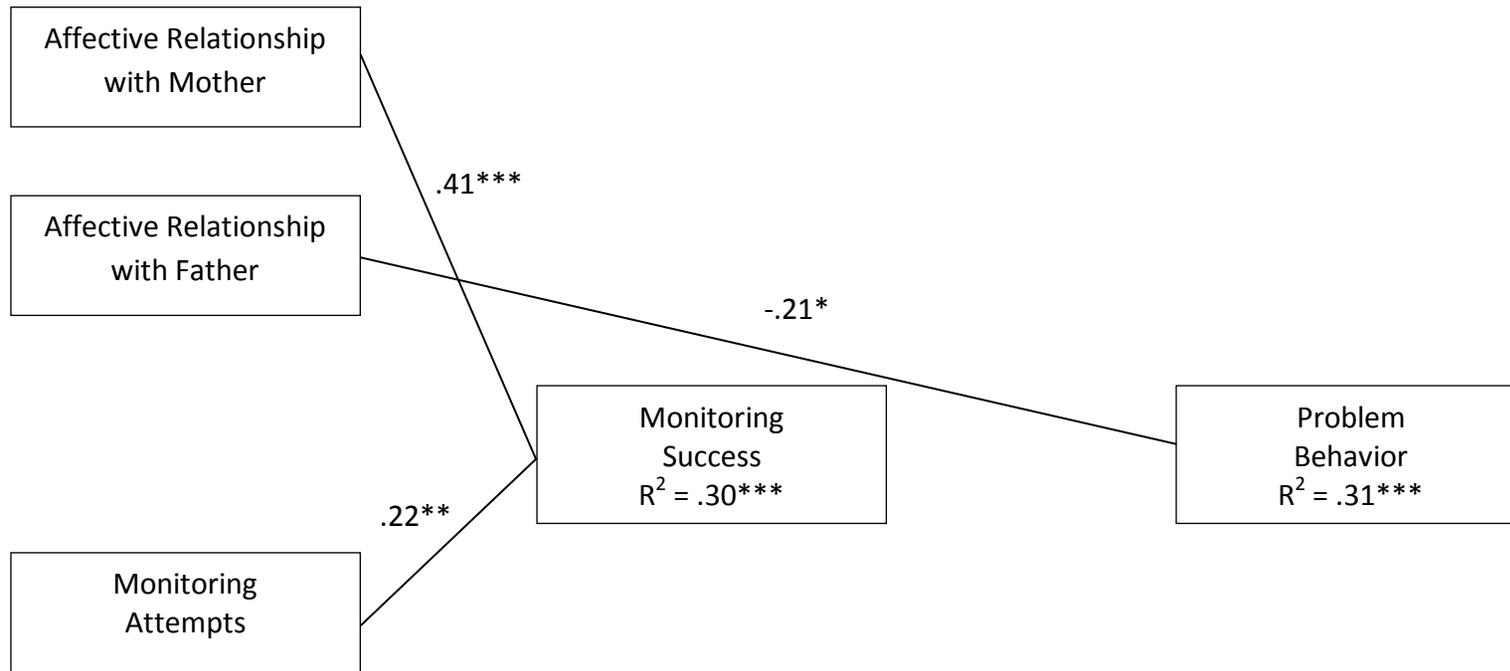
Note. $*p < .05$. $**p < .01$. $***p < .001$. All predictors were used in the regressions, but only significant paths are presented here.

