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Father-Daughter Relationship Quality as a Predictor of Sexual Activity in Adolescent Women

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FATHER-DAUGHTER RELATIONSHIP QUALITY AS A PREDICTOR OF SEXUAL ACTIVITY IN ADOLESCENT WOMEN

By

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I dedicate this to my wife Rossie. This would not have been possible without the sacrifices you made and your unconditional love and support.
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ABSTRACT

In this study I explored the effects of the quality of the father-daughter relationship on the sexual activity of adolescent females. Using data from the National Longitudinal Survey of Youth, a representative sample of adolescents, I assessed the odds of a daughter’s engaging in sexual intercourse and early vs. delayed onset of sexual activity as predicted by her perceptions of the levels of support and harshness received from her father. I used binary logistic regression and found partial support for the hypotheses. Specifically, increases in the level of perceived paternal harshness were related to increases in the likelihood that daughters engaged in sexual activity before the age of 15 (early onset). Perceived paternal support was not significantly associated with adolescent daughter sexual activity. Study limitations and strengths, implications for clinical intervention (especially for marriage and family therapy), and future research directions are also discussed.
CHAPTER ONE

INTRODUCTION

The health and welfare of societal members is an important topic that has implications for these individuals. Specifically, the physical and mental health of adolescents has been the focus of extensive research in recent years (Buhi & Goodson, 2005) and remains an important topic. The purpose of the study reported here was to contribute to our understanding of adolescent health by exploring factors that influence adolescent overall well-being, specifically the influence of fathers on adolescent daughters.

Researchers estimate that almost half (48%) of high-school students engage in sexual intercourse (Abma et al., 2004; Centers for Disease Control [CDC], 2008). This number increases to 70-80% by the time they reach college (Mosher, Chandra, & Jones, 2005). Also, scholars recognize that the sexual debut of adolescents is occurring at younger ages than in the past (Jordahl & Lohman, 2009). Given the delay of marriage (now in mid- to late-20’s; Surra, Boettcher-Burke, Cottle, West, & Gray, 2007), there is considerable time for engaging in sexual activity, most likely with multiple partners and, thus, increasing the chance of negative outcomes (AGI, 2002). Among young women specifically, sexual activity and early sexual debut has been linked to at least two notable negative outcomes: sexually transmitted infections (STIs) and adolescent pregnancy (Kaestle, Halpern, Miller, & Ford, 2005; Lynch, 2001; Small & Luster, 2004).

Sexually transmitted infection cases in adolescents and young adults make up half of the 19 million new cases each year in the U.S., despite the fact that these age groups make up only 1/4 of sexually active people in the U.S. (CDC, 2008; Weinstock, 2004). Clearly, young sexually active people have an increased risk for contracting an STI. Within adolescents, females are at greater risk for contracting certain STI’s than are adolescent males. The CDC (2008) suggests that 1 in 4 adolescent girls in the U.S. have an STI. Specifically, females ages 15-19 are at the highest risk for contracting chlamydia and gonorrhea. The negative effects of STIs for women run the spectrum from mild discomfort that can be treated with antibiotics to more severe consequences, such as infertility and cervical cancer. Given the high risk of STI contraction for
young women, gleaning insight into the correlates of this potentially dangerous health outcome warrants attention.

Concerning unplanned pregnancy, researchers estimate that 3 in 10 adolescent girls in the U.S. will become pregnant before the age of 20 (AGI, 2010). Despite successful efforts to decrease this rate, it remains the highest among developed countries (Hoffman, 2006), and a slight increase occurred in 2006 and 2007 in the U.S. (AGI, 2010; Santelli, Orr, Lindberg, & Diaz, 2009). Investigating the factors that contribute to these rates continues to be important, as negative outcomes for women are also associated with adolescent pregnancy. It is linked with truncated educational opportunities and decreased mental and physical health (Ellis, Bates, Dodge, Fergusson, Horwood, Pettit, et al., 2003). In fact, estimates suggest that only 50% of adolescent mothers will receive their high-school diploma (Perper, Peterson, & Manlove, 2010). Further, decreased educational opportunities increase the risk for subsequent adolescent pregnancies (Manlove, Mariner, & Papillo, 2000). Important to future generations, the children of these young mothers are disadvantaged. They have an increased risk of dropping out of high school and also becoming an adolescent parent, and adult problems are notable, such as unemployment and incarceration (Hoffman, 2008).

