

2009

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The unique influence of mothers' and fathers' negative parental practices on adolescent anti-social behavior: Mediating effects of adolescent psychological resources and deviant peer relationships

by

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A thesis submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of
MASTER OF SCIENCE

Major: Human Development and Family Studies

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2009

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ACKNOWLEDGEMENTS

I would like to thank my mother, Shelley, and my father, Marc, for guiding me through my development. With their help, I realized I had the potential to do great things if I tried hard enough. Thank you for always being there, and helping me to become a better person.

To my future wife, Holly Dunlay, thank you for simply being there during those late nights when I had so much to do. Thank you for your support and listening to me even when you may not have been interested. Thank you so much!

To my committee members, Dr. KAS Wickrama, Dr. Jacobus Lempers, and Dr. Mack Shelley, thank you so much for your input and suggestions. What was originally a “good idea” materialized into a decent theory with your aid and guidance. A special thank you to Dr. KAS Wickrama, you helped me through every stage and made the intimidating analyses seem tangible. Thank you so much for your help and guidance.

ABSTRACT

Researchers investigating delinquent and anti-social behavior have documented that negative parental practices is linked to psychological resources (mastery), deviant relationships, and anti-social behaviors. However, there is a gap in the current literature on how these variables combine to influence an adolescent's anti-social behavior, specifically the causal effects of deviant relationships on anti-social behavior. The purpose of this thesis is to include all of these pathways in one succinct causal model that is founded by empirical research. The current study used structural equation model (SEM) analyses to estimate the comprehensive model in order to take measurement error into account. The current study utilizes a sample of 424 adolescents and their families from 8 rural counties in North Central Iowa. This dataset, the Iowa Youth and Families Project (IYFP), includes a unique sample of dual parents. The current study uses Wave 2 (1990) and Wave 3 (1991) of the IYFP data to predict an adolescent's deviant relationships with peers and their anti-social behavior. The current study found that mothers' and fathers' negative parental practices are unique constructs that independently influence an adolescent's psychological resources, deviant relationships, and anti-social behavior. The current study found a direct relationship between fathers' and mothers' negative parental practices and an adolescent's psychological resources (Mastery). The current study also found a significant relationship between an adolescent's psychological resources and deviant relationships, and a significant relationship between an adolescent's deviant relationships and their anti-social behavior. Thus, negative parental practices of fathers and mothers uniquely and indirectly influenced an adolescent's deviant relationships and anti-social behavior through mastery. The current study discusses a synthesis of Family Stress Models, Social Control Theory, and Social (In)ability Theory as longitudinal processes governing the operationalized model.

INTRODUCTION

Adolescence is an important period in a transitional phase of biological and psychological changes. During adolescence, teens seek out other teens in a social network and often choose friends who are like them (Weerman & Smeenk, 2005). Adolescent teens can internalize past experiences with parents/friends and later problematic behaviors can develop to form a lifestyle of anti-social behavior (Kemp et al., 2006). Problem behaviors of adolescents have emerged as a serious issue because of the persistent and negative effects on later mental and physical health outcomes (Moffitt, 1993) including adolescent drug use and anti-social behaviors (Houtzager & Baerveldt, 1999).

Anti-social behavior is a broad concept explaining problematic or delinquent behaviors. The current study utilizes the construct of anti-social behavior as a surrogate of delinquent behaviors such as adolescent drug use and delinquent behaviors that are defined by the juvenile justice system. In the current study, anti-social behavior is used to investigate the broad concept of delinquent behavior and adolescent involvement in substances, theorizing that these constructs operate under similar mechanisms and tap the same construct (Pulkkinen et al., 2009).

The nature of juvenile delinquency and anti-social behavior is becoming more of an issue in today's world (Dembo et al., 2007). According to the 2002 Juvenile Crime Report, adolescent arrests decreased by 11% (Dembo et al., 2007; Snyder, 2004). However, during this same time frame, juveniles arrested for behaviors involving drugs increased by 59%, driving under the influence arrests rose by 46%, and arrests involved with liquor laws violations also increased by 17% (Dembo et al., 2007; Snyder, 2004). The increasing trend in adolescent substance abuse affects families, schools, communities, and society as a whole. Adolescent drug use also places a strain on school systems and educational institutions. Between 7% and 17% of all school-

based youth experience treatment for a psychoactive substance abuse disorder (Harrison, Fulkerson, & Beebe, 1998). Also, the problem of problematic anti-social behavior is not confined to narcotic use in particular. Alcohol use also poses a major health concern to society. In 2003, around 18% of all United States students in the age range of 12 to 14 years of age admit to binge drinking where binge drinking is defined as five or more drinks in one sitting (Miller et al., 2007). Three years later in 2006, it was found that 73% of 16-year-olds have experimented with alcohol and 56% of this population has been intoxicated at least once in their lifetime (Johnston et al., 2007).

Adolescents that are involved with drugs usually abuse substances with friends or social acquaintances (Houtzager & Baerveldt, 1999). Adolescents involved in anti-social behaviors also tend to select friends that engage in similar behaviors (Hirschi, 1969; Houtzager & Baerveldt, 1999). The current study explores the effect of the deviant behaviors and social associations of the peer group, and hereby uses the term deviant relationships to address this construct. There is an extensive body of literature that shows the mediating effect of deviant relationships on the association between parental monitoring and the delinquent behavior of the adolescent offspring (or adolescent anti-social behavior) (Laird, Criss, Pettit, Dodge, & Bates, 2007). Also, previous research has documented that more broad negative parental practices, such as parental rejection, harsh discipline, and negative efficacy can influence anti-social behaviors in adolescent off spring (Simons et al., 2007). However, few studies have examined the combined mediating effects of psychological resources, such as mastery, and deviant relationships on the association between parenting practices and adolescent anti-social behavior (Garnier & Stein, 2002; Simons et al., 2007) in one succinct model.

Inherent in parental involvement is the unique contributions of the mother and the father. The sample of the current study uses intact families with a target child, a mother, a father, and at least one sibling. Data gathered on mother and father parenting characteristics allows the current study to examine the unique contributions that mothers and fathers have on delinquency. Most studies analyzed how mothering characteristics impact delinquency and anti-social behavior (Amato, 1994). Other studies have used parental practices as a whole and have not assessed the unique contributions of fathers and mothers (Amato, 1994; Simons et al., 2004). However, little is known how fathers uniquely influence the parent-child relationship and how this relationship predicts anti-social behavior (Flouri & Buchanan, 2002). Adolescent anti-social behavior is related to poor child rearing practices, poor supervision, harsh discipline, parental disharmony, rejection of the child, and low involvement (Scott, 1998; Simons et al., 2007). Fathers tend to focus on setting limits, moral development of their child, and disciplining their child based on rules and laws while mothers are more focused on communication, nurturing practices and discipline based decisions on violation of social norms rather than absolutes in the form of rules/laws (Resendiz & Romero, 2007). In turn, fathers may be more apt to be less nurturing and not as responsive, thus lowering the father-child relationship quality and increasing the likelihood of anti-social behaviors later in life. Thus, mothers' and fathers' negative parental practices may be different and unique constructs. The current study will use father and mother parenting measures (communication, monitoring, negative efficacy, rejection, and harsh discipline) as multiple indicators of the constructs of fathers' and mothers' negative parental practices in order to assess the uniqueness of the constructs using the measurement model.

Previous research has documented that an adolescent's psychological resources can influence friend selection and peer relationships (Houtzager & Baerveldt, 1999; Simons et al.,

2004, 2007). The current study extends this line of research to include the contributions of psychological resources (mastery) on the selection of friends and later externalized anti-social behaviors. Mastery in the current study was used to capture the construct of psychological resources. Research on the development of mastery is very limited and little is known on how negative parental practices specifically influence this association (Conger et al., 2009). Also, few studies have specifically attempted to investigate whether psychological resources moderate or mediate the association between negative parental practices and deviant relationships, and the relationship between negative parental practices and adolescent anti-social behavior (Conger et al., 2009). Another purpose of the current study is to address the direct relationships between mothers' and fathers' negative parental practices and an adolescent's mastery.

Previous research has found that the association between deviant relationships and adolescent anti-social behavior may be reciprocal or ambiguous in nature (Baerveldt & Snijders, 1994; Houtzager & Baerveldt, 1999). The current study addresses the gap in the literature by examining the direct effects of deviant relationships on an adolescent's involvement in adolescent anti-social behavior, and by examining a series of cross-lagged models. This pathway originates from a Social (In)ability Theory perspective in that deviant relationships directly influence anti-social behavior or that the temporal ordering of deviant relationships occurs prior to involvement in anti-social behavior (Baerveldt & Snijders, 1994; Hansell & Wiatrowski, 1981; Houtzager & Baerveldt, 1999). Conversely, Social Control Theory posits that anti-social behavior and deviant relationships are not a cause but a byproduct of anti-social behavior (Hirschi, 1969). The current study seeks to address the gap in the literature, and produce a synthesis of the two competing theories of anti-social behavior in one succinct model.

During adolescence, teens tend to spend less time with parents and more time with peers. Thus, the influence of peers can dwarf the effects of positive parenting on an adolescent's anti-social behavior (Steinberg et al., 1992). Conversely, negative parental practices may be exemplified in an adolescent's mastery and friend selection processes, and may be more resilient to change compared to positive parental practices (Dodge, 1980, 1986; Simons et al., 2007). Negative parenting can also have additive effects that may not be buffered by an adolescent's peer group (Hirschi, 1969), subsequently impacting adolescent anti-social behavior (Hansell & Wiatrowski, 1981; Houtzager & Baerveldt, 1999; Simons et al., 2007). Other authors contend that the effects of peers actually reflect experiences that occurred earlier on in development and emphasize the importance of linking social networks throughout development (Cairns & Cairns, 1995). Using this logic, psychological resources should influence an adolescent's anti-social behavior through their deviant relationships. The current study addresses this indirect pathway by assuming that negative parental practices influence an adolescent's mastery, mastery then influences deviant relationships, and deviant relationships directly influence the adolescent's involvement in anti-social behaviors.

Study Objectives

The current study seeks to address the gap found in current research in an effort to better understand the effect of an adolescent's friend social system on the adolescent's subsequent delinquent behavior. The model for the current study can be seen in Figure 1 and 2. Figure 1 presents the basic theoretical model and Figure 2 presents the structural equation model with multiple indicators of the latent constructs (fathers' and mothers' negative parenting, and deviant relationships) constructed from previous literature. Based on the structural equation model, the current study's objectives are as follows:

1. The current study seeks to address the direct and indirect effects of fathers' and mothers' negative parenting practices as they influence adolescent anti-social behavior.
2. The current study seeks to address the direct and indirect influences of psychological resources (mastery) on deviant relationships and adolescent anti-social behaviors.
3. The current study will also identify the direct influence of deviant relationships on adolescent anti-social behavior.
4. The current study will analyze the mediating and moderating effects of the self-reported anti-social behaviors of friends and distance from friends (referred to as deviant relationships) on the association between mother/father parenting practices on adolescent's self-reported anti-social behaviors.
5. The current study will examine the mediating and moderating effects of an adolescent's psychological resources (mastery) on the relationship between father/mother parenting practices and anti-social behavior.
6. The current study will examine the mediating and moderating effects of an adolescent's psychological resources (mastery) on the relationship between father/mother parenting practices and deviant relationships.

LITERATURE REVIEW

Theoretical Framework

Adolescent drug use and habitual anti-social behaviors are serious problem behaviors in due to the tremendous health and behavioral consequences that continue into adulthood. Previous research explored predictors of adolescent drug delinquency; the effect of the parent-child relationship, parental attributes as a whole (Brook et al., 2006), the effect of the adolescent's friend relationships (Kemp et al., 2006), early sexual activity as a function of social control theory (Cooper, Wood, Albino, & Orcutt, 2003), and how personality variables such as hostility, impulsivity, and aggression effect anti-social behavior (Barnow, Lucht, & Freyberfer, 2005; Houtzager & Baerveldt, 1999). Research shows that parental factors, friend dispositional and trait factors, and psychological resources (such as mastery) significantly predict adolescent anti-social behaviors and drug use (Houtzager & Baerveldt, 1999; Kemp et al., 2006; Simons et al., 2007). Research has shown that parental practices can have an influence on an adolescent's psychological resources (mastery), deviant relationships, and anti-social behavior (Patterson & Stouthamer-Loeber, 1984; Resendiz & Romero, 2007; Simons et al., 2007). Based on this logic, fathers' and mothers' negative parental practices are directly and indirectly affecting adolescent anti-social behavior through the adolescent's psychological resources and deviant relationships.

The Theoretical Model

Figure 1 presents the theoretical model for the current study. The theoretical model depicts the influences of fathers' and mothers' negative parental practices on their child's psychological resources (mastery), deviant relationships, and anti-social behavior. Figure 2 presents the operationalized model with latent constructs and multiple indicators. As seen in Figure 2, negative parental practices are constructed of father and mother parenting variables as

multiple indicators of two separate latent constructs. As seen in the theoretical model in Figure 1, psychological resources has a direct influence on deviant relationships, and a direct and indirect association with an adolescent's anti-social behavior. Finally, as seen in Figure 1, the theoretical model depicts a direct relationship between an adolescent's deviant relationships and their anti-social behavior. The paragraphs that follow will discuss all of the constructs and hypothesized associations in the model.

Deviant Relationships and Adolescent Anti-social Behavior

Several studies have documented that the delinquent acts of an adolescent are correlated with the delinquent acts of their peer group (Baerveldt & Snijders, 1994). Research by Brook, Brook, Balka, and Rosenberg (2006) examined the predictors of anti-social behavior of adolescents in a singular model. They gathered a sample of biological children of African American and Puerto Rican young adults who participated in a longitudinal study to assess the implications of anti-social behavior and peer affiliations of adolescents. They found a significant relationship between anti-social behavior and peer affiliations/social bonds (Brook et al., 2006). This finding suggests that adolescents are engaging in anti-social behavior as a result of weak social bonds with peers. This finding also confirms an assumption of Social Control Theory (Hirschi, 1969) that an adolescent engages in anti-social behavior to cope with stress or as a result of weak bonds with others. Thus, the operationalized model of the current study, as seen in Figure 2, posits that the anti-social behaviors of the adolescent's peer group is an aspect of deviant relationships.

A major gap in the current literature is the ambiguity in the causal relationship between social networks and anti-social behavior (Houtzager & Baerveldt, 1999). Some researchers have

concluded that a relationship exists between an adolescent's anti-social behavior and the anti-social behaviors of the peer group, but not necessarily a causal affect (Moss et al., 2003). More importantly, there may be other variables to moderate or mediate this relationship (Moss et al., 2003). Conversely, according to Hansell and Wiatrowski (1981), the deviant behaviors of a peer group can directly impact an adolescent's involvement in anti-social behaviors. Based on research by Hansell and Wiatrowski (1981), the current study argues that deviant relationships can have a causal effect on an adolescent's involvement in anti-social behaviors. Thus, the current study posits that an adolescent's deviant relationship with their peer group directly influences their anti-social behavior.