Figure 6. Model predicting Problem Behavior for Cohort 1 Males – Wave 9 (Senior year) N = 144



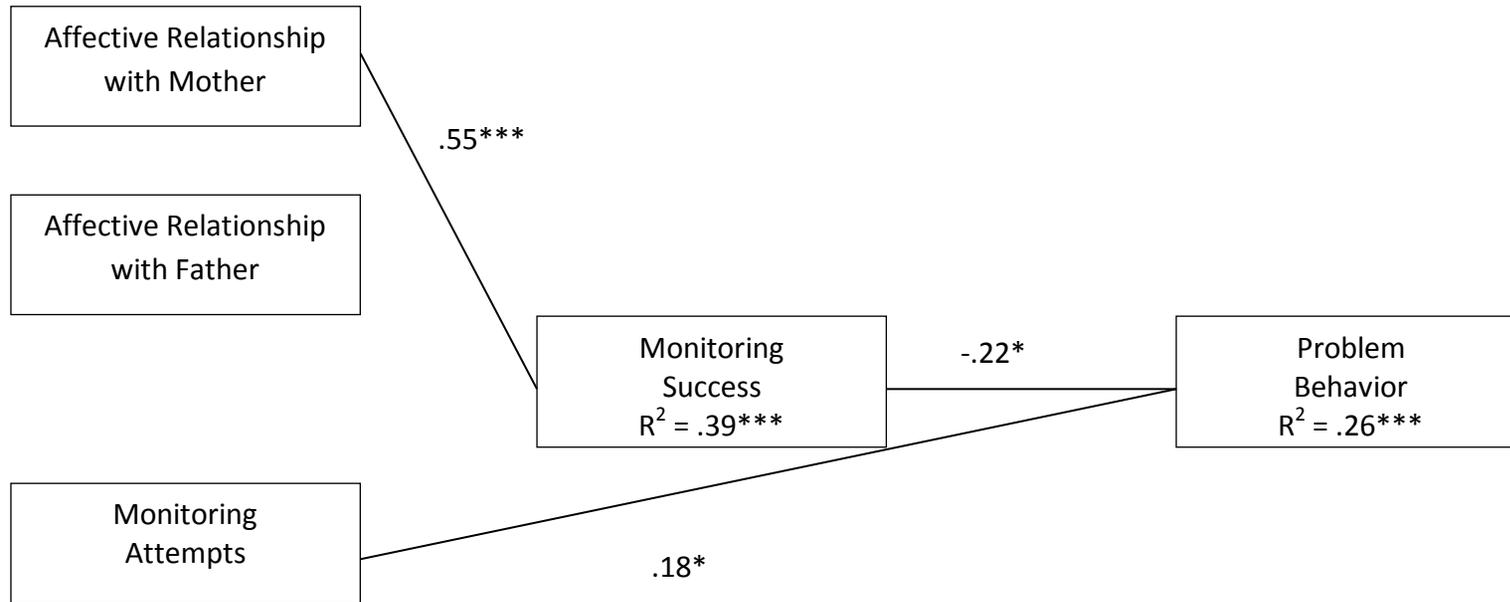
Note. $*p < .05$. $**p < .01$. $***p < .001$. All predictors were used in the regressions, but only significant paths are presented here.

Figure 7. Model predicting Problem Behavior within time for Cohort 3 Females – Wave 7 (Senior year) N = 134



Note. * $p < .05$. ** $p < .01$. *** $p < .001$. All predictors were used in the regressions, but only significant paths are presented here.

Figure 8. Model Predicting Problem Behavior within time for Cohort 3 Males – Wave 7 (Senior year) N = 120



Note. $*p < .05$. $**p < .01$. $***p < .001$. All predictors were used in the regressions, but only significant paths are presented here.

Appendix A.

Table A1.

Factor Loadings for the Affective Relationship with Mother for Cohort 1 at Wave 6 and senior year (Wave 9)

| Item | Wave 6 | Senior Year |
|---|--------|-------------|
| Cohort 1 Females | | |
| How often does your mom listen to your point of view | .71 | .72 |
| How often does your mom let you know she cares | .71 | .75 |
| How often does your mom help you do things that are important to you | .75 | .61 |
| How often does your mom tell you that she is proud of the things you do | .83 | .72 |
| How much do you want to be like your mom | .59 | .64 |
| How much do you respect your mom | .65 | .69 |
| How close do you feel to your mom | .76 | .74 |
| Cohort 1 Males | | |
| How often does your mom listen to your point of view | .66 | .83 |
| How often does your mom let you know she cares | .86 | .77 |
| How often does your mom help you do things that are important to you | .62 | .74 |
| How often does your mom tell you that she is proud of the things you do | .77 | .77 |
| How much do you want to be like your mom | .62 | .57 |
| How much do you respect your mom | .72 | .56 |
| How close do you feel to your mom | .80 | .58 |

Table A2.