In addition to the negative effects on mothers and children, there are costs to society. Hoffman (2006) estimated that adolescent pregnancy costs taxpayers approximately $9 billion annually. This estimate includes increases in health care costs, child welfare costs, and government income losses due to lower taxes paid by these mothers. Moreover, an additional cost is less quantified but includes the loss of future career opportunities from their contribution to the workforce (Hoffman, 2008). Given the costs to women and society associated with adolescent pregnancy, exploring factors related to adolescent sexual activity is an important contribution to the literature on adolescent health.

The risk of pregnancy and STIs do not constitute an exhaustive list of the potential negative consequences of engaging in sexual activity by adolescents. However, they alone warrant investigation into factors that contribute to these common behaviors among adolescents, because they are connected to negative outcomes in these young women. In the current study, I sought to contribute to the knowledge on sexual health by exploring specific correlates of sexual activity in adolescent women.
The Role of Parents and Parenting

There is ample evidence that the nature of the parent-child relationship influences the sexual activity of adolescent females (Chen & Thompson, 2007). However, the majority of this research focuses on the mother-child relationship, arguing that mothers have traditionally been the primary caregivers in families and, thus, most influential (Cleveland & Gilson, 2004; Fingerson, 2005). In general, research shows that a close relationship with mother is related to positive child outcomes, such as a lower frequency of sexual activity and more responsible sexual decision making in daughters (see Miller, Benson, & Galbraith, 2001, for a review). Although the positive influence of mothers on daughter sexuality is clearly important, less is known about how fathers influence daughters in general and their sexual activity specifically. Although mothers have traditionally been primary caregivers, the increasing role of women in the workforce and the subsequent increasing involvement of fathers in the parenting process (see Marsiglio, Amato, Day, & Lamb, 2000) prompt the question of the importance of fathers on these child outcomes.

There is some evidence that father involvement positively affect daughters, such as lowering their risk of early sexual activity and unplanned pregnancy (Ellis et al., 2003). However, much of this research relies simply on reports of a father’s physical presence in the home (residence vs. non-residence) and does not examine other indicators of relationship processes that make such presence important (e.g., relationship quality). In this study I sought to explore these processes as one way to contribute to the extant literature. Specifically, I sought to understand the overall quality of the relationship between fathers and daughters and their effects on daughter sexual activity (sexual intercourse, age of first intercourse). I accomplish this goal by examining two key indicators of the parent-child relationship quality: daughters’ perceptions of fathers’ support (e.g., offers praise) and harshness (e.g., critical). High levels of perceived parental support and harshness are associated with positive and negative child outcomes respectively (Barber, Stolz, & Olsen, 2005). This is a relatively underdeveloped area of research but one that can provide insight into the contributors to the sexual activity of young women. The knowledge gained here can help inform future interventions designed to decrease the chances of adolescents experiencing the two negative outcomes discussed here (STD’s and unplanned pregnancy) that effect young women and the associated societal costs. The following research questions guided this study:
1. How are self-reported perceptions of paternal support and harshness associated with sexual activity in adolescent females?

2. For those adolescent females who have engaged in sexual intercourse, how are self-reported perceptions of paternal support and harshness associated with the age of onset of sexual activity?
CHAPTER TWO

REVIEW OF THE LITERATURE

The theory guiding the study and the related empirical literature on the influence of the father-daughter relationship on daughters’ sexual activity are presented and discussed in this chapter. First, attachment theory and symbolic interactionism are outlined and used as the theoretical basis for the study. Next, I explored the literature on the predictors of adolescent sexual activity and the specific effects of the father-daughter relationship on the sexual activity of adolescent women.

Theoretical Orientation

Attachment Theory

Attachment theory was used to frame the current study for two reasons. First, this theory offers insight into the connections between children, their caregivers, and child outcomes. Second, attachment theory serves as the basis of an empirically-supported intervention to strengthen dyadic relationships: Emotionally Focused Therapy (EFT). EFT is a therapy model based on attachment theory (Johnson, 2004). EFT practitioners seek to help dyads develop positive cycles of interaction (marked by a presence of support and lack of harshness), thereby increasing the quality of the relationship through strengthening their attachment. Thus, attachment theory is useful in explaining the nature of the parent-child relationship and informing future interventions to strengthen this relationship.