Research by Hansell and Wiatrowski (1981) extended the work of Bandura (1977) arguing for a conceptual model designed to explain juvenile delinquency based on the social learning that takes place in an adolescent's social network. This model of delinquency was termed Social (In)ability Theory. Based on the model, an adolescent's social skills or social ability is learned through interactions with peers and parents with an emphasis on peer interactions (Hansell & Wiatrowski, 1981). The model places a strong emphasis on the internalization of social rules, norms, and laws through social learning processes (Bandura, 1977; Hansell & Wiatrowski, 1981; Houtzager & Baerveldt, 1999). In this framework, adolescents learn to not cope with anger or stress and seek out others who struggle with coping as well (Hansell & Wiatrowski, 1981) and subsequent deviant behaviors are learned through these consistent interactions and sustained group behaviors (Sutherland & Cressey, 1974). An adolescent's social ability or inability is directly related to involvement in delinquent/anti-social behaviors (Hansell & Wiatrowski, 1981; Houtzager & Baerveldt, 1999). An adolescent low in social ability is more likely to be more distant with friends and be involved in delinquent

behaviors learned from deviant peer affiliation compared to adolescent's high in social ability/positive peer relationships (Hansell & Wiatrowski, 1981; Houtzager & Baerveldt, 1999). Thus, the current study contends that an adolescent's distance with friends is an aspect or dimension of the deviant relationship construct. Thus, the current study hypothesizes that a direct and significant relationship will be observed between deviant relationships and an adolescent's anti-social behavior.

Mothers' and Fathers' Negative Parental Practices

Most studies analyzed adolescent drug abuse from a perspective that included maternal parenting variables and excluded father parenting variables (Moss et al., 2003). A majority of studies fail to assess the unique contributions of the gender of parents or focus solely on mothers (Mowbray et al., 2004). Moss, Lynch, and Hardie (2003) researched 253 high risk preadolescents and 286 average risk children to assess the unique contributions of fathers. "High risk" children were defined as having a drug dependent father, whereas "average risk" children were those who did not have a drug dependent father. The study by Moss and colleagues (2003) was one of the few studies to explore the unique contributions of fathers to juvenile substance use. Fathers' drug dependence was defined based on their histories of ever having a lifetime substance dependence diagnosis. However, this did not include nicotine use. The preadolescents were studied at three intervals: 10-11 years of age, 2 years later, and then 3 years after that. Results of the study revealed biological children of drug dependent fathers have more deviant relationships with peers from pre-adolescence through mid-adolescence compared to children from non-drug dependent fathers. Likewise, they found an increasing level of affiliation with anti-social peers and more distance in the intimacy of peer friendships among children identified

as average risk as they moved from pre-adolescence to mid-adolescence. Interestingly, it appears children of this age group may be more apt to befriend deviant peers and be involved in deviant relationships, regardless of their risk status. Fathers' negative parental practices may be a unique construct affecting the development of anti-social behavior in adolescents, and can be differentiated from mothers' negative parental practices. Thus, the current study contends that mothers' and fathers' negative parenting practices are unique constructs that independently shape an adolescent's psychological resources, deviant relationships, and anti-social behaviors.

Indicators of Negative Parental Practices

Negative parental practices, such as rejection, harsh discipline, and negative efficacy can influence an adolescent's psychological resources (such as mastery and self esteem) (Bowlby, 1969; Lyons-Ruth, 1996). Consistent with Attachment theory, negative parenting beliefs and attitudes, parental rejection, and harsh discipline can all affect how an adolescent perceives the world and those around them (Bowlby, 1969). Consistent with this theory, adolescents with a negative attachment with parents will view themselves more negatively and make negative attributions about the world. Research by Dodge (1980, 1986) expanded further on this notion by contending that adolescents with poor attachment styles view people as untrustworthy and out to hurt them. Dodge (1980, 1986) provided evidence that adolescents develop an aggressive disposition toward others in order to protect themselves. Dodge (1980, 1996) also argues that attachments formed with parents become attributed to future attachments and adolescents seek out attachments that are similar to the ones they had with their parents. This theoretical perspective is called the Biased Attribution Model (Dodge, 1980, 1986; Simons et al., 2007). Based on Attachment Theory and the Biased Attribution Model, the current study argues that

fathers' and mothers' negative parental practices directly influences an adolescent's psychological resources through mastery which then can indirectly influence and adolescent's deviant relationships and antisocial behaviors.

Parental communication and monitoring are two variables that tap aspects of externalized behaviors of parenting (Mack et al., 2007). In particular, parental communication in the current study is used to tap the construct of parental involvement. Based on previous research, parental involvement/communication has been shown to be negatively related to self-reported initiation and sustained adolescent involvement in anti-social behaviors (Loeber & Stouthamer-Loeber, 1986; Patterson & Stouthamer-Loeber, 1984). However, parental monitoring is more of a disciplinary parenting technique designed to set limits and maintain safety as opposed to parental communication which is more of a transmission of personal information and beliefs (Loeber et al., 2000).

In the current literature, most studies use parental monitoring as a mediating variable on the association between deviant relationships and adolescent anti-social behavior (Dillon et al., 2008). Other researchers view parental monitoring as a predictor of adolescent anti-social behavior (Simons et al., 2007). Parental practices such as communication, monitoring, rejection, harsh discipline, and negative parenting beliefs (efficacy) have been shown to impact adolescent anti-social behavior and substance abuse (Simons et al., 2007). Parental practices have also been shown to impact deviant peers (Simons et al., 2004). However, what is missing in the current research is a structured model that includes the direct and indirect influences of fathers' and mothers' negative parental practices as they influence both deviant relationships and adolescent anti-social behavior. Also, previous studies have combined monitoring, communication, rejection, harsh discipline, and negative parenting beliefs of both genders of parents into the

general construct of parenting. Combining the two genders of parents into a general construct of negative parenting fails to capture the unique effects of fathers and mothers as they may be different constructs.

Fathers' and Mothers' Negative Parental Practices and Mastery

According to previous research, little is known about the development of mastery (Conger et al., 2009). Specifically, there is a gap in the literature as to how parental practices, either positive or negative, directly influence the development of an adolescent's mastery (Conger et al., 2009). Family level interactions and interactions with friends can influence the development of mastery (Caspi, 2002) and the quality of these interactions can also shape an adolescent's level of mastery (Lewis et al., 1999). For the most part, family level interactions serve as the primary source for the development of mastery, and negative parental practices of fathers and mothers could influence the development of mastery (Conger et al., 1999). These types of processes are analogous to Family Stress Models (Conger et al., 2009) where stressful parenting experienced by the adolescent can shape the formation of their psychological resources (such as mastery). Thus, the current study contends that mothers' and fathers' negative parental practices will directly influence the development of an adolescent's mastery.

Negative Parental Practices, Deviant Peers, and Adolescent Anti-social Behavior

As shown in the theoretical model in Figure 1, the current model hypothesizes that fathers' and mothers' negative parental practices directly and indirectly influence anti-social behavior. The driving force behind the direct pathway comes from Hirschi's (1969) Social Control Theory. This theory argues that adolescents that engage in anti-social behaviors have

weak social bonds with friends, family, and community (Garnier & Stein, 2002; Hirschi, 1969). In fact, Social Control Theory posits that family experiences and parental practices are the mechanisms in which an adolescent constructs social bonds with peers (Garnier & Stein, 2002; Hirschi, 1969; Houtzager & Baerveldt, 1999). Social Control Theory does not operate under the assumption that delinquent acts are learned through peer interactions (Houtzager & Baerveldt, 1999); rather that adolescents choose friendships that will perpetuate the weak bonds they experienced from their family structure (Hirschi, 1969; Marcus, 1996). Delinquent acts, in this theoretical framework, arise from low levels of attachments to peers, family, and the community, moral beliefs and attitudes toward life, involvement in moral activities or morals learned through family interactions, and an investment in the social structure (Hirschi, 1969). The main assumption in Social Control Theory is that positive social attachments help deter adolescent delinquency (Hirschi, 1969). Adolescents with weak social bonds therefore continually seek out low quality attachments to peers to mimic the low quality of attachments formed from family and other institutional systems (Houtzager & Baerveldt, 1999), or lack the positive attachments to prevent a delinquent act. Also in this perspective, an adolescent's involvement in anti-social behavior will be linked to the anti-social behavior of the peer group, but not caused by the peer group but rather a commonality in the weakness (low levels attachment) of the social bonds (Hirschi, 1969).

Family research has also documented positive parenting practices, such as communication and monitoring, contribute to the development of adolescent social competency and psychological resources (Simons et al., 2007; Whitbeck et al., 1993). That is, adolescents that have warm, communicative, and monitoring parents are more likely to have higher levels of social competency and mastery as well as fewer deviant relationships and anti-social behaviors

(Whitebeck et al., 1993). Conversely, negative parenting practices, such as harsh discipline, rejection, and a negative self efficacy about parenting can also influence an adolescent's social bonds and subsequent involvement in delinquent behaviors (Dodge, 1980, 1996). Attachment Theory argues that developmental experiences affect how an individual views themselves and others (Ainsworth et al., 1978; Bowlby, 1969). Negative experiences through negative parental practices could be affecting the quality of social bonds and involvement in anti-social behavior (Lyons-Ruth, 1996; Simons et al., 2007). Thus, parental practices may exert direct influences and indirect influences through deviant peer affiliations on adolescent anti-social behaviors.

Mediatinal role of Psychological Resources (Mastery)

As shown in Figure 1, the current study hypothesizes that the relationship between parental practices and deviant relationships will be mediated by psychological resources as assessed by mastery in the current study. Mastery is defined as the control one has over decision making, understanding of a situation, helplessness, and general self-efficacy (Hoffmann & Cerbone, 1999). The next section of the paper will discuss the multiple indicators that are used to build the construct of psychological resources.

Mastery. Family research has documented that positive and negative parental practices contribute to the development of psychological resources such as mastery (Whitbeck et al., 1993). Positive parenting can improve an adolescent's levels of mastery, and negative parenting can decrease mastery (Simons et al., 2007). Mastery, in turn, can influence deviant peer relationships (directly) as well as indirectly and directly influencing adolescent anti-social behavior (Lillehoj et al., 2004; Simons et al., 2004, 2007; Whitbeck et al., 1993). Consistent with Self-determination theory (Wild, Cunningham, & Ryan, 2006), adolescents with high levels

of psychological resources initiate and maintain positive behaviors (Gottfredson & Hirschi, 1990). Conversely, General Strain Theory (Agnew 1992, 1997) posits that an adolescent low in psychological mastery would thus lack the ability to avoid or suppress stressors and be more apt to having more general strain from habitual stress from events in adolescence. Research has shown that adverse situations and life events can generate feelings of anxiety, anger, and frustration (Attar et al., 1997), leading to involvement in anti-social behavior (Agnew, 1992, 1997; Guerra et al., 1995). Previous research has also found a link between involvement in adolescent anti-social behavior and psychological coping mechanisms/resources, such as mastery, within the adolescent (Brezina, 1996). Thus, General Strain Theory posits that an adolescent that habitually copes with a great deal of stress will have higher levels of strain if they possess fewer positive coping mechanisms/resources (Agnew 1992, 1997). Adolescents that possess fewer positive coping mechanisms/resources may be more apt to have deviant relationships with peers and be involved in anti-social behaviors in an effort to cope with stress (Dodge, 1980, 1986; Houtzager & Baerveldt, 1999; Whitbeck et al, 1993).

Previous literature has established an association between mastery and anti-social externalized behavior (Brezina, 1996). However, previous studies have yet to assess psychological resources, such as mastery, as a mediator/moderator in the relationship between fathers' and mothers' negative parental practices and deviant relationships in one succinct study (Simons et al., 2004). Also, previous studies have yet to fully explore the indirect effects of how mothers' and fathers' negative parental practices influences mastery, how mastery subsequently influences deviant relationships, and finally how deviant relationships influences adolescent anti-social behavior in one succinct model (Simons et al., 2004). As seen in Figure 2, the current study employs an SEM framework that allows for the estimation of all possible direct and

indirect pathways from mothers' and fathers' negative parental practices to adolescent anti-social behavior.

Specific Study Hypotheses

Building on the above empirical and theoretical evidence, the current study proposes the following specific hypotheses as depicted in Figure 1 and Figure 2:

- 1) Mothers' negative parental practices directly influence adolescent anti-social behaviors.
- 2) Mothers' negative parental practices directly influence an adolescent's deviant relationships.
- 3) Mothers' negative parental practices directly influence an adolescent's mastery.
- 4) Fathers' negative parental practices directly influence adolescent anti-social behaviors.
- 5) Fathers' negative parental practices directly influence an adolescent's deviant relationships.
- 6) Fathers' negative parental practices directly influence an adolescent's mastery.
- 7) Mastery directly influences deviant relationships and anti-social behavior.
- 8) Deviant relationships directly influence anti-social behavior.
- 9) Mastery indirectly influences anti-social behavior through deviant relationships.
- 10) The relationships between fathers' and mothers' negative parental practices and anti-social behavior (uniquely) are mediated by an adolescent's deviant relationships.
- 11) The relationship between fathers' negative parental practices and anti-social behavior is moderated by the level of an adolescent's deviant relationships.
- 12) The relationship between mothers' negative parental practices and anti-social behavior is moderated by the level of an adolescent's deviant relationships.
- 13) The relationships between fathers' and mothers' negative parental practices and deviant relationships (uniquely) are mediated by an adolescent's mastery.

- 14) The relationship between fathers' negative parental practices and deviant relationships is moderated by an adolescent's mastery.
- 15) The relationship between mothers' negative parental practices and deviant relationships is moderated by an adolescent's mastery.
- 16) The relationship between fathers' negative parental practices and adolescent anti-social behavior is moderated by the level of an adolescent's mastery.
- 17) The relationship between mothers' negative parental practices and adolescent anti-social behavior is moderated by the level of an adolescent's mastery.
- 18) The relationships between fathers' and mothers' negative parental practices (uniquely) and anti-social behavior is mediated by an adolescent's mastery.

METHODS

Sample

The data for the current study originated from the Iowa Youth and Families Project (IYFP). The IYFP study began in 1989 when the target families' adolescent was in seventh grade and in the age range of 12-14 years of age with at least 1 sibling within 4 years of the target adolescent (Conger et al., 1992). The IYFP data sampled adolescent males and females, and their families across 8 counties in North Central Iowa. Eligibility of participation required that the family lived in an agriculturally dependent rural community with a population less than 6,500 (Conger et al., 1992; Simons, Simons, & Conger, 2004). The random sample of 451 was gathered from all possible high school students that met the participation requirements in these counties. The entry requirements in the study consisted of a dual parent family structure of a mother and father in the parental role and at least one sibling. This dataset is unique in that both mothers and fathers were sampled in regards to mental health variables, physical health, socioeconomic variables, and many other variables. In addition, the data set included information on the target adolescent's sibling. However, sibling information was not included in the current study.

Data for the current study's analyses originated from Wave 2 (N=424) and Wave 3 (N=407) of the IYFP longitudinal study. Predictor variables of father and mother of communication, monitoring, rejection, harsh discipline, and negative efficacy were gathered through self reported measures at Wave 2 (1990). Adolescent mastery was assessed through the target adolescent's self-report at Wave 2. The adolescents were in 8th grade and in the age range of 13-15 years of age when information on the predictor variables was gathered in 1990. Wave 3 of the longitudinal IYFP study produced information on the outcome variables, deviant

relationships and adolescent anti-social behavior, in 1991. These outcome variables consisted of deviant behavior of the adolescent's peer group, distance with friends, and self-reported involvement in anti-social behavior. Having Wave 2 predictors and Wave 3 outcomes allows for strong generalizability in the associations that are discovered through structural equation modeling.