Factor Loadings for the Affective Relationship with Mother for Cohort 3 at Wave 6 and senior year (Wave 9).

| Item | Wave 6 | Senior Year |
|---|--------|-------------|
| Cohort 3 Females | | |
| How often does your mom listen to your point of view | .85 | .85 |
| How often does your mom let you know she cares | .77 | .79 |
| How often does your mom help you do things that are important to you | .75 | .76 |
| How often does your mom tell you that she is proud of the things you do | .82 | .78 |
| How much do you want to be like your mom | .75 | .73 |
| How much do you respect your mom | .69 | .78 |
| How close do you feel to your mom | .77 | .81 |
| Cohort 3 Males | | |
| How often does your mom listen to your point of view | .77 | .83 |
| How often does your mom let you know she cares | .78 | .72 |
| How often does your mom help you do things that are important to you | .75 | .62 |
| How often does your mom tell you that she is proud of the things you do | .73 | .70 |
| How much do you want to be like your mom | .70 | .81 |
| How much do you respect your mom | .70 | .85 |
| How close do you feel to your mom | .78 | .88 |

Table A3.

Factor Loadings for the Affective Relationship with Father for Cohort 1 at Wave 6 and senior year (Wave 9)

| Item | Wave 6 | Senior Year |
|---|--------|-------------|
| Cohort 1 Females | | |
| How often does your dad listen to your point of view | .85 | .86 |
| How often does your dad let you know she cares | .84 | .87 |
| How often does your dad help you do things that are important to you | .80 | .75 |
| How often does your dad tell you that she is proud of the things you do | .86 | .83 |
| How much do you want to be like your dad | .67 | .84 |
| How much do you respect your dad | .77 | .88 |
| How close do you feel to your dad | .82 | .85 |
| Cohort 1 Males | | |
| How often does your dad listen to your point of view | .79 | .83 |
| How often does your dad let you know she cares | .80 | .79 |
| How often does your dad help you do things that are important to you | .72 | .85 |
| How often does your dad tell you that she is proud of the things you do | .81 | .85 |
| How much do you want to be like your dad | .42 | .72 |
| How much do you respect your dad | .59 | .82 |
| How close do you feel to your dad | .61 | .86 |

Table A4.

Factor Loadings for the Affective Relationship with Father for Cohort 3 at Wave 6 and senior year (Wave 7)

| Item | Wave 6 | Senior Year |
|---|--------|-------------|
| Cohort 3 Females | | |
| How often does your dad listen to your point of view | .83 | .82 |
| How often does your dad let you know she cares | .77 | .81 |
| How often does your dad help you do things that are important to you | .74 | .82 |
| How often does your dad tell you that she is proud of the things you do | .77 | .78 |
| How much do you want to be like your dad | .57 | .78 |
| How much do you respect your dad | .56 | .77 |
| How close do you feel to your dad | .58 | .87 |
| Cohort 3 Males | | |
| How often does your dad listen to your point of view | .75 | .76 |
| How often does your dad let you know she cares | .75 | .77 |
| How often does your dad help you do things that are important to you | .76 | .72 |
| How often does your dad tell you that she is proud of the things you do | .76 | .71 |
| How much do you want to be like your dad | .70 | .70 |
| How much do you respect your dad | .74 | .73 |
| How close do you feel to your dad | .80 | .82 |