The main assumption of attachment theory is that the affective connection or bond (attachment) established between parents and children in infancy influences the future well-being of children as they develop (Bowlby, 1969). In terms of normative development, infants form attachments to their primary caregivers during the first year of life, and this connection remains influential over time (Ainsworth, 1989; Bowlby, 1969).

Children develop attachments to caregivers who are both adequately and inadequately responsive to their needs; however, a child’s perception of security is different depending on the responsiveness (Bowlby, 1969). Responsive caregivers tend to have children who feel more secure or safe in the relationship (secure attachment); children of nonresponsive caregivers may
feel insecure or unsafe in the relationship (insecure attachment) which theoretically leads to attempts to find security outside of this relationship (Cassidy, 2008).

Attachment theorists suggest that the attachment bond is established within the first year of life; however, this foundational connection to primary caregivers (most often parents) is built upon throughout childhood and adolescence as children develop physically, mentally, and socially (Ainsworth, 1989; Bowlby, 1969). These connections are established and maintained mostly through children and their caregivers, where predictable patterns of interaction develop that work for both the child and the caregiver. As the child matures, he/she begins to explore the environment more and becomes more self-reliant, still relying on the caregiver for a safe haven in times of distress (Marvin & Britner, 2008).

Adolescents are influenced by attachments formed in childhood, as they seek more autonomy and self-reliance typical of this developmental period (Allen, 2008). For example, they may seek to distance themselves from caregivers to develop relationships with peers, but they may also return to caregivers in times of need. Further, adolescents transition from being cared for by others to caring for self and others (Allen). It remains important that adolescents can count on their caregiver’s responsiveness even though the adolescents do not need to stay connected with parents for extended periods (Allen). Thus, the responsiveness of the caregiver remains important past childhood, and scholars suggest that responsiveness is a useful indicator of the quality of the attachment relationship (Brown, McBride, Shin, & Bost, 2007).

Adolescence is a time when children develop significant relationships with peers that result in other attachment relationships (Ainsworth, 1989). Allen (1998) asserted that the security of attachment with caregivers influences the quality of these peer relationships, some of which are romantic and/or sexual relationships. For example, insecure attachment in adolescents has been correlated with internalizing behaviors such as depression and externalizing behaviors such as substance use and premature sexual relationships (Allen, 2008; Marsh, McFarland, Allen, McElhaney, & Land, 2003). Because insecure attachment may leave the adolescent searching for security outside of the parent-child relationship, potentially risky behaviors can result as they look to peers for this security (Allen, Moore, Kupermine, & Bell, 1998).

As with parenting research in general, attachment theory originally focused on the attachment between young children and their mothers. However, over time, more attention was given to how children form attachments with fathers and the subsequent influence of that
attachment (Bretherton, 2010; Lamb, 2002). Whereas attachment to mother was considered a primary influence on children early on, researchers now recognize that fathers make a significant contribution to the welfare of children through the attachment bond (Lamb, 2002; Sagi, Lamb, Shoham, Dvir, & Lewkowicz, 1985).

The idea that mothers and fathers contribute to children’s development of connections with others has been explained with the concept of dual primary attachment figures (Bowlby, 1969). According to this concept, mothers and fathers are primary attachment figures, or the main persons to which the child bonds and derives a sense of safety and security. Research confirms that both make an important yet independent contribution to the attachment relationship (Newland & Coyl, 2010). The contribution of mothers is well documented in past research (Arendell, 2000); however, fathers have received much less attention. As such, exploring fathers’ connection to their children will provide greater understanding of these attachment relationships.

Further, attachment theory highlights the importance of a secure connection with caregivers for children. Regarding adolescents, research shows that securely attached adolescents display more self-esteem, less emotional distress, and more emotional regulation than do adolescents who are insecurely attached to caregivers (Armsden & Greenberg, 1987; Cooper, Shaver, & Collins, 1998). For adolescent females, specifically, insecure attachment to caregivers is a risk factor for transitioning well into puberty (Cyranowski, Frank, Young, & Shear, 2000). One of the associated difficulties with this transition in insecurely attached females is their engagement in early sexual relationships (Nada, McGee, & Stanton, 1992). That is, insecurely attached adolescent females are noted to display earlier sexual activity than do those with more secure attachments (Smith, 1997). Related to the current investigation, attachment theory provides a basis for examining the connection between parents and their children. This connection is influential both early in life and in adolescence (Allen, 2008).