At the time of the initial wave in 1989, 34% of families lived on a farm, around 12% lived in rural areas but not specifically on a farm, and 54% of families lived in rural communities with a population less than 6,500 (Conger et al., 1992). The median family income of the previous year of the study (1988) was \$33,000 and 11% of the families in the IYFP data set had a median income that fell below the federal poverty line (Conger et al., 1992). The median number of years of education was 13 years for fathers and mothers, and the median age for fathers was 39 years and 37 years of age for mothers (Conger et al., 1992). The average number of family members for the IYFP sample in 1989 was 4.95 children (Conger et al., 1992). Around 53% of the targeted adolescents were female and 47% were male.

Procedure

Families were contacted prior to participation and information regarding participation was obtained through letters in the mail and telephone based interactions. Around 78% of the participants who were contacted agreed to participate in the current study. Families were subsequently compensated around 10 dollars per hour for their time and involvement in the original IYFP study.

Data for the IYFP study originated through home visit methodologies (Conger et al., 1992). For each wave, families were interviewed at 2 different times. At the first visit, each of the 4 family members was asked demographic, family economic circumstances, family

characteristics, and self-reports on behavior and cognitions/attitudes through surveys (Conger et al., 1992). The second home visit, within 2 weeks of the first visit, consisted of the family completing a structured task to assess interactions within the families. Families were video-taped during these structured tasks and these video tapes were coded using trained observational coders (Conger et al., 1992; Melby & Conger, 2001). Coders were trained using the Iowa Families Interactions Rating Scales (IFIRS) developed by Janet Melby and colleagues at the Institute for Social and Behavioral Research at Iowa State University (Melby et al., 1998). Coders were required to have a minimum of a bachelor's degree in science, humanities, literature, or education (Melby & Conger, 2001) and work no more than 20 hours a week due to the high intensity of the job. Coders were trained for 10-12 weeks at 20 hours per week in order to achieve a high level of agreement (Melby & Conger, 2001). Observational coders were accepted into the pool of observers if they were 90% correct on coding responses for a series of written tests and correct on responses 80% on a final criterion video tape of a structured task (Melby & Conger, 2001). This results in a trained agreement level between coders at 80%.

Data from the current study only utilized the first home visit in which survey information was gathered. The current study did not utilize information gathered at the second home visit in which observational data was gathered on a structured task. For more information on the observational data techniques used in the IYFP sample, see Melby & Conger (2001).

Measures

Defining Latent Constructs

The current study contends that father and mother rejection, harsh discipline, and parenting beliefs (negative efficacy) are all observed dimensions of the latent construct of negative parenting. Likewise, parental behaviors such as monitoring also tap into the construct of parental

involvement. Thus, the current study contends that monitoring and communication are both dimensions of parental involvement, but should be treated as separate dimensions as they tap slightly different constructs (Loeber et al., 2000) of the latent construct of parenting. The current study also contends that the anti-social behavior of an adolescent's peer group and the distance an adolescent feels toward their peer group are separate dimensions of the latent construct of deviant relationships. Negative parental practices for fathers and mothers are defined as parental behaviors, emotions, and attitudes a parent exhibits toward their child. Deviant relationships are relationships that lack closeness (or a distance in the relationship) and demonstrate externalized anti-social behaviors. Definitions for rejection, harsh discipline, negative efficacy, monitoring, and communication can all be found in the measures section. The operationalized structural equation model (SEM) can be seen in Figure 2. The operationalized model in Figure 2 depicts latent variables with multiple indicators as well as hypothesized pathways.

Based on a review of the literature, the following measures were used in the current study:

Father and Mother Communication. Father and mother communication is defined as the amount that the parent perceives they are communicating their feelings, needs, wants, and rules to the adolescent and engaging in reciprocal communication. Parental communication was uniquely assessed for both mothers and fathers and the items for each parent were identical. Father and mother communication in the current study was assessed from 10 items from the father and mother questionnaire at Wave 2 of the IYFP study adapted from Thornberry and colleagues (1989). Direct mother and father reports of communication did not prove to be significant. During the first home visit, fathers and mothers were asked to report parenting behavior of both their mother and father on a scale from 1 (always) to 5 (never) regarding “on a

weekly basis, how often do you and this child have serious arguments?”, “how often do the same problems between you and this child come up again and again and never seem to get solved?”, “when you and this child have a problem, how often can the two of you figure out how to deal with it?”, “how often do you ask this child what he/she thinks before deciding on family matters that involve him/her?”, “how often do you give reasons to the target child for your decisions?”, “How often do you ask this child what he/she thinks before making decisions that affect him or her?”, “when he/she doesn’t know why you make certain rules, how often do you explain the reasons?”, “how often do you discipline this child by reasoning, explaining, or talking to him/her?”, and “when this child has done something you like, or approve of, how often do you let him/her know you are pleased about it?” Scores on the first two items were reverse-coded, missing values were given a system missing value, and all items were then summed which created a summed score in which higher levels on the summed scored composite scale reflect lower levels of communication behaviors and higher levels of negative parenting. The summed composite scale was then divided by the number of items (10 items) to create a mean score of father and mother communication in which higher scores reflect lower communication. The internal consistency (Cronbach’s Alpha) of the scale equaled .83 for fathers and .82 for mothers. The internal consistency of both scales is more than acceptable based on the benchmark of .70.

Father and Mother Monitoring. Father and mother monitoring is defined as the perceived knowledge a parent has about the target adolescent’s daily life and activities as well as knowledge of the adolescent’s peer group. Fathers and mother were both uniquely asked the same questions during the first home visit at Wave 2 of the IYFP study. Father and mother monitoring in the current study was assessed from 6 items from the target adolescent’s questionnaire adapted from Thornberry and colleagues (1989). During the first home visit,

fathers and mothers were asked to report on their self-reported/knowledge of their child's activities behavior on a scale from 1 (always) to 5 (never) regarding "in the course of the day, how often do you know where he/she is?", "how often do you know who this child is with when he/she's away from home?", "how often do you talk with this child about what is going on in his/her life?", "how often does he/she have a set time to be home or in bed on weekend nights?", "how often do you know if he/she came home or was in bed by the set time?", and "how often do you too busy or unavailable to do things with this child?" Scores on the last item were reverse-coded and all items were then summed creating a composite score in which higher levels of the summed composite score reflect lower levels of monitoring behaviors by parents, or high negative parenting. The sum of the scores on items were then divided by 6 (the number of items) to create a mean score for the scale. The internal consistency (Cronbach's Alpha) of the scale for fathers equaled .63 and .54 for mothers. The internal consistency of the father scale is low but acceptable, and the internal consistency of the mother monitoring scale is slightly low but acceptable for the current analysis based on the benchmark of an internal consistency equal to .70.

Father and Mother Rejection. Father and mother rejection is defined as the self-reported level of trust, feelings of love, judgments of the adolescent's personal character, and general satisfaction that fathers and mothers have toward their child. Fathers and mother were both uniquely asked the same questions during the first home visit at Wave 2 of the IYFP study. Father and mother rejection in the current study was assessed from 5 items from the target adolescent's questionnaire adapted from Brennen (1974). During the first home visit, fathers and mothers were asked to report on their feelings toward their child on a scale from 1 (strongly agree) to 5 (strongly disagree) regarding "I really trust this child?", "I feel he/she has a number

of faults?”, “I experience strong feelings of love from him/her?”, “I am dissatisfied (unhappy) with the things he/she does?”, and “I feel he/she causes me a lot of problems?” None of the scores on this scale were reverse coded in order to reflect negative parenting and all items were then summed creating a composite score in which higher levels of the summed composite score reflect higher levels of rejection attitudes by parents, or high negative parenting. The sum of the scores on items were then divided by 5 (the number of items) to create a mean score for the scale. The internal consistency (Cronbach’s Alpha) of the scale for fathers equaled .73 and .75 for mothers. The internal consistency of both scales is more than acceptable for the current analysis.

Father and Mother’s Harsh Discipline. Father and mother’s harsh discipline is defined as the self-reported reaction to how the child misbehaves or violates the rules. Harsh discipline also involves the parent’s self-reported yelling, screaming, and physically punitive behaviors. Fathers and mother were both uniquely asked the same items during the first home visit at Wave 2 of the IYFP study. Father and mother’s harsh discipline in the current study was assessed from 3 items from the father and mother questionnaire adapted from Thornberry and colleagues (1989). During the first home visit, fathers and mothers were asked to report on their self-reported disciplining techniques toward their child on a scale from 1 (Always) to 5 (Never) regarding “when this child does something wrong, how often do you lose your temper and yell at him/her?”, “how often do you spank or slap this child when he/she does something wrong?”, and “when punishing this child, how often do you hit him/her with a belt, paddle, or something else?” The scores on this scale were reverse coded in order to reflect negative parenting and all items were then summed creating a composite score in which higher levels of the summed composite score reflect higher levels of harsh discipline by parents, or high negative parenting.

The sum of the scores on items were then divided by 3 (the number of items) to create a mean score for the scale. The internal consistency (Cronbach's Alpha) of the scale for fathers equaled .53 and .53 for mothers. The internal consistency of both scales is slightly low (compared to a benchmark of .70) as most parents tended to score low on this scale, but the scale is very useful and the alpha level is acceptable for the current SEM analysis. The low internal consistency could also be attributed only having 3 items for this scale.

Mothers' and Fathers' Negative Efficacy. Mothers' and fathers' negative efficacy are parental beliefs about how much fathers and mothers directly influence or help their child with their parenting. Fathers and mother were both uniquely asked the same items during the first home visit at Wave 2 of the IYFP study. Fathers' and mother's negative efficacy in the current study was assessed from 8 items from the father and mother questionnaire adapted from Thornberry and colleagues (1989). During the first home visit, fathers and mothers were asked to report on their self-reported disciplining techniques toward their child on a scale from 1 (Not at all) to 5 (A great deal) regarding "how much can you help the target child get good grades?", "how much can you help the target avoid getting involved with the wrong crowd of friends?", "how much can you help the target understand and share your values?", "how much can you help the target understand that hard work pays off?", "how much can you help the target develop his/her talents?", "how much can you help the target avoid drinking and drug use?", "how much can you help the target avoid having sex too early?", "how much can you help the target avoid serious accidents with machinery, vehicles, or firearms?" The scores on this scale were reverse coded in order to reflect negative parenting and all items were then summed creating a composite score in which higher levels of the summed composite score reflect higher levels of negative efficacy inherent in parents, or high negative parenting. The sum of the scores on items were

then divided by 8 (the number of items) to create a mean score for the scale. The internal consistency (Cronbach's Alpha) of the scale for fathers equaled .81 and .83 for mothers. The internal consistency of both scales was more than acceptable.

Adolescent Mastery. Adolescent mastery is defined as the amount the target adolescent perceives that they can deal, cope, and control any situation that comes their way. Often, adolescent mastery is utilizing resources and understanding situations so as to not internalize the problematic situation into problematic cognitions/behavior; thus, mastery is an extension of psychological resources. Adolescent mastery in the current study was assessed from 7 items from the target adolescent's questionnaire adapted from Pearlin and colleagues (1981). During the first home visit, adolescents were asked to report on their perceived level of adolescent mastery and how they cope with situations on a scale from 1 (strongly agree) to 5 (strongly disagree) regarding "there is really no way I can solve some of the problems I have.", "sometimes I feel I am being pushed around in life.", "I have little control over the things that happen to me.", "I can do just about anything I really set my mind to.", "I often feel helpless in dealing with the problems in life.", "what happens to me in the future mostly depends on me.", and "there is little I can do to change many of the important things in my life." Scores on the first three items, the fifth item, and the seventh item were reverse-coded. Scores on the items were then summed in which higher levels of the summed score reflect higher levels of adolescent mastery. The sum of the scores on items were then divided by 7 (the number of items) to create a mean score for the scale. The internal consistency (Cronbach's Alpha) of the scale equaled .74 which is an acceptable internal consistency.

Deviant Peers. Deviant peers in the current study is defined as the anti-social behaviors that an adolescent's peer group is involved in as reported by the adolescent. Deviant peers or

deviant behaviors of peers in the current study were assessed from 5 items from the target adolescent's questionnaire during Wave 3 (1991) adapted from Conger and colleagues (1992). During the first home visit, adolescents were asked to report on the perceived anti-social behaviors of the peer group on a scale from 1 (strongly agree) to 5 (strongly disagree) regarding "these friends sometimes get into trouble with the police.", "these friends sometimes break the law.", "these friends don't get along very well with their parents.", "these friends don't like school very much", and "these friends get bad grades in school." Scores on all items were reverse-coded. Scores on the items were then summed in which higher levels of the summed score reflect higher levels of deviant peers involved in anti-social behaviors. The sum of the scores on items were then divided by 5 (the number of items) to create a mean score for the scale. The internal consistency (Cronbach's Alpha) of the scale equaled .86 which is more than an acceptable internal consistency.

Distance with Friends. Distance with friends in the current study is defined as the perceived level of attachment, relationship quality, similarity, and acceptance an adolescent experiences from their peer group. Distance with friends in the current study was assessed from 5 items from the target adolescent's questionnaire during Wave 3 (1991) adapted from Conger and colleagues (1992). During the first home visit, adolescents were asked to report on the perceived closeness with friends on a scale from 1 (strongly agree) to 5 (strongly disagree) regarding "I can depend on these friends for help or advice when I need it.", "these friends are the kind of people I like to spend time with.", "I'd like to be just like most of these friends.", "these friends care about me.", and "these friends always criticize me." Scores on the first four items were reverse-coded to reflect negative parental practices. Scores on the items were then summed in which higher levels of the summed score reflect lower levels of friend closeness and

higher levels or a perceived distance between friends. The purpose of this scale is to assess the relationship quality related to an adolescent's social group. The sum of the scores on items were then divided by 5 (the number of items) to create a mean score for the scale. The internal consistency (Cronbach's Alpha) of the scale equaled .77 which is more than an acceptable internal consistency.

Adolescent Anti-social Behavior. The IYFP longitudinal contained a rich source of data on adolescent substance use and delinquent behavior. However, these behaviors are very specific and highly skewed as a majority of adolescents reported no involvement in substances or delinquent behaviors. However, substance use and delinquent behaviors are broader concepts of anti-social behavior. The IYFP data contained information on an adolescent's involvement in anti-social behavior. This distribution was much more normal in shape and allowed for stronger associations with predictors. Anti-social behaviors are defined as an adolescent's behavior that is against community, family, and social norms but not necessarily law based delinquent behaviors. Anti-social behavior is inappropriate behavior toward others, authority figures, or willingness to violate rules. Adolescents may be more apt to self-disclose non-illegal or "non-delinquent" behaviors compared to illegal activities or delinquent behaviors. Adolescent anti-social behaviors in the current study were assessed from 8 items from the target adolescent's questionnaire. During the first home visit, adolescents were asked to report on their possible anti-social behavior to various situations on a scale from 1 (not at all) to 5 (exactly) regarding "if someone hits me first, I let them have it.", "when someone makes a rule I don't like, I want to break it.", "when I get mad, I say nasty things.", "when people yell at me, I yell back.", "if someone annoys me, I tell him/her what I think of him/her.", "when someone is bossy, I do the opposite of what he/she asks.", "if I have to use physical violence to defend my rights, I will.",

and “I do whatever I have to in order to get what I want.” None of the items were reverse-coded. Scores on the items were then summed in which higher levels of the summed score reflect higher levels of self-reported anti-social behavior. The sum of the scores on items were then divided by 8 (the number of items) to create a mean score for the scale. The internal consistency (Cronbach’s Alpha) of the scale was .86 which is more than an acceptable internal consistency.