**Symbolic Interactionism**

Symbolic interactionism (SI) was also used to frame the current study. SI theorists suggest that the meaning derived from social interaction shapes a person’s perspective of his/her environment and influences behavior. A major assumption is that an individual’s behavior must be viewed in terms of the meaning he or she attributed to the behavior (Chibucos & Leite, 2005). For example, Jones, Leung, and Harris (2006) found that feelings of abandonment and defectiveness in daughters mediated the relationship between fathers’ lack of involvement
(measured as engagement in a series of activities) and daughters’ development of an eating disorder. In other words, daughters who interpreted the lack of father involvement as abandonment or a defect in themselves were more likely to develop an eating disorder. The women who attributed a neutral or positive meaning to these interactions were less likely to develop the disorder. Thus, the meaning that daughters created from their interaction with fathers or lack thereof was related to their subsequence behavior.

Theoretically, the interaction between a child and his/her parent influences the future behavior of both persons. The current investigation explores how influential this interaction may be on daughters’ sexual behavior. Assumptions from SI suggest that measuring daughter perceptions is appropriate, because her perceptions of her interactions with her father would be a more important determinant of her behavior than her father’s or mother’s perception of their interactions with her. As a first step in examining the links between perceived interactions and behaviors, I started with daughters’ perceptions.

Together, attachment theory and symbolic interactionism provide an explanation of the connection between a father and daughter and how the subsequent meaning that daughters derive from this connection influences their behaviors. As such, this investigation sought to explore the relationship between a daughter’s perception of the quality of the relationship (attachment) with her father and her sexual activity.

**Predictors of Adolescent Sexual Activity**

An extensive body of literature explores factors that influence adolescent sexual activity. Researchers have identified a multitude of factors that either increase (risk factors) or decrease (protective factors) the chances of such activity. Kirby (2007) conducted an extensive review of this literature from peer reviewed publications that used multivariate analyses. Two categories of factors were identified: individual (e.g., attitudes) and contextual (e.g., family relationships, peers).

**Individual Factors**

Several individual factors have been shown to increase the chances of sexual activity in adolescents. These include attitudes, age, race, and participation in delinquent activities. For example, an adolescent’s attitude toward sexual activity, pregnancy, childbirth, contraception, diseases, etc., has been identified as one of the strongest predictors of engaging in sexual activity (Kirby, 2007). In general, more permissive or positive attitudes about sexuality increase the
chance of engaging in sexual activity, whereas more restrictive or negative attitudes decrease the chance (Blinn-Pike, Berger, Hewett, & Oleson, 2004; Kirby, 2007; Whitbeck, Simons, & Kao, 1994).

Age is also an important predictor of sexual activity in adolescents. Being older at first intercourse is a protective factor against future sexual activity; being younger at first intercourse increases the chance of negative outcomes associated with sexual activity (Kirby, 2007). As noted previously, earlier age of sexual debut is associated with increased rates of unplanned pregnancy and STD’s. A factor closely related to age is physical maturity and earlier age of menarche. These both are risk factors for early sexual activity (Billy, Brewster, & Grady, 1994; Kirby, 2007).

Race/ethnicity is another important predictor of sexual activity. African American and Hispanic adolescents display a higher risk for adolescent sexual activity than do non-Hispanic white adolescents (Kirby, 2007). Earlier research (Davis & Friel, 2001) also reported that African American adolescents are at increased risk for earlier onset of sexual activity. Consequently, this earlier onset increases the potential number of sexual partners and the chance of becoming pregnant or contracting an STD among African Americans. Further, Hispanic adolescents displayed an increased risk for unplanned pregnancy compared with non-Hispanic white adolescents, and they are less likely to use contraception (Kirby).