Controls

Mothers’ and Fathers’ Education. The education level for mothers and fathers was uniquely assessed in the current study as a proxy for socioeconomic status. Both mothers and fathers were uniquely asked: “what is your highest grade of education completed or enrolled in currently.” Responses ranged from “high school graduate or GED”, “1 year of college, vocational, or technical training”, “2 years of college, associate degree”, “3 years of college”, “B.S. or B.A.”, “bachelor’s plus”, “M.S. or M.A.”, “masters plus”, “Ph.D., J.D., D.D.S., M.D., D.V.M., etc.”, “kindergarten”, “completed school in England”, and “special ed class/autistic classes.” Scores on this scale were coded categorically.

Mothers’ and Fathers’ Age. Mothers and fathers were asked to provide their age. Mothers, fathers, and the target adolescent simply reported their age given the statement “age of household member.”

Gender of the Target Adolescent. The current study also assessed the gender of the adolescent through a self-reported item. Gender was coded as 0 equaling females and a 1 was allocated to males.

Analytical Plan

Prior to the testing of hypotheses, descriptive statistics will be calculated for all of the study measures included in the current study. These descriptive statistics will include means,

ranges, standard deviations, skewness, and Cronbach's alpha. Table 1 displays these statistics and Table 2 displays the correlations for the current study. Furthermore, Figure 2 displays the theoretical model using multiple indicators. Figure 6 displays the operationalized model with Standardized *beta* weights. The current study uses Structural Equation Modeling (SEM) to assess the predictors from Wave 2 as they influence deviant relationships and anti-social behavior at Wave 3. SEM in the current study was employed to reduce the impact of measurement error and analyze two years of data in one succinct causal model. The latent constructs of fathers' and mothers' negative parental practices are captured by five multiple indicators which include monitoring, communication, negative efficacy, rejection, and harsh discipline for each gender of the parent. Also, the latent construct of deviant relationships is also calculated using two multiple indicators which include deviant peers and distance with friends. The constructs of mastery and anti-social behavior are measured directly by self-reported measures. These observed measures were constructed by summing scores of individual items and dividing the total of the items by the number of items to achieve a mean score.

A structural equation modeling (SEM) framework will be utilized in the current study. The computer software program, MPLUS version 5.0, will be utilized to estimate standardized and unstandardized coefficients for all paths in the SEM model. The default missing data program in MPLUS version 5.0 is to use FIML (full-information maximum likelihood) to impute missing data for all missing values. Also, model fit information will be calculated using *Chi-Square*, *Root Mean Squared Error Approximation* (RMSEA), and *Comparative Fit Indices* (CFI) (Bollen & Long, 1993). The SEM framework will allow for the current study to test hypotheses 1-7 and hypothesis 9. These are the direct pathways in the SEM framework. The current study utilizes correlated error between identical measures for fathers' and mothers' negative parental

practice scales. For example, father rejection and mother rejection, and the other parental practice scales were allowed to have correlated error. Errors between non-identical scales between mothers' and fathers' negative parental practice scales were not allowed to be correlated.

Mediation effects will also be assessed using the nested modeling approach in the SEM framework (Baron & Kenny, 1986). The first step in this analysis is to employ an SEM model in which the latent constructs of fathers' and mothers' negative parental practices directly influence adolescent anti-social behavior. The second step in the mediation analysis is to create a model in the SEM framework in which the latent constructs of fathers' and mothers' negative parenting directly influence adolescent anti-social behavior, as well as mothers' and fathers' negative parental practices directly influencing deviant relationships. This model also includes an indirect pathway through which fathers' and mothers' negative parental practices influence adolescent anti-social behavior through deviant relationships. The final step is to compare the operationalized, as documented in Figure 6, with the mediation models (Figures 4 and 5). These models will be compared and discussed in the results section in order to address hypotheses 10, 13, and 18.

Moderation effects will be assessed using a stacked model approach (Wickrama et al., 1995) using MPLUS version 5.0. In this approach, factor loadings are constrained to be equal and the path coefficients are allowed to be different in one model for the low and the high groups based on a median split of the grouping variable. A second model was analyzed in which the factor loadings are held constant and the path coefficients are also held constant for the low and the high groups based on a median split. According to Bentler and Bonett (1980) a χ^2 difference can be calculated for model 2 subtracted from model 1. The χ^2 difference will have degrees of

freedom equal to the degrees of freedom of model 2 minus model 1 and will be normally distributed. This χ^2 difference test will allow for the test of significance for any significant interactions or moderations between high and low groups for hypotheses 11, 12, and 14-17.

Also, the current study will examine a series of cross lagged models to strengthen the hypothesized associations of the current theoretical model using MPLUS 5.0. The cross lagged models will examine the directional influences of the current study's variables. Specifically, the current study will examine a cross lagged model for mastery and deviant relationships where information is gathered at 1990 and 1991 for both variables in order to determine the direction of the cross lags. The second cross lagged model will analyze deviant relationships and adolescent anti-social behavior at 1990 and 1991 to determine the directional pathways.

RESULTS

Descriptive Statistics of Study Variables

Table 1 provides an overview of the descriptive statistics of study variables for the current study. The means for all study measures assessing negative parental practices for fathers and mothers ranged from 1.72-2.26 for monitoring, communication, rejection, harsh discipline, and negative efficacy. For self-report measures, communication for fathers (2.26) and mothers (2.09) were the highest means suggesting that some fathers and mothers are communicating well with their children (a low mean) while some are not communicating as well (a high scale mean). The standard deviations of these scales range from .36 to .59. For the most part, skewness isn't an issue for the current study variables. Harsh discipline by fathers and parental rejection for fathers and mothers were the most skewed variables amongst predictors. However, this skewness is to be expected based on the nature of the study variables and the self-report measurement technique which is subject to a potential positive bias in the answers.

Table 1 also provides an overview of the outcome variables for the current study. These variables include mastery, distance with friends, deviant peers, and anti-social behaviors. Mastery had a mean of 3.54 and a standard deviation of .73. This scale is also slightly skewed (-4.67). An adolescent's distance with friends had a low mean of 1.65 meaning that a majority of adolescents are self-reporting that they are close with their friends. The standard deviation for this measure was equal to .54. This variable was also the most skewed of any variable in the current study (8.30), but that is to be expected. Deviant peers and anti-social behaviors displayed similar means (2.12, 2.57) and standard deviations (.67, .78). Anti-social behavior is slightly skewed (4.23), but the deviant peers study measure is close to normal in shape (2.53). In whole, most of the study variables are slightly skewed. This, however, is to be expected as there is a

tendency for respondents to respond to items in a more positive light and for adolescent's to not disclose their personal or friend's involvement in delinquent acts.

Correlations Among Study Variables

Table 2 provides information on the correlations among study variables. A general trend was observed for the correlations amongst study variables. For all mother parental practice scales, a significant correlation was observed between predictor measures. These correlations ranged from .11 to .50 and were significant at the .01 level. For most of fathers' negative parental practice scales, a significant correlation was observed between predictor measures. These correlations ranged from .16 to .51 and were significant at the .01 level. However, a significant correlation was not observed between fathers' harsh discipline and fathers' negative efficacy. Significant correlations were also observed between fathers' and mothers' negative parental practice scales. Father and mother monitoring, father monitoring and mother communication, father monitoring and mother's negative efficacy, mother monitoring and father communication, mother monitoring and fathers' harsh discipline, mother monitoring and father rejection, mother monitoring and fathers' negative efficacy, father and mother communication, father communication and mothers' harsh discipline, father communication and mother rejection, father communication and mothers' negative efficacy, mother communication and fathers' harsh discipline, mother communication and father rejection, fathers' and mothers' harsh discipline, fathers' harsh discipline and mother rejection, mothers' harsh discipline and father rejection, father and mother rejection, father rejection and mothers' negative efficacy, and fathers' and mothers' negative efficacy were all significant at the .05 level. These correlations ranged from .10 to .57.

For the outcome variables, mastery was significantly correlated with father and mother monitoring, father and mother communication, fathers' and mothers' harsh discipline, father and mother rejection, fathers' negative efficacy, deviant peers, distance to friends, deviant peers, and anti-social behavior. These correlations are all negative in direction meaning that as scores on mastery increase, scores on the other measures decrease. The scale deviant peers is significantly correlated with mother communication, mothers' negative efficacy, distance with friends, and anti-social behavior. The distance with friends scale is also significantly correlated with father monitoring, mother communication, mothers' harsh discipline, father rejection, and fathers' negative efficacy. Anti-social behavior was significantly correlated with mother communication, fathers' harsh discipline, father and mother rejection, and mothers' negative efficacy.

The Measurement Model

The measurement model of the current study can be found in Figure 3. This model depicts fathers' and mothers' negative parental practices with multiple indicators based on the parenting measures. The factor loadings of this model can be seen in Tables 3 and 4. Each of the factor loadings significantly loaded on fathers' and mothers' negative parental practices ($p < .01$). Also, Figure 3 documents the residual correlations between identical study measures for fathers and mothers. Each of these correlations was significant ($p < .01$). Confirmatory factor analysis of the measurement model showed a significant correlation between fathers' and mothers' negative parental practices constructs estimated at .51 ($p < .01$). Confirmatory factor analysis also revealed a high CFI (.96) and a low RMSEA of .04 suggesting a good overall fit of the measurement model to the data. This model had a χ^2 value of 72.83 with 29 degrees of freedom. A confirmatory factor analysis model that constrained factor loadings was also analyzed. This model had a χ^2 value of 81.67 with 33 degrees of freedom. The χ^2 difference

between models was 8.84 with 4 degrees of freedom. This is significant, which means that fathers' and mothers' negative parental practices are unique constructs with independent factor loadings. This finding, along with a moderate correlation of .51 provides evidence for discriminant validity between the negative parental practices of mothers and fathers is moderate in strength, but low enough to suggest that fathers' and mothers' negative parental practices are different constructs of the broader dimension of parenting. Later SEM models in the current study will take this significant correlation into account when estimating hypothesized pathways, and take into account the unique dimensions of negative parenting for fathers and mothers.

The Operationalized SEM Model

The results for the “main” or linear effects of the full operationalized model can be seen in Figure 6. The factor loadings of the study variables for the full operationalized model can be seen in Figure 3, Table 3 (for fathers), and Table 4 (for mothers). All factor loadings for the parental practice predictor scales significantly loaded onto the latent construct of negative parental practices for fathers and mothers. Deviant peers ($\beta=.89$) and distance with friends ($\beta=.39$) also significantly loaded on the latent construct of deviant relationships ($p<.01$). The operationalized model had a χ^2 of 176.07 with 99 degrees of freedom. The ratio of χ^2 divided by the degrees of freedom equaled 1.78. According to Carmines and McIver (1981) a χ^2 divided by degrees of freedom ratio of less than 3.00 suggest a reasonable fit, thus confirming that this model is fitting the data very well. The p -value associated with this χ^2 was less than .01. This model is significant which suggests that there is a better fitting model that exists besides the hypothesized model. However, because of the sample size and the number of parameters, the significance of this χ^2 may not explain how well the model is fitting the data. The comparative fit index (CFI) of the operationalized model was .96 and the root mean squared error of

approximation (*RMSEA*) equaled .04. The *RMSEA* value of .04 and the *CFI* value of .96 also provide evidence that the model is fitting the data very well.

The operationalized model also controlled for the education and age of fathers and mothers, and the gender of the target adolescent. Mothers' education failed to significantly predict mastery ($\beta=.02, t=.39$), deviant relationships ($\beta=.06, t=.98$), and anti-social behavior ($\beta=-.05, t=-.91$). Interestingly, mothers' education was significantly correlated with fathers' negative parental practices ($r=-.11, t=-2.12$), but fathers' education failed to significantly correlate with mothers' negative parental practices. Fathers' education also failed to significantly associate with mastery ($\beta=.02, t=.40$), deviant relationships ($\beta=.02, t=.38$), and anti-social behavior ($\beta=-.06, t=-1.09$). Consistent with parental education, the age of mothers failed to significantly predict mastery ($\beta=.01, t=.15$), deviant relationships ($\beta=.05, t=.77$), and anti-social behavior ($\beta=-.02, t=-.29$). The age of fathers also failed to significantly predict mastery ($\beta=.00, t=.04$), deviant relationships ($\beta=.04, t=.61$), and anti-social behavior ($\beta=-.07, t=-1.13$). The gender of the target adolescent was also a control for the current study. The current study found that the target adolescent's gender failed to significantly predict mastery ($\beta=-.02, t=-.51$), deviant relationships ($\beta=.04, t=.72$), and anti-social behavior ($\beta=.00, t=.01$). The current study also assessed the potential moderating effects of gender for the operationalized model. Through χ^2 difference testing (Bentler & Bonett, 1980), a model constraining factor loadings and path coefficients was analyzed for females and males. The end result was a χ^2 difference of 34.8 with 45 degrees of freedom. This is not significant, thus the current study fails to find a significant moderating effect of gender of the target adolescent on the study findings. Direct pathway moderations will be examined later in this section.

The observed measures of the current study had varying *R-squared* values. For fathers, monitoring ($R^2=.30$), communication ($R^2=.89$), harsh discipline ($R^2=.14$), rejection ($R^2=.19$), and negative efficacy ($R^2=.19$) varied dramatically. These R^2 values were all significant ($p<.01$). For mothers, monitoring ($R^2=.30$), communication ($R^2=.80$), harsh discipline ($R^2=.19$), rejection ($R^2=.27$), and negative efficacy ($R^2=.11$) varied as well. These R^2 values were all significant ($p<.01$). Mastery had an R^2 value of .07 ($p<.01$), distance with friends had an R^2 value of .14 ($p<.01$), deviant peers had an R^2 value of .86 ($p<.01$), and anti-social behavior had an R^2 value equal to .23 ($p<.01$). These values varied due to fluctuating internal consistencies of the scales and separating mothers' and fathers' negative parental practices into unique constructs. Combining mothers' and fathers' negative parental practices into one general negative parenting construct could improve these R^2 values, but it would fail to assess the uniqueness in the constructs of fathers' and mothers' negative parental practices.

The first hypothesis of the current study is that maternal negative parental practices directly influence adolescent anti-social behavior. This hypothesis was not confirmed in the current study ($\beta=.06$, $t=.94$) as a significant relationship between maternal negative parental practices and adolescent anti-social behavior was not observed. The second hypothesis of the current study was that maternal negative parenting practices directly influence an adolescent's deviant relationships. This hypothesis was supported marginally in the current study ($\beta=.13$, $t=1.81$) at the .10 level. The standardized coefficient for this relationship can be interpreted as: a 1 unit standard deviation increase in maternal parenting practices results in a .13 standard deviation increase in deviant relationships. The third hypothesis of the current study was that maternal parenting practices directly influence an adolescent's mastery. This hypothesis was confirmed ($p<.05$) in the current study ($\beta=-.13$, $t=-2.00$).