Participation in delinquent activities is yet another important predictor of sexual activity (Jordahl, & Lohman, 2009). For example, substance use has been consistently associated with engaging in sexual behaviors in adolescents. Regarding young adult women, increased alcohol use in college-aged women is related to more hook-ups (sexual encounters with no expectation of commitment) within the past 6 months, increased frequency of sexual activity, and a higher number of sexual partners (Koon, Olmstead, & Pasley, 2010; Owen, Rhoades, Stanley, & Fincham, 2010; Whitbeck, Hoyt, Miller, & Kao, 1992). It is likely that adolescent women will have similar outcomes from alcohol use, although at a lower frequency, because adolescent women are less frequent users than are college-aged women (Baer, Kivlahan, Blume, McKnight, & Marlatt, 2001). In addition, marijuana and tobacco use increase the chances of sexual activity in adolescents (Kirby, 2007; Lammers, Ireland, Resnick, & Blum, 2000; Small & Luster, 1994), as do gang involvement, fighting, stealing, and running away from home – all indicators of delinquent behaviors (Kirby).
**Contextual Factors**

Factors related to one’s context or environment also predict sexual activity, and research typically centers on two contexts: peers and family. As with individual attitudes, permissive attitudes of peers toward sexual activity increase the chance of sexual activity in adolescents (Kirby, 2007). Also, romantic involvement with peers and the characteristics of those relationships (e.g., dating frequency, age of partner, age of onset of the relationship) are associated with sexual activity. For example, being in a romantic relationship, dating more frequently, having an older partner, and being younger at the onset of dating increases the chance of adolescents engaging in sexual activity (Kirby).

According to Kirby (2007), although peer influence is an important factor in adolescent sexual activity, families remain more influential over time. Research shows that certain characteristics of families (e.g., income, attitudes, sibling behavior, family structure, maternal education, maternal age at first birth) affect sexual activity. For example, higher family income and parents’ restrictive attitudes toward adolescent sexual activity are associated with decreases adolescent engagement in such activities. Further, parents’ permissive attitudes about sexual activity increase the risk of sexual activity, as do the attitudes and behaviors of siblings. Siblings’ permissive sexual attitudes and their being sexually active and older are associated with increased sexual activity among siblings who are younger adolescents (Whitbeck, et al., 1999).

Further, the influence of family structure on adolescent sexual activity has empirical support. We know that children whose parents divorce or separate are at risk for negative outcomes (Amato, 2000). These outcomes can include sexual behavior. For example, adolescents living with both biological parents are less likely to become pregnant or have unprotected sex, and the risk of earlier sexual activity increases, if the biological parents of the adolescent divorce or separate (Kirby, 2007).

Finally, fathers and mothers are part of the adolescent’s context, and as such, their influence has been explored. Specifically, mother’s age at the child’s birth and her education level is connected to daughter’s sexual activity. Daughters were more likely to engage in premarital intercourse and become pregnant and less likely to use contraception, if their mother was younger and had less education (Grady, Hayward, & Billy 1989; Kahn, Rindfuss, & Guilkey, 1990; Kirby, 2007). A closer mother-child relationship also is related to a delay of first sexual activity and less frequent sexual activity among adolescent daughters (Miller et al., 1997).
As with parenting research in general, the father-daughter relationship has received far less research attention than has the mother-daughter relationship. As such, I seek to explore whether the nature of the connection between fathers and daughters also influences adolescent sexual activity.

**Fathering**

Although the father-daughter relationship is a relatively new area of research, public interest in the effects of fathers on their children in general is not. An example of public interest is reflected in the emergence of father-specific programs, such as the National Fatherhood Initiative, as well as a peer-reviewed journal dedicated to the study of fatherhood (*Fathering*). This public interest is centered mainly on improving the well-being of children by exploring the role of fathers in children’s lives and encouraging fathers to be a positive influence on them. The increased interest in fathering is also reflected in empirical evidence supporting the positive effects of a high quality father-child relationship on positive developmental outcomes in children (Lamb, 2010; Marsiglio et al., 2000).

**Father Involvement**

Since the scientific exploration of fathering began, a man’s role as a parent has been conceptualized in several ways: moral teacher, provider, role model, and nurturer (Lamb, 2010). Most research interest is in the specific ways that fathers contribute to the development of their children through understanding father involvement (Pleck, 2010a). Involvement includes five elements: positive engagement activities (e.g., play), warmth and responsiveness (e.g. praise), control (e.g. monitoring, decision making), indirect care (e.g., financial contributions, housework), and process monitoring (assessing whether the child’s needs are being met) (Day & Lamb, 2004; Hawkins & Dollahite, 1997; Pleck, 1997, 2010b; Pleck & Masciadrelli, 2004).