The fourth hypothesis of the current study is that paternal negative parental practices directly influence adolescent anti-social behavior. This hypothesis was not confirmed ($p > .05$) in the current study ($\beta = .01, t = .17$). The fifth hypothesis of the current study was that paternal negative parenting practices directly influence an adolescent's deviant relationships. This hypothesis was also not confirmed in the current study ($\beta = -.04, t = -.63$). The sixth hypothesis of the current study was that negative paternal parenting practices directly influence an adolescent's mastery. This hypothesis was confirmed ($p < .05$) in the current study ($\beta = -.18, t = -2.77$) as a significant relationship was observed between paternal parental practices and adolescent mastery ($p = .01$). A significant relationship was also observed between adolescent mastery and deviant relationships ($\beta = -.26, t = -4.40$). This provides evidence in support of the seventh hypothesis: mastery negatively influences deviant relationships. However, a significant relationship was not observed ($p > .05$) between adolescent mastery and anti-social behavior ($\beta = .07, t = 1.23$). The eighth hypothesis of the current study states that deviant relationships will directly influence adolescent anti-social behavior. The current study observed a significant relationship ($p < .05$) between the deviant relationships of an adolescent and their anti-social behaviors ($\beta = .47, t = 8.26$), thus providing evidence in favor of the eighth hypothesis. The ninth hypothesis is that mastery indirectly effects anti-social behavior through deviant relationships. This hypothesis was confirmed as a significant relationship was observed between adolescent mastery and deviant relationships, and a significant relationship between deviant relationships and adolescent anti-social behavior. However, a significant direct relationship between mastery and anti-social behavior was not observed arguing for an indirect influence of mastery on anti-social behavior through deviant relationships. A summary of hypotheses results can be seen in Table 6.

Cross Lagged Models

The current study also examined several cross lagged models to determine the validity of the hypothesized directional associations in the operationalized model of the current study. The first cross lagged model examined mastery at 1990 and 1991 and deviant relationships at 1990 and 1991. The correlation between mastery and deviant relationships at 1990 was found to equal $-.37$ ($p < .01$). The correlation between mastery and deviant relationships at 1991 was found to equal $-.20$ ($p < .01$). Mastery at 1990 significantly predicted mastery at 1991 ($\beta = .47$, $p < .01$) and deviant relationships at 1990 was found to significantly predict deviant relationships at 1991 ($\beta = .50$, $p < .01$). Deviant relationships at 1990 failed to significantly predict mastery at 1991 after controlling for mastery at 1990 ($\beta = -.08$, $p > .05$). However, mastery at 1990 significantly predicted deviant relationships at 1991 after controlling for deviant relationships at 1990 ($\beta = -.11$, $p < .05$). This significant pathway provides evidence in favor of the hypothesized directional association of mastery and deviant relationships in the operationalized model. In other words, the results of the cross-lagged model provide evidence that mastery at 1990 influences deviant relationships and not the reverse, providing evidence of the directional hypotheses of the operationalized model. However, the magnitude of the standardized *Beta* weights only differs by $.03$. This is a small difference, but a significant difference.

A second cross lagged model was examined to address the directional association between deviant relationships (1990 and 1991) and anti-social behavior (1990 and 1991). Anti-social behavior at 1990 significantly correlated with deviant relationships at 1990 ($r = .30$, $p < .01$). Anti-social behavior at 1991 also significantly correlated with deviant relationships at 1991 ($r = .12$, $p < .05$). Anti-social behavior at 1990 also significantly predicted anti-social behavior at 1991 ($\beta = .61$, $p < .01$). Deviant relationships at 1990 significantly predicted deviant relationships

at 1991 ($\beta=.48, p<.01$). The cross lagged model also revealed that anti-social behavior at 1990 significantly predicted deviant relationships at 1991 ($\beta=.21, p<.01$) after controlling for deviant relationships at 1990. The cross lagged model similarly resulted in deviant relationships at 1990 significantly predicting anti-social behavior at 1991 ($\beta=.08, p<.05$) after controlling for anti-social behavior at 1990. Both cross lags are significant in this model suggesting reciprocal causation. However, based on the literature for Social (In)ability Theory (Hansell & Wiatrowski, 1981) and the results of the previous cross lagged model, we have evidence in favor of the directional pathways hypothesized in the operationalized model for the current study.

Mediations of the Current Study

The models that will be used to assess the mediations of the current study can be seen in Figures 3, 4, and the operationalized model in Figure 6. Figure 4 presents a simple SEM model in which fathers' and mothers' negative parental practices directly influence adolescent anti-social behavior. Figure 5 presents an SEM model in which fathers' and mothers' negative parental practices influence deviant relationships and adolescent anti-social behavior.

The model in Figure 4 can be compared to Figure 5 to assess the mediational effects of deviant relationships on the association between mothers' and fathers' negative parental practices and adolescent anti-social behavior. The model in Figure 5 adds deviant relationships to the model in Figure 4 in order to address the tenth hypotheses of the current study. The model in Figure 4 found a significant pathway between mothers' negative parental practices and adolescent anti-social behavior, but not for fathers' negative parental practices and anti-social behavior. In Figure 5, the pathway between mothers' negative parental practices and adolescent anti-social behavior was not significant ($\beta=.08, t=1.16$). The pathway between mothers' negative parental practices and deviant relationships was significant in the model for Figure 5

($\beta=.14, t=2.01$). However, the pathway from fathers' negative parental practices and deviant relationships was not significant ($\beta=.00, t=-.08$). A significant pathway was also observed between deviant relationships and adolescent anti-social behavior ($\beta=.42, t=5.57$). The significant pathway between mothers' negative parental practices and anti-social behavior in Figure 4 is no longer significant in the model in Figure 5. The pathway between mothers' negative parental practices and deviant relationships was significant, and the pathway between deviant relationships and anti-social behavior was also significant in Figure 5. Thus, the current study argues that the relationship between mother's parental practices and anti-social behavior is mediated by deviant relationships based on the mediation methods proposed by Baron and Kenny (1986). However, a mediation effect was not confirmed for fathers due to a non-significant pathway between study variables in Figures 3 and 4. In summary, the tenth hypothesis of the current study was confirmed for mothers' but not for fathers' negative parental practices.

Another mediation to examine is whether mastery mediates the relationship between fathers' and mothers' negative parental practices and deviant relationships. To examine this, the current study will compare the model in Figure 5 with the operationalized model for the current study found in Figure 6. Recall that a significant relationship was found in Figure 5 between mothers' negative parental practices and deviant relationships, and between deviant relationships and anti-social behavior. In the hypothesized model of the current study in Figure 6, a significant relationship was observed between mothers' negative parental practices and mastery ($\beta=-.13, t=-2.01$). A significant relationship was also observed between mastery and deviant relationships ($\beta=-.26, t=-4.40$). However, a significant relationship was not observed between mothers' parental practices and deviant relationships as was found in the model in

Figure 6 ($\beta=.13, t=1.81$). This argues that the relationship between mothers' negative parental practices and deviant relationships of the adolescent is mediated by their psychological resources (mastery) (Baron & Kenny, 1986). However, this mediation was not found for fathers' negative parental practices. This does provide evidence in support of the thirteenth hypothesis for mothers but not for fathers. Also, the hypothesized model in the current study (as seen in Figure 6) found evidence of an indirect pathway between fathers' and mothers' negative parental practices on deviant relationships through adolescent mastery. This isn't mediation, as a significant pathway was observed between fathers' and mothers' negative parental practices and mastery as well as mastery and deviant relationship.

The eighteenth hypothesis of the current study argues that the relationship between negative parental practices for fathers and mothers (uniquely) and anti-social behavior will be mediated by an adolescent's mastery. An SEM model was ran to examine this mediation, but a non-significant pathway was found between an adolescent's mastery and anti-social behavior ($\beta=-.11, t=-1.73$). Based on the lack of significance, mastery failed to significantly mediate the relationship between fathers' and mothers' negative parental practices and anti-social behavior.

Moderations of the Current Study

The current study also tested the moderation effects of mastery and deviant relationships using a stacked model approach at which low and high groups were split at the mean (Baron & Kenny, 1986).

The median for mastery equaled 3.86 and the median for deviant relationships equaled 1.89. The low mastery group was below the median value of 3.86 and the high mastery group was at the median or higher. The low deviant relationship group was below the median value of 1.89 and the high deviant relationship group was at or above the median value. The current study

followed the procedure for a stacked models approach used by Wickrama and colleagues (1995) to test for moderations of study variables. In this approach, the factor loadings of the low and high group for mastery and deviant relationships were constrained to be equal. This was the formation of the “combined” model. A second model was analyzed in which the pathways between fathers’ and mothers’ negative parental practices and outcome variables were constrained to be equal. The models can then be compared using a χ^2 difference test (Bentler & Bonett, 1980; Wickrama et al, 1995). For all model comparisons, a χ^2 difference of 3.83 with 1 degree of freedom will be deemed a significant moderation effect. The stacked models will address hypotheses 11, 12, and 14-17. Table 5 provides a summary of standardized β coefficients, intercepts, associated standard errors, and the difference in χ^2 between low and high groups.

The first series of moderations to examine involve hypotheses 11 and 12. These hypotheses state that the relationship between parental practices and anti-social behavior will be moderated by the level of an adolescent’s deviant relationships for both mothers and fathers. For fathers, a non-significant moderation effect of deviant relationships on the association between fathers’ negative parental practices and deviant anti-social behavior ($\Delta\chi^2 = .26, df=1$) was observed. For mothers, a non-significant moderation effect of the level of an adolescent’s deviant relationships on the association between mothers’ negative parental practices and anti-social behavior ($\Delta\chi^2 = .44, df=1$) was observed. Therefore, hypotheses 11 and 12 were not confirmed in the current study as there was no significant moderation of the level of an adolescent’s deviant peers on the relationship between parental practices and anti-social behavior for fathers and mothers.

The second series of moderations to examine involve hypotheses 14 and 15. These hypotheses state that the relationship between negative parental practices and deviant relationships will be moderated by the level of the adolescent's mastery for both mothers and fathers. For fathers, a non-significant moderation effect of mastery on the relationship between negative parental practices and deviant relationships ($\Delta\chi^2 = .14, df=1$) was observed. For mothers, a non-significant moderation effect of mastery on the relationship between negative parental practices and deviant relationships ($\Delta\chi^2 = .27, df=1$) was observed. Therefore, hypotheses 11 and 12 were not confirmed in the current study as there was no significant moderation of mastery on the relationship between parental practices and deviant relationships for fathers and mothers.

The third series of moderations to examine involve hypotheses 16 and 17. These hypotheses state that the relationship between parental practices and adolescent anti-social behavior will be moderated by the level of the adolescent's mastery for both mothers and fathers. For fathers, a non-significant moderation effect of mastery on the association between negative parental practices and adolescent anti-social behavior ($\Delta\chi^2 = .02, df=1$) was observed. For mothers, a non-significant moderation effect of mastery on the relationship between negative parental practices and adolescent anti-social behavior ($\Delta\chi^2 = .13, df=1$) was observed. Therefore, hypotheses 16 and 17 were not confirmed in the current study as there was no significant moderation of mastery on the relationship between parental practices and adolescent anti-social behavior for fathers and mothers. The current study failed to find a significant interaction based on the theoretical model for all logical combinations.

The current study also assessed the potential moderating effects of gender on the hypothesized pathways for the current study. This was also assessed using a stacked model

approach (Wickrama et al., 1995) using MPLUS version 5.0. Gender of the adolescent failed to moderate the association between fathers' negative parental practices and mastery ($\Delta\chi^2 = .68$, $df=1$). Also, gender of the adolescent failed to moderate the association between mothers' negative parental practices and mastery ($\Delta\chi^2 = .97$, $df=1$). Similarly, the gender of the adolescent also failed to moderate the association between mastery and an adolescent's deviant relationships ($\Delta\chi^2 = 2.61$, $df=1$). Finally, the adolescent's gender failed to significantly moderate the association between deviant relationships and subsequent anti-social behavior ($\Delta\chi^2 = .14$, $df=1$).

DISCUSSION

Summary

The goals of the current study were to address the unique influences of mothers' and fathers' negative parental practices as they influence adolescent mastery, deviant relationships, and anti-social behavior. To date, very few studies have uniquely assessed these variables in one succinct model (Simons et al., 2004). The current study also added to the current literature as the direct and indirect influences of negative parental practices for fathers and mothers were assessed in relation to mastery, deviant relationships, and adolescent anti-social behaviors by using an SEM framework. The current study analyzed data from a longitudinal sample of mothers, fathers, and target adolescents (N=424) to assess theoretical pathways. The current study found that the negative parenting behaviors of fathers and mothers significantly influences mastery in the negative direction, that mastery significantly influences deviant relationships in the negative direction, and that deviant relationships significantly influence adolescent anti-social behavior. The current study also found that the relationship between mothers' negative parental practices and adolescent anti-social behavior is mediated by the deviant relationships of an adolescent, but not for fathers. The results of several cross-lagged models provided evidence for the directional hypothesized pathways in the operationalized model of the current study. Based on the moderate strength of the correlation between mothers' and fathers' negative parental practices ($r=.51$), the mediation effects for mothers but not for fathers, and the significant change in χ^2 when the factor loadings of negative parental practices for fathers and mothers were held constant, the current study argues that fathers' negative parental practices and mothers' negative parental practices are unique constructs that have unique influences for adolescents for the current sample. Thus, mothers' and fathers' negative parental practices

discriminate from one another. The current study also failed to find a significant moderation effect for any of the study variables.

Understanding the Research Findings

The Unique Influences of mothers' and fathers' negative parental practices

The current study cited research by Moss and colleagues (2003) as a precedent for the inclusion of uniquely assessing the gender of the parent and the unique influences of negative parental practices based on their research. Moss and colleagues (2003) found that fathers have an influence on an adolescent's drug use and anti-social behavior. They also documented that fathers can act as a social facilitator of deviant relationships and anti-social behavior for the adolescent. However, the current study found that mothers and fathers did not directly influence deviant relationships or anti-social behavior in their child. Rather, negative parenting indirectly influenced deviant relationships and anti-social behavior through an adolescent's understanding of the social world and life events (mastery).

Simons and colleagues (2007) documented that negative parenting can influence an adolescent mastery, deviant relationships, and anti-social behavior. Moss and colleagues (2003) posit that fathers' and mothers' negative parenting can influence mastery, deviant relationships, and anti-social behavior uniquely. The current study found that fathers' negative parenting had a larger impact on mastery in terms of magnitude than the negative parenting of mothers. This finding provides evidence in favor of Moss and colleagues (2003) that fathers' negative parenting can display different effects than mothers. Also, the current study failed to find any mediation effects for fathers. Conversely, mothers' negative parental practices were mediated by mastery and deviant relationships on anti-social behavior. In other words, mothers appear to have more of an impact on the adolescent's social attachments and behaviors with the social

group than fathers. Fathers, on the other hand, tend to have more of an impact on how the adolescent understands the social world and life events. In essence, the parental practices of the father affect the adolescent differently than mothers. Thus, the current study argues that fathers' and mothers' negative parental practices are separate constructs that influence an adolescent's mastery, deviant relationships, and anti-social behaviors uniquely.

One reason the current study could have found this type of difference between fathers' and mothers' negative parental practices comes from Attachment Theory. Attachment Theory posits that a child's early attachments are with the mother compared with the father (Ainsworth et al., 1978; Bowlby, 1969). As the child develops into adolescence, bonds between mothers and fathers can have unique effects (Moss et al., 2003) that are independent of the strength and quality of the attachment. One type of unique influence fathers can have is that they tend to encourage rules and moral understandings in their child, and can act as social gatekeepers for their child. For example, for boys fathers may encourage sports or after school activities. For girls, fathers tend to examine the social network as a protective mechanism to prevent physical or mental harm/stress. This type of explanation could justify why the current study found that fathers' negative parental practices have more of an impact on an adolescent mastery compared to mothers' negative parental practices regardless of the gender of the adolescent offspring.