Early fathering research addressed a father’s influence on children using father absence as the main predictor of various child outcomes (McBride, Schoppe, Ho, & Rane, 2004). Father absence (lack of co-residence) has been connected to negative outcomes in children, such as lower school performance, early sexual activity, higher depression, increased chance of experiencing physical abuse, and increased chance of using illegal substances (Heatherington & Stanley-Hagan, 1997; Horn & Sylvester, 2002; Miller & Moore, 1990).
In addition to the literature on father absence, other scholars focused on how various forms of father involvement influence children. Early studies conceptualized involvement as time spent with the children. However, the construct now includes the elements listed above (Pleck, 2010b). Generally, research shows father involvement is associated with positive child outcomes. For example, children whose fathers make consistent financial contributions to the family have greater school success and psychological well-being compared with children whose fathers do not do so (Amato, 1998; Marsiglio et al., 2000). Also, fathers who engage in the direct care of children are more likely to develop secure attachments with those children (Cox, Owen, Henderson, & Margand, 1992), and secure attachments are important to positive child outcomes (Bowlby, 1969). Further, children with a higher quality father-child relationship (e.g., he is warm and responsive) have higher self-esteem and social adjustment (Amato, 1998).

Care must be taken not to assume that all non-resident fathers negatively affect their children. Research shows that non-resident fathers (divorced or never-married) are not necessarily absent from the child’s life; they can and do contribute despite the reality that remaining involved may be more difficult (Lamb, 2010; Pasley & Braver, 2004; Waller & Swisher, 2006). In fact, using a national data set, Lerman and Sorensen (2000) found that a majority of both mothers and fathers reported weekly contact between non-resident fathers and their children.

Conversely, the assumption that resident fathers are involved and, thus, a positive influence may be erroneous. Jaffee, Moffit, Caspi, and Taylor (2003) found that frequent contact with resident fathers who display negative characteristics or behaviors (e.g., violence, manipulation) can be detrimental to a child’s psychosocial development. In these cases, the effects of father involvement are more complicated, as mothers may attempt to limit fathers’ access to the children. Thus, to argue that father involvement is consistently beneficial is simplistic, as the specific nature of his involvement must be addressed.

Examining this specific nature is the focus of the current study, and there is research to support this focus. Although physical presence or absence is a research construct worthy of consideration, scholars suggest that the ways in which fathers influence their families beyond mere presence or absence must be explored to advance our knowledge of fathering (see Marsiglio et al., 2000). In other words, examining what specifically fathers contribute to their families by their presence or absence is important. By accounting for a more holistic view of
father involvement rather than a simple dichotomy of presence/absence, scholars argue that our knowledge would be advanced (Clarke & O’Brien, 2004; Cabrera et al., 2004). Thus, the current study sought to take a more holistic approach by exploring the quality of the connection between fathers and children.

**Support and harshness as indicators of involvement.** There is research on the specific mechanisms that promote connection between fathers and children. However, this research is historically part of the broader parenting literature and not the fathering literature *per se*. These literatures share at least one common element. They both address the warmth-responsiveness element of Pleck’s (2010b) father involvement construct, which is similar to the concept of parental *support* in parenting literature. Related to attachment theory, support is important to establishing and maintaining a secure connection with children. Researchers have found that warm, supportive parenting from fathers is associated with a more secure attachment in children (Brown, McBride, Shin, & Bost, 2007; Lamb, 2002). Because parental support is a common element of widely accepted parenting models (see Barber et al., 2005, for a review), Pleck (2010b) called for more attention to be given to this element by fathering researchers, as father involvement has an important place in the broader parenting landscape.

Parental *support* consists of behaviors that reflect a warm and responsive environment (e.g., children can approach their parent if they have a concern; the parent accepts the child for who he/she is; Stolz, Barber, & Olsen, 2005). Pleck (2010b) cited similar examples for this warmth-responsiveness construct (e.g., receiving praise). For this investigation, the construct of support represents the warmth-responsiveness construct common in father involvement literature. Parental support is associated with positive child outcomes, such as higher levels of self-esteem, social competence, and creativity (Maccoby & Martin, 1983). Parental support has also been linked to increases in academic achievement, decreases in externalizing problem behaviors, less risky behavior during sexual activity (e.g., using contraception), fewer sexual partners, and delayed onset of sexual intercourse for adolescents (Barber et al., 2005; Danziger, 1995; Miller, Benson, & Galbraith, 2001; Small & Luster, 1994).

For adolescents, perceived support from one’s father is correlated with depression, social initiative, and externalizing behavior problems. Specifically, higher levels of paternal support are associated with less depression, higher social initiative, and fewer externalizing behavior problems (Barber et al., 2005). Social initiative, or seeking connections with peers or adults
outside of the family, is an important part of adolescent social competence (Barber & Olsen, 2004), and there is some evidence showing paternal support is more influential than maternal support (Stolz et al., 2005). In fact, Stolz and Barber used dominance analysis (which assesses the relative importance of certain predictors) and concluded that the effect of father support was the most influential predictor in explaining social initiative in adolescents. That is, the more these children felt supported by father, the more likely they engaged in positive relationships outside of the home.

Parental harshness is also important to the father-child relationship and consists of behaviors that reflect a critical or unaccepting environment (e.g., a parent makes fun of or criticizes his child, the child feels belittled). Parental harshness is linked to negative outcomes, such as higher aggression, substance abuse, depression, and anxiety in children (Conger, Reuter, & Conger, 1994; Simons, Whitbeck, Beaman, & Conger, 1994). There is some support for using harshness as an element of father involvement (Koon & Pasley, 2010); however, the role of parental harshness in the father-child relationship needs further exploration.

Related to the current study, these findings from the broader parenting literature provide important insights into the types of interactions between parents and children that are influential to children’s well-being. Combining this information with that of the fathering literature, I explore the role of perceived paternal support and harshness as key components of the father-child relationship in predicting adolescent sexual activity. Conceptually, support and harshness represent the warmth-responsiveness element of father involvement (Pleck, 2010b) which is associated with the attachment relationship between fathers and their children (Brown et al., 2007).

Father-Daughter Relationships

The mother-child relationship has received considerably more attention than has the father-child relationship. The father-daughter relationship has received even less attention, as fathers were initially assumed to be more important to and have the most influence on sons (Pleck, 2010a). However, there is evidence, albeit limited, that fathers also influence their daughters in important ways, and this relationship has implications for the well-being of daughters. Recently, a growing body of fathering literature has emerged which follows the advice of Marsiglio, et al. (2000) and explores the effect of the father-child relationship on child well-being beyond his mere presence or absence in the home. Specifically, research explored the
dynamics of the father-daughter relationship. For example, a positive relationship (marked by positive interactions) between fathers and daughters is linked with increases in psychological well-being and buffers against eating disorders in adolescent daughters (Botta & Dumloa, 2002; Coley, 2003; Jones et al., 2006).

Overall, this growing body of research on father-daughter relationships suggests that daughters tend to share more intimate conversations and be emotionally closer to their mothers. Daughters report that their interaction with fathers was more likely to involve some sort of shared activity (e.g., attending a sporting event) or conversations about school rather than shared intimacy (Collins, Angera, & Latty, 2008; Krampe & Newton, 2008; Punyanut-Carter, 2005). These findings are consistent with results from the development of a measure of the father-daughter relationship (Morgan, Wilcoxen, & Satcher, 2003), showing that shared intimacy between fathers and daughters explained the least variation in outcomes but made a significant contribution to the quality of their overall model.

Although daughters may share more intimate conversations with mothers, the interactions they have with father are important, and daughters report that they desire these interactions. In fact, daughters report the most common motivation for interacting with fathers is to obtain affection from them (Punyanut-Carter, 2005). Clearly, mothers remain a significant source of intimacy for young women; however, they desire a positive relationship with their fathers and are influenced by the nature of this relationship.

**Father-daughter relationship and daughters’ sexual activity.** Some studies find an association between the father-daughter relationship and adolescent daughters’ sexual activity. Early on, scholars found that daughters with non-resident fathers (e.g., from divorce, death, incarceration) displayed earlier interest and participation in sexual activity, more proximity seeking behaviors towards males in general, and less interest in establishing long-term relationships (Draper & Harpending, 1982; Heatherington, 1972). Other findings indicated that the presence of a biological father in the home is important to the transition to first intercourse for adolescents (Day, 1992). Adolescent females with a resident biological father were likely to be older when they had their first sexual experience compared with their non-resident biological father counterparts (Mendle et al., 2009). Also, daughters reported more responsible sexual activity, if their fathers were willing to have conversations with them about sexuality and sexual activity, compared with daughters who did not have these conversations (Collins et al., 2008).
Further, another study of adolescents found that biological father’s residence in the home was linked with decreased sexual activity in daughters (Jordahl & Lohman, 2009).