Attachment Theory also posits that an adolescent's social attachments are a result of previous attachments with caregivers (especially the mother) (Bowlby, 1969). This mechanism could also explain why the current study found that mothers' negative parental practices tended to impact their child's deviant relationships and anti-social behaviors.

Social Control Theory verses Social (In)ability Theory

In summary, the model for the current study found a significant relationship between fathers' and mothers' negative parental practices and an adolescent's mastery. However, a significant relationship was not found between fathers' and mothers' negative parental practices and anti-social behavior. A negative relationship was also not found between fathers' and mothers' negative parental practices and deviant relationships. A significant relationship was observed between an adolescent's mastery and their deviant relationships, and an adolescent's deviant relationships and their subsequent anti-social behaviors.

Social Control Theory operates under the assumption that deviant behaviors are the result of the weak relationships adolescents form with their parents and the community they belong to as these adolescents have yet to experience a positive relationship. Based on this logic, the current study hypothesized that the relationship between mothers' and fathers' negative parental practices and adolescent anti-social behavior will be mediated by the deviant relationships an adolescent has. However, a significant moderation effect was not found. This finding is contradictory to the assumptions of Social Control Theory.

Hirschi (1969) posits that the anti-social behavior of adolescents is the result of low levels of attachments with peers, parents, and community, moral involvement in everyday life and the family structure, and an adolescent's social investment in a social network. Hirshi (1969) also contends that deviant relationships do not directly cause adolescent anti-social behaviors. Rather, delinquent acts arise from weak attachments and negative experiences with parents, no positive attachments to counteract the negative attachments, and indirect sources. However, the current study documented a significant relationship between adolescent deviant relationships and their subsequent anti-social behavior. Social Control Theory in the current

study could aid in the explanation as to why there was a significant pathway between negative parental practices and an adolescent's mastery through the mechanisms of cognitive and emotional distress. Negative parenting could also generate feelings of distress/emotional pain subsequently producing anger outbursts and negative schemas about attachments and life events (mastery). Cumulative distress in this framework can only be buffered by positive pro-social relationships. It is through these relationships that an adolescent's cognitive schemas about life events are shaped through parental practices as they are the source for feelings of distress on the negative side or feelings of contentment on the positive side. Habitual positive or negative feelings could be shaping attitudes toward life events. Thus, a significant pathway could exist between negative parental practices and an adolescent's mastery based on the assumptions of Social Control Theory. Social Control Theory may also explain why a significant pathway exists between mastery and deviant relationships. The low social investment in a social network could be an extension of a low level of mastery or low levels of control over negative life events. Social Control Theory also assumes that negative parenting and low levels of attachment with parents/peers (weak relationships) directly influence adolescent anti-social behaviors. However, the current study failed to find this direct relationship and supported an indirect relationship. A major reason this relationship wasn't significant may be due to the assumptions of Social (In)ability Theory.

Social (In)ability Theory (Hansell & Wiatrowski, 1981) operates under the assumption that adolescent anti-social behaviors are the result of learned and modeled behaviors from parent, peer, and community interactions. Under this framework, mastery can be a socially learned schema in which we learn to view the world positively through positive interactions or negatively through negative interactions (Bandura, 1977; Hansell & Wiatrowski, 1981) either

through parenting or through friendships. As a child develops into adolescence, they will undoubtedly develop reciprocal relationships (Youniss and Smollar, 1985) in which they will select peers that are similar to themselves. Hansell & Wiatrowski (1981) contend that juvenile delinquency is learned through peer interactions. The preceding paragraphs were constructed to illustrate how the two competing theories both lead to the same outcome of anti-social behavior, but the mechanisms are very different as to how and why an adolescent engages in anti-social behavior. So, which model is operating in the current study?

A Synthesis of Models

Based on the operationalized model in Figure 6, the current study contends that both models are operating in the current study. Based on the assumptions of Social In(ability) Theory and the previous literature (Hansell & Wiatrowski, 1981; Houtzager & Baerveldt, 1999), the current study argues that deviant relationships are causing adolescent anti-social behavior and not the reverse. Both theories contend that fathers' and mothers' negative parental practices and adolescent anti-social behavior should be directly associated. However, significance wasn't found. The main reason significance wasn't found may be due to the indirect pathway that exists between fathers' and mothers' negative parental practices and adolescent anti-social behavior. This indirect pathway could be accounting for enough of the variance between mother and fathers' negative parental practices and adolescent anti-social behavior to make the direct pathway non-significant. This provides evidence temporal structure of the model and the causal pathway between deviant relationships and adolescent anti-social behavior. In that manner, the association between deviant relationships and adolescent anti-social behavior is a function of Social (In)ability Theory (Hansell & Wiatrowski, 1981).

The current study also found a significant pathway from negative parental practices for fathers and mothers and adolescent mastery. Learned experiences and behaviors of parents could be impacting mastery through internal working models (Bowlby, 1969). However, this association is mostly found in children and the affects of attachment appear to affect adult romantic relationships and later parental practices (Hazan & Shaver, 1994) more than the development of mastery during adolescence. Social (In)ability Theory contends that mastery is learned through parents and peers as well as through the community regardless of the quality of the interaction (Hansell & Wiatrowski, 1981). Implying that mastery is learned through modeling and social learning regardless of the quality and consistency of interactions in the relationship may be an empirical fallacy. As a child develops they can model behaviors and interactions, but they cannot truly learn a mentality. For example, just because a child had “good parents” doesn’t mean they learned how to be a “good parent.” Mastery could have a genetic factor, or it could be a result of consistent positive or negative interactions with parents feelings generate externalized behaviors and attitudes toward life events (Sukhodolsky & Ruchkin, 2004). Thus, the social learning processes behind Social (In)ability Theory (Hansell & Wiatrowski, 1981) may not explain the relationship between negative parental practices and an adolescent’s mastery. Rather, weak bonds/affiliations posited by Social Control Theory (Hirschi, 1969) may better explain the association between parenting and mastery.

Also, the association between negative parental practices for fathers and mothers may be due to family stress models (Conger et al., 2009). The significant pathways between negative parental practices for fathers and mothers and mastery may be directly a function of the family experiences and quality of these interactions. Conger and colleagues (2009) contend that quality family interactions and experiences should shape the development of high levels of mastery.

However, the opposite was found in the current study; that negative family experiences and a low quality in interactions resulted in a decrease in levels of mastery for the adolescent. This confirms the findings of Conger and colleagues (2009) for negative parenting adversely influencing mastery. This provides evidence that the association between mastery and fathers' and mothers' negative parental practices may be a combination of Social Control Theory and Family Stress Models (Conger et al., 2009; Houtzager & Baerveldt, 1999).

The current study also found a significant pathway between mastery and deviant relationships. Both Social Control Theory and Social (In)ability theory contend that an adolescent's level of mastery will significantly affect the deviant relationships they possess. The mechanisms for both theories are different but valid. For Social Control Theory, an adolescent who has developed schemas in which they have only known weak relationships and develop weak relationships with others (Hirschi, 1969) as a result of the perception/control of life events. Social (In)ability Theory, differs in that an adolescent has modeled cognitive or social coping strategies (such as talking with others or support) from others or the community. These models or coping strategies (e.g., mastery) can influence deviant relationships. The current study contends that both theories provide a logical explanation for the mechanisms behind the significant pathway between mastery and an adolescent's deviant relationships. Both theories would also contend that mastery would directly influence adolescent anti-social behavior. Figure 7 provides an illustration of the most parsimonious model for the current study. This figure also provides a visual summary of the synthesized model.

Small Factor Loadings

The current study found some variation in the factor loadings for fathers and mothers. Specifically, the factor loadings within a parenting construct (for fathers' and mothers' negative

parental practices) differed dramatically. Communication displayed a very large factor loading compared to the other negative parenting scales. However, Little and colleagues (1999) contend that validity can be established for scales with low internal consistencies and smaller factor loadings. Previous research has tended to examine negative parenting by combining fathers and mothers into one construct (Simons et al., 2007). However, the current study provides evidence in favor of unique influences for fathers and mothers. In doing so, the current study is in essence partitioning the total variance into unique variance for fathers and mothers. Doing this could be reducing internal consistencies and ultimately diminishing factor loadings. However, Little and colleagues argue that validity can still be established under these conditions of low internal consistency and smaller factor loadings (e.g., $<.70$).

Implications

The current study adds to the current literature as it provides a unique combination of Social Control Theory and Social (In)ability Theory in one succinct model. The findings of the current study can impact the types of interventions therapists and professionals apply when treating juvenile delinquency. Under Social Control Theory, delinquency can possibly be viewed as a choice (Hirschi, 1969). An adolescent can choose to be involved in strong interactions with peers and parents and the likelihood of juvenile delinquency and anti-social behaviors would decrease. However, treating an adolescent based on this perspective could possibly ignore an adolescent's mastery and may not combat the consistent negative interactions they experience in the home environment, community, or with peers. The findings of the current study suggest that interventions should be designed to teach delinquent and anti-social adolescents the tools to cope with consistent negative parental practices from parents. The findings of the current study also suggest that professionals administering interventions should

focus on an adolescent's level of mastery or how they view the life events they experience. Changing this thought structure could result in fewer associations and relationships with deviant peers and lower involvement in anti-social behavior. Intervention strategies, such as Cognitive Behavioral Therapy (CBT) tend to focus on thoughts, feelings, and behaviors of adolescents (Sukhodolsky & Ruchkin, 2004). CBT, for example, focuses on an adolescent's thoughts and feelings involving aggression. Coping with these aggressive thoughts and feelings in the CBT model will reduce anti-social behaviors. The current study contends that extending CBT to address an adolescent's thoughts and feelings toward the negative parental practices they experienced in the home environment and the thoughts and feelings of how they perceive life events and experiences (mastery) could ultimately reduce an adolescent's involvement in anti-social behaviors and deviant relationships. Future research on CBT models should include interventions that combat negative parental practices and low levels of mastery to strengthen the generalizeability of the current study.

The current study also found that an adolescent's involvement in anti-social behavior is complex and dependent on several models of delinquency. However, the current study attempted to construct a model based on the assumptions of Social Control Theory that didn't place all of the blame of an adolescent's involvement in anti-social behavior on the adolescent. Based on the findings of the current study, parents and friends can shape how an adolescent perceives life events (mastery), form both positive and negative associations with peers, and can exacerbate or buffer an adolescent's involvement in anti-social behavior. An adolescent's involvement in anti-social behaviors or delinquent acts could result from the lack of mechanisms to cope with stress and aggression, effectively combat negative parental practices, or form positive pro-social relationships with peers. An adolescent may not have ever experienced a

positive relationship with parents or peers, and only understand weak relationships with others based on their past experiences. Thus, involvement in delinquent and anti-social behaviors may not be a choice or definitively their fault. Future research on this topic should extend the associations in the current study and create models address contextual influences of delinquency rather than creating models that focus on the adolescent as the source of the delinquent behaviors.

Limitations

The current study adds to the current literature. However, there are some limitations to the current study. One major limitation is the sample the current study used. The current study used Wave 2 and Wave 3 of the IYFP study (Conger et al., 1992). The sample size at Wave 2 was 424 and the sample size at Wave 3 was 407. Missing data wasn't a problem for the current study and the sample size was adequate for the hypothesized associations. However, the sample was derived from a rural population consisting of mostly Caucasian parents and adolescents. Very few minorities were included in the sample and information on adolescents living in an urban setting was not assessed. Future research should incorporate more of a diverse sample from various ethnic backgrounds to improve the generalizations made in the current study. Future research should also assess adolescent's living in a rural setting and an urban setting to improve the findings and generalizations made in the current study.

Another prominent limitation of the current study was an absence of a self-report measure of mother and father warmth. The current study used an observational assessment of warmth. However, *chi-square* difference testing concluded that a more succinct model excluded observational warmth. A self-report measure of father and mother warmth toward their child could improve the validity of the current study and could improve the hypothesized findings.

Another limitation in the current study involved the outcome variables. The IYFP data contained information on an adolescent's self-reported involvement in drug use and delinquent behaviors regarding law based definitions for the targeted adolescent and their peer group. However, these scales were highly skewed in that most adolescents were reporting little to no involvement in drugs and delinquent behaviors or that their peer group was not involved in those behaviors. Thus, the current study failed to address an adolescent's involvement with substances or their self-reported involvement in delinquent acts that violated laws. Also, the current study failed to assess an adolescent's peer group involvement in substances and delinquent acts based on community laws. However, the current study did assess the anti-social behaviors of adolescents and the anti-social behaviors of the adolescent's peer group. Future studies should include a broader sample that consists of more adolescent's involved in substances and delinquent behaviors. This could be obtained in two ways. First, stratification sampling techniques could be employed to identify delinquent and non-delinquent adolescents. Survey techniques could then be utilized to form a more normal distributed outcome variable of delinquent behaviors and substance use behaviors for adolescents and their peer group. A second way future research could obtain more normally distributed variables involving drug use and delinquent behaviors for adolescents and their peer group would be to randomly sample students from middle schools and high schools from an urban community. Such a methodology could utilize multi-level analyses and could also directly assess the effect of the community on adolescent drug use and delinquent behaviors. Ultimately, multi-method analysis and sampling methodologies could strengthen the results found in the current study.

FIGURES AND TABLES

Figure 1. *The theoretical model: The effects of mothers' and fathers' negative parenting practices on adolescent mastery, deviant relationships, and anti-social behavior controlling for mother's and father's age, education, and the target adolescent's gender.*

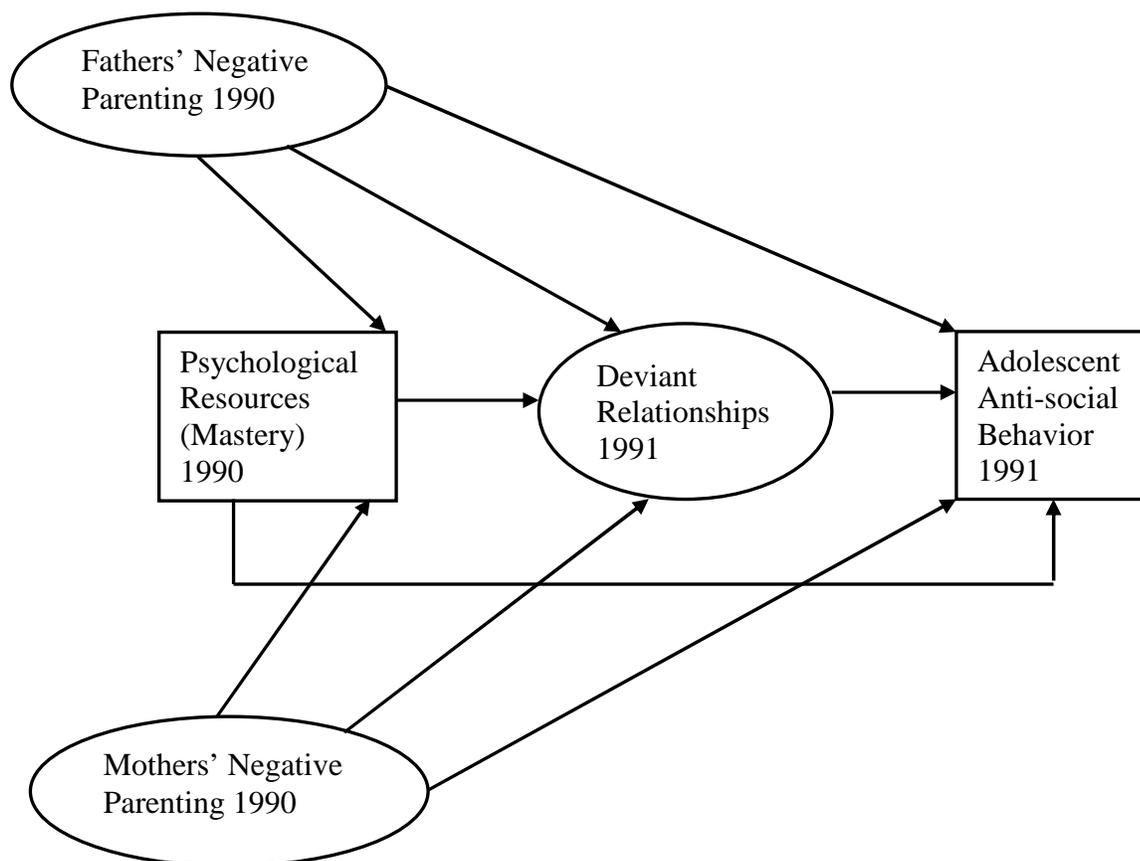


Figure 2. *The operationalized model for the current study.*

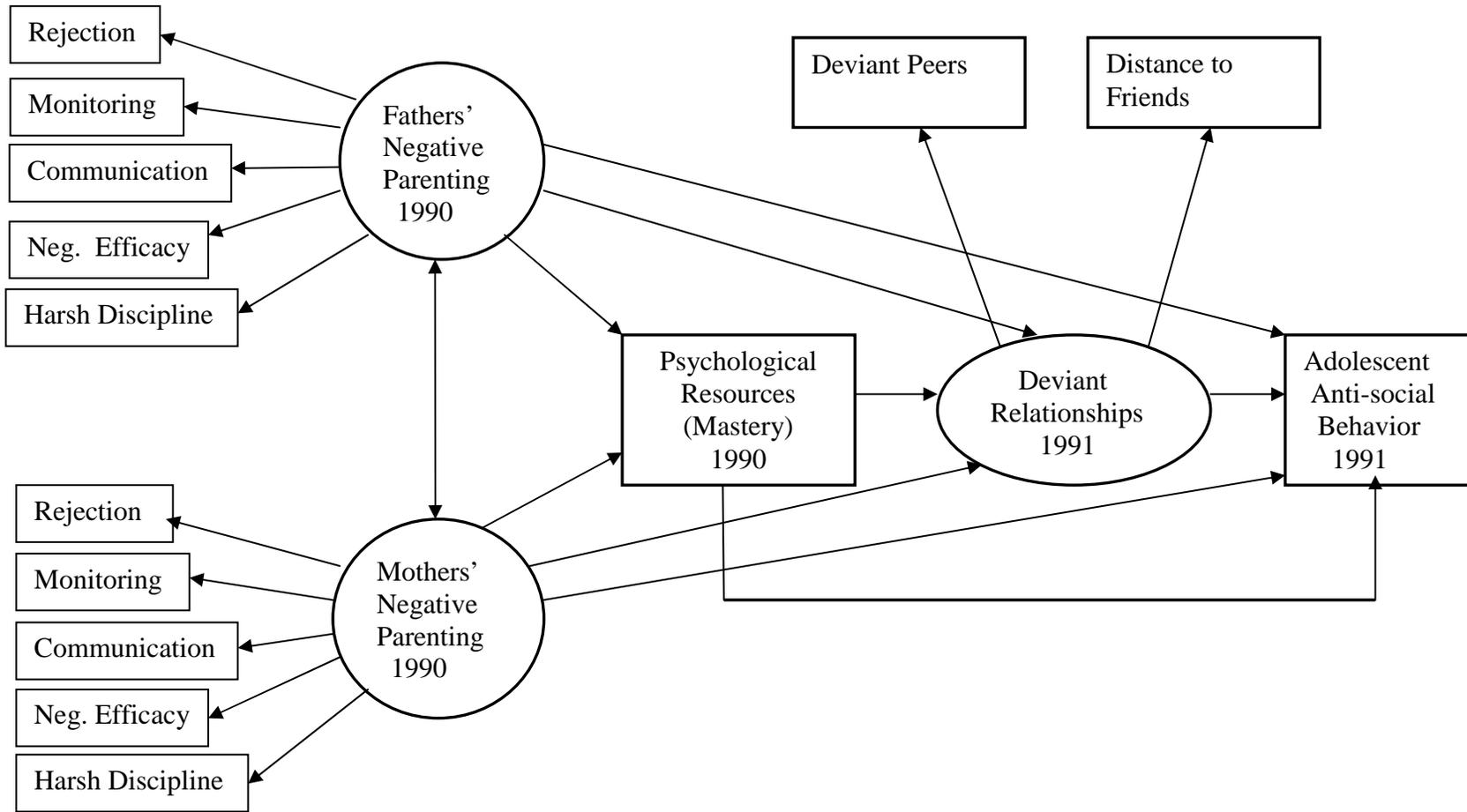


Figure 3. *The measurement model of the current study*

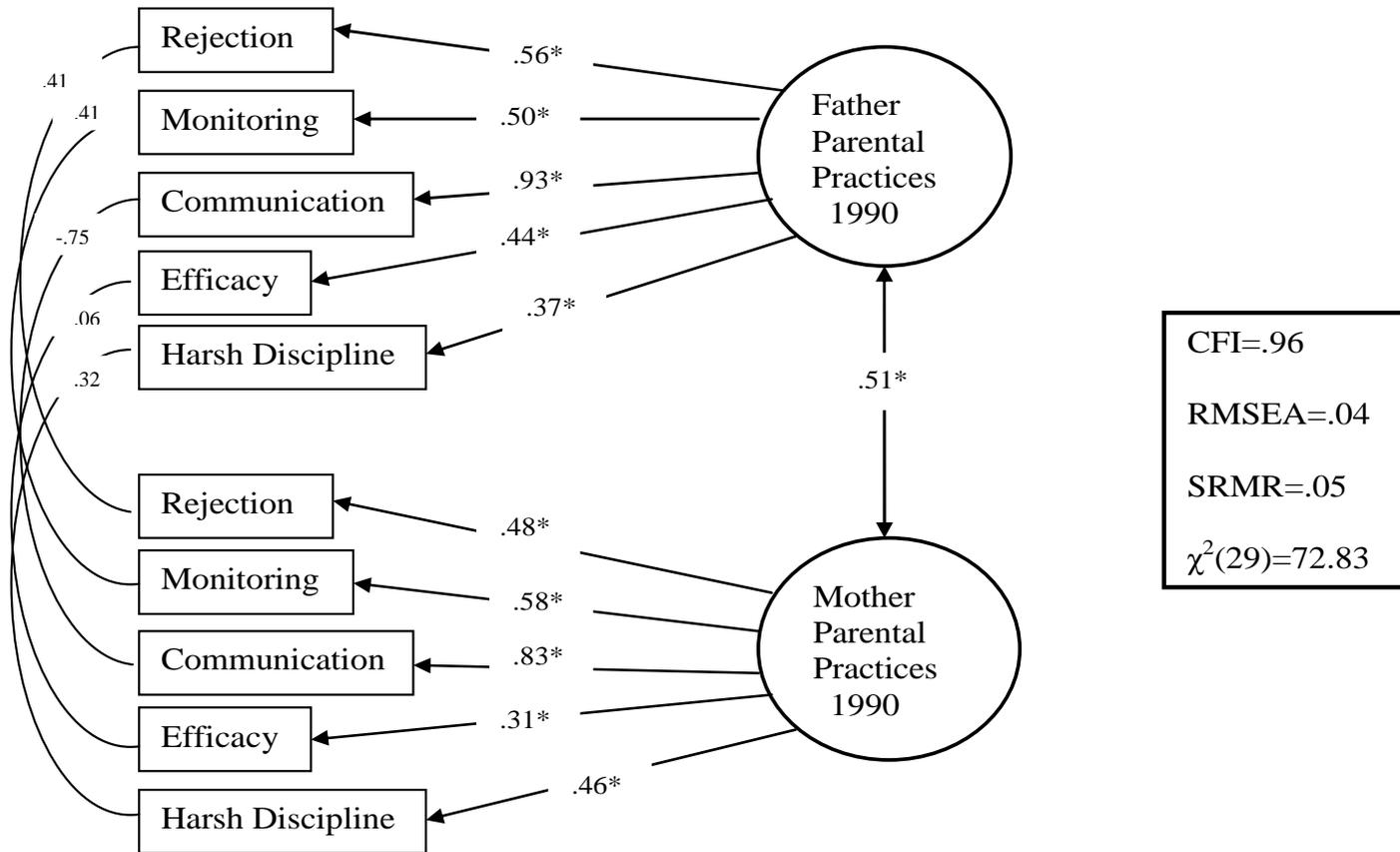


Figure 4. Mothers' and fathers' negative parental practices direct influences on adolescent anti-social behavior.

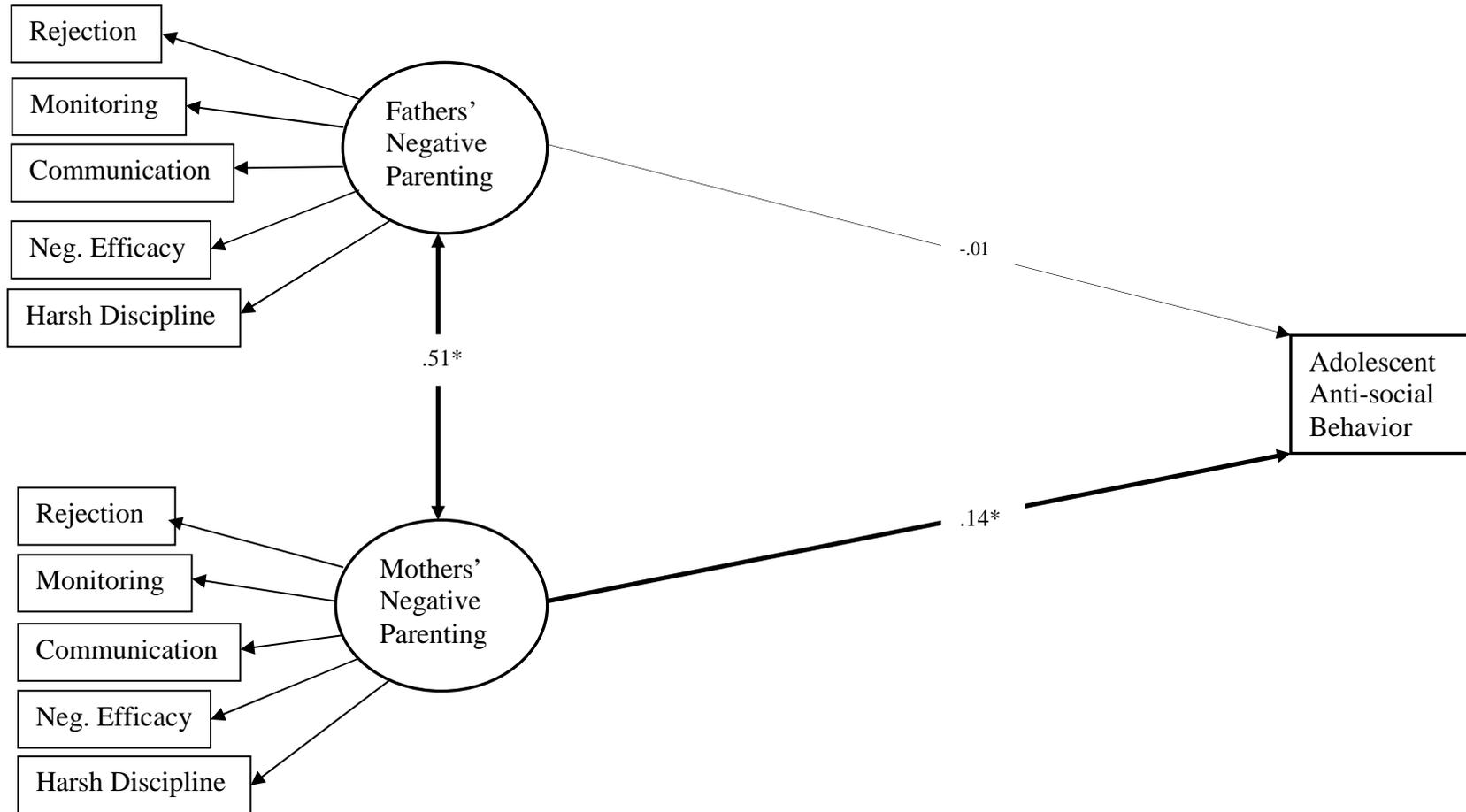
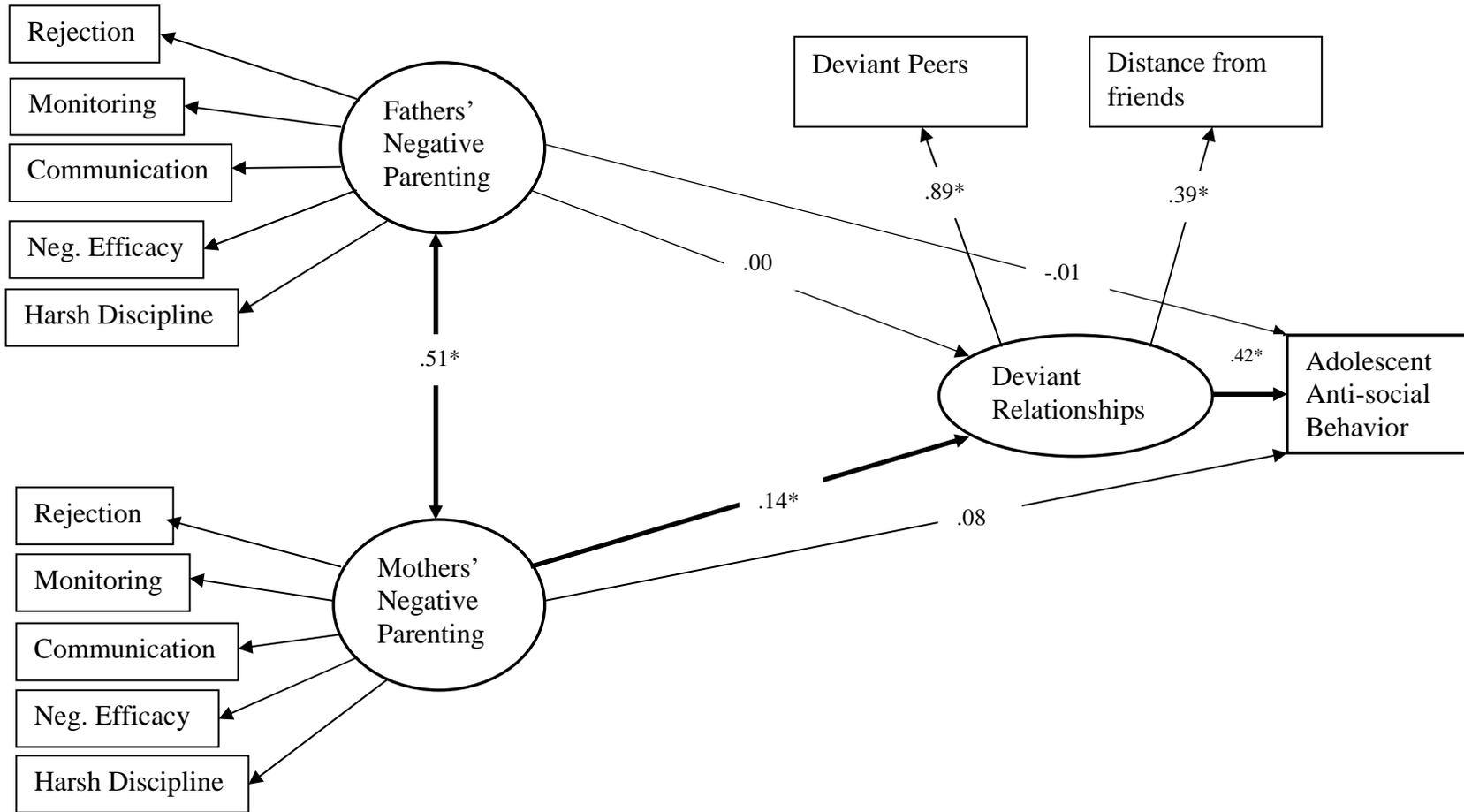


Figure 5. Fathers' and mothers' negative parenting influencing deviant relationships and anti-social behavior.



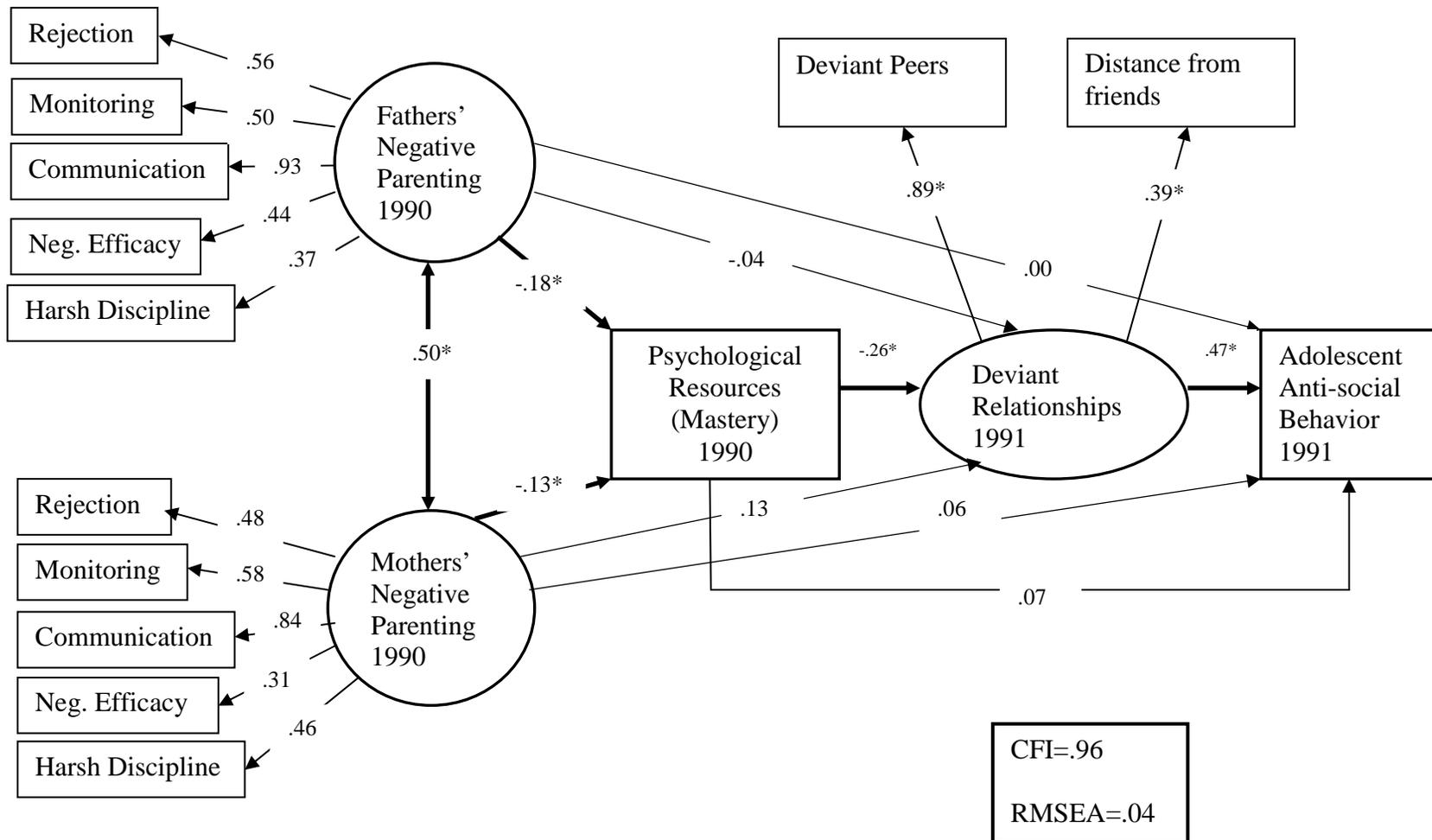


Figure 6. Model results for the operationalized associations of the current study controlling for mother's and father's age, education, and target adolescent's gender.

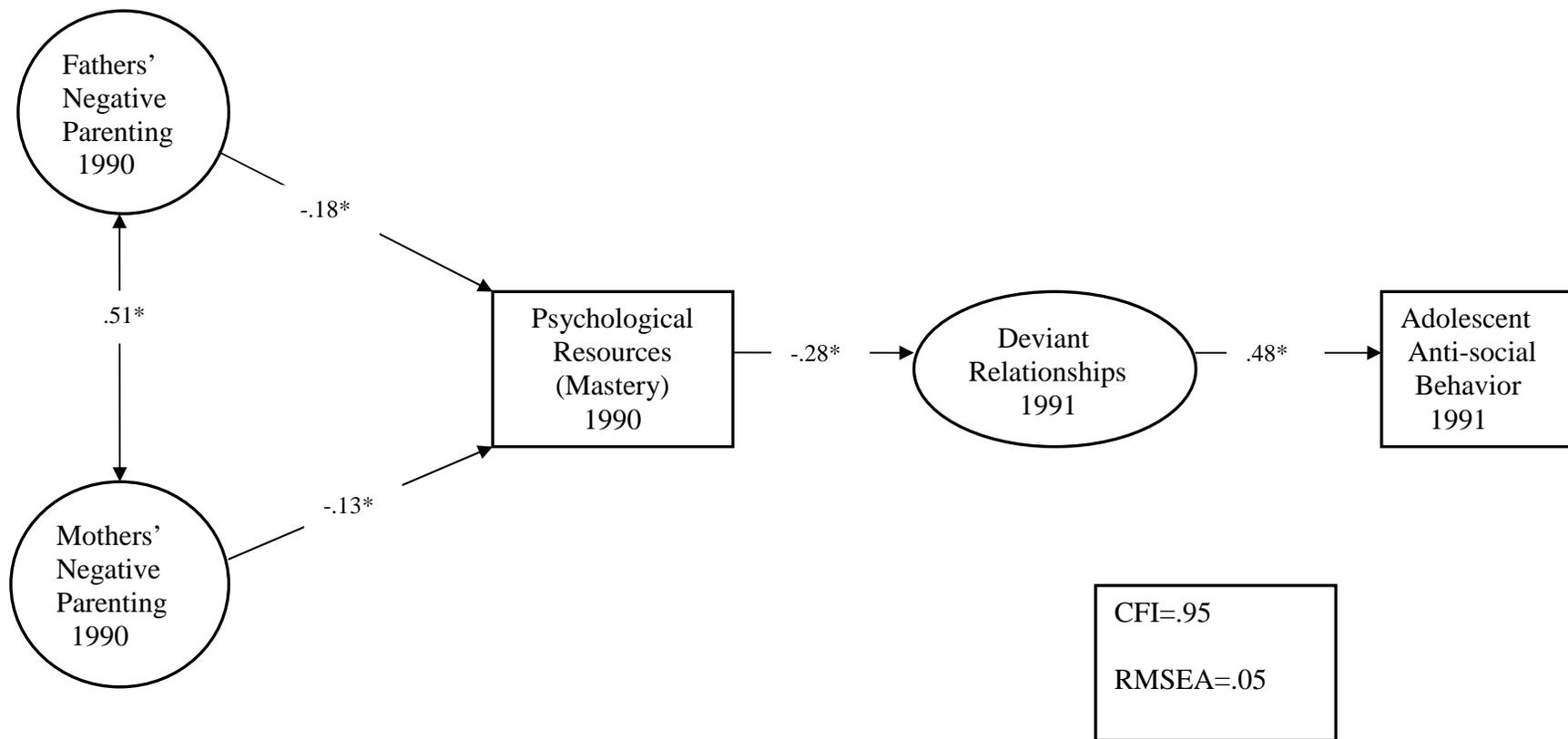


Figure 7. *The parsimonious model for the current study, a synthesis of theories.*

Table 1. *Descriptive statistics of study variables.*

Variable	Mean	N	Standard Deviation	Range	Skewness	Alpha
Monitoring –F	1.95	422	.38	1.00-3.33	2.59	.63
Monitoring-M	1.72	424	.36	.50-3.00	2.38	.54
Communication-F	2.26	423	.44	1.00-3.60	1.62	.83
Communication-M	2.09	424	.43	.60-3.60	.95	.82
Rejection-F	1.94	423	.57	1.00-3.80	3.16	.73
Rejection-M	1.87	424	.59	1.00-4.00	4.27	.75
Harsh Discipline-F	1.79	423	.41	1.00-3.33	5.15	.53
Harsh Discipline-M	1.82	424	.40	.67-3.00	3.03	.53
Negative Efficacy-F	2.14	423	.49	1.00-3.88	-1.50	.81
Negative Efficacy-M	2.07	424	.53	1.00-3.63	.62	.83
Mastery	3.54	424	.73	1.00-4.50	-4.67	.74
Distance from Friends	1.65	407	.54	1.00-4.60	8.30	.77
Deviant Peers	2.12	407	.67	1.00-4.80	4.23	.73
Anti-social Behaviors	2.57	406	.78	1.00-3.75	2.53	.86

Note. F-Father report.

M-Mother report.

Table 2. Correlations among study variables.

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Monitoring-F	--													
2. Monitoring-M	.25**	--												
3. Communication-F	.50**	.19**	--											
4. Communication-M	.22**	.50**	.31**	--										
5. Harsh Discipline-F	.19**	.10*	.37**	.16**	--									
6. Harsh Discipline-M	.05	.22**	.20**	.41**	.35**	--								
7. Rejection-F	.30**	.14**	.51**	.30**	.28**	.22**	--							
8. Rejection-M	.08	.25**	.33**	.49**	.28**	.28**	.50**	--						
9. Efficacy-F	.29**	.29**	.42**	.00	.08	.00	.16**	.04	--					
10. Efficacy-M	.10**	.12**	.13**	.29**	.09	.11**	.14**	.14**	.14**	--				
11. Mastery	-.12*	-.22**	-.22**	-.18**	-.10*	-.17**	-.24**	-.20**	-.12*	-.09	--			
12. Deviant Peers	.05	.08	.08	.12*	-.02	.09	.06	.12**	.06	.06	-.26**	--		
13. Distance from Friends	.10*	.09	.09	.12*	.09	.13**	.10*	.06	.11**	.04	-.24**	.35**	--	
14. Anti-social Behavior	.06	.07	.07	.10*	.03	.10*	.10*	.15**	.01	.11**	-.12*	.45**	.12*	--

Note. **p < .01, *p < .05.
 F-Father Report.
 M-Mother Report.

Table 3. *Factor loadings of the study measures for fathers' negative parenting.*

Measure	Standardized β	Standard Error	T-value
Monitoring	.50	.04	14.45**
Communication	.93	.03	28.30**
Harsh Discipline	.37	.04	8.55**
Rejection	.56	.04	13.08**
Negative Efficacy	.44	.04	10.27**

Note. **loading is significant at the .01 level.

Table 4. *Factor loadings of the study measures on mothers' negative parenting.*

Measure	Standardized β	Standard Error	T-value
Monitoring	.58	.04	14.10**
Communication	.84	.04	24.81**
Harsh Discipline	.46	.04	10.35**
Rejection	.48	.04	13.00**
Negative Efficacy	.31	.05	6.91**

Note. **loading is significant at the .01 level.

Table 5. *Table of moderations of the current study.*

Grouping Variable	Predictor Variable	Outcome Variable	Standardized β Coefficient	Intercept	Standard Error	$\Delta\chi^2$ difference
Mastery-L	Father parenting	Deviant relationships	.04	1.82	.11	
Mastery-H	Father Parenting	Deviant relationships	.17	1.14	.12	.14
Mastery-L	Mother parenting	Deviant relationships	.14	1.47	.11	
Mastery-H	Mother parenting	Deviant relationships	.07	1.50	.12	.27
Mastery-L	Mother parenting	Anti-social Behavior	.12	1.91	.18	
Mastery-H	Mother parenting	Anti-social behavior	.16	1.69	.19	.02
Mastery-L	Father parenting	Anti-social behavior	.03	2.45	.18	
Mastery-H	Father parenting	Anti-social behavior	.17	2.26	.19	.13
Deviant relationships-L	Father parenting	Anti-social behavior	.06	2.07	.16	
Deviant relationships-H	Father parenting	Anti-social behavior	.10	2.25	.15	.26
Deviant relationships-L	Mother parenting	Anti-social behavior	.09	1.91	.16	
Deviant relationships-H	Mother parenting	Anti-social behavior	.16	2.00	.15	.44

Note. L-the low group split at the median.
H-the high group split at the median.

Table 6. *Summary of hypotheses findings.*

Hypotheses	Confirmed/Not Confirmed
Hypothesis 1-MNP directly influences ASB	Not confirmed
Hypothesis 2-MNP directly influences DR	Not confirmed
Hypothesis 3-MNP directly influences mastery.	Confirmed
Hypothesis 4-FNP directly influences ASB.	Not confirmed
Hypothesis 5-FNP directly influences DR	Not confirmed
Hypothesis 6-FNP directly influences mastery.	Confirmed
Hypothesis 7-Mastery directly influences DR and ASB	Confirmed for deviant relationships but not for anti-social behavior.
Hypothesis 8-DR directly influences ASB	Confirmed
Hypothesis 9-Mastery indirectly influences ASB	Confirmed
Hypothesis 10-Relationship between MNP/FNP and ASB mediated by DR	Confirmed for mothers but not confirmed for fathers.
Hypothesis 11- Relationship between FNP and ASB moderated by DR	Not confirmed
Hypothesis 12- Relationship between MNP and ASB moderated by DR	Not confirmed
Hypothesis 13-Relationship between MNP/FNP and DR mediated by mastery.	Confirmed for mothers but not confirmed for fathers.
Hypothesis 14- Relationship between FNP and DR moderated by mastery.	Not confirmed
Hypothesis 15- Relationship between MNP and DR moderated by mastery.	Not confirmed
Hypothesis 16- Relationship between FNP and ASB moderated by mastery	Not confirmed
Hypothesis 17-Relationship between MNP and ASB moderated by mastery	Not confirmed
Hypothesis 18-Relationship between MNP/FNP and ASB mediated by mastery	Not confirmed

Note. MNP-Mothers' negative parenting.
 FNP-Fathers' negative parenting.
 DR-Deviant relationships.
 ASB-Anti-social behavior.

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