It is important to note that these few studies were conducted with paternal residence as a main predictor of daughters’ sexual outcomes. However, there is some evidence of an association between father involvement (as indicated by support and harshness) and these same outcomes in daughters. For example, in a sample of young-adult women, father harshness (measured as perceived criticism/ridicule) was positively correlated with the number of “hook-up” partners in college (Koon & Pasley, 2010). In a similar study, young adult women were more likely to “hook-up” when they reported higher levels of father harshness (Koon et al., 2010). No research was found addressing these effects on adolescent sexual outcomes.

**Limitations of Prior Research**

In addition to the existence of disproportionately less research on the father-child relationship compared to the mother-child relationship and Marsiglio, et al.’s (2000) call for more research on specific father-child relationship processes, fathering research has additional limitations worthy of consideration. Pleck (2010b) noted that many fathering studies do not account for the influence of mothers on the father-child relationship. This is problematic because fathering and mothering variables are usually positively correlated (Pleck). He recommended that all fathering studies control for maternal influence. Pleck also noted that fathering researchers have not taken full advantage of the large representative samples available for study. He recommended that researchers should explore their hypotheses with these different data sets to present a picture of fathering that represents the broader population.

In light of these limitations, this study makes four substantive contributions to the extant literature. First, I add to the knowledge of factors that influence the sexual activity of young women by exploring an understudied correlate: the nature of the father-daughter relationship. This is important in light of changes in contemporary culture where fathers are expected to assume an increased caretaking role. Second, the results of this study add to the general fathering literature by moving beyond paternal presence or absence and exploring daughter perceptions of the quality (as measured by support and harshness) of the father-daughter relationship. Third, I control for maternal influence on the father-child relationship in addition to controlling for other known correlates of adolescent sexual activity. Finally, I use a national, representative sample to
explore the research questions of interest. I am aware of only one other study using the NLSY97 data in this manner (Coley, Votruba-Drzal, & Schindler, 2009); however, this study used a different analytic strategy. Ultimately, the information derived from my study could help inform interventions designed to decrease negative health outcomes for young women.

**Current Study**

Grounded in attachment theory and symbolic interactionism and building on findings from the current fathering and adolescent sexuality literature, I examined the effects of father-daughter relationship quality on daughter’s sexual activity in adolescence. I look beyond the presence or absence of a father and examine specific aspects of the father-daughter relationship (perceived paternal support and harshness) as indicators of father involvement. As already noted, these behaviors promote secure parent-child attachment (Brown et al., 2007). Specifically, I explore the associations between paternal support and harshness and adolescent women’s engagement in sexual intercourse. For adolescent women who have engaged in sexual intercourse, I also examine the association between paternal support and harshness and their age of onset of intercourse.

**Research Questions and Hypotheses**

1. How are self-reported perceptions of paternal support and harshness associated with sexual activity in adolescent females?

   **Hypothesis 1.** Higher levels of perceived paternal support will be associated with lower likelihood of sexual intercourse in daughters, and higher levels of perceived paternal harshness will be associated with higher likelihood of sexual intercourse in daughters.

2. For those adolescent females who have engaged in sexual intercourse, how are self-reported perceptions of paternal support and harshness associated with the age of onset of sexual activity?

   **Hypothesis 2.** Higher levels of perceived paternal support will be associated with lower likelihood of early sexual activity in daughters, and higher levels of perceived paternal harshness will be associated with higher likelihood of early sexual activity in daughters.
CHAPTER THREE

METHODS

In this chapter, I describe the data, sample, measures, and statistical methods used to explore the above research questions and test the stated hypotheses.

Data

For this investigation, data from the National Longitudinal Survey of Youth 1997 Cohort are used (Moore, Pedlow, Krishnamurty, & Wolter, 2000). This data set was originally collected to explore factors that influence youth entry and exit from the work force. For the current study, these data include measures related to the relationship between parents and their children, as well as outcome indicators related to the sexual activity of adolescents. These are public data and part of the National Longitudinal Surveys (NLS) program managed by the U. S. Bureau of Labor Statistics.

Eligible participants for the Base Year survey in 1997 were adolescents born between January 1, 1980, and December 31, 1984 (ages 12-16 as of December 31, 1996), who were living at home. Potential respondents who were living away from home (e.g., boarding school, juvenile justice facility, group home) were excluded. The Base Year survey used standard area probability sampling from which 90,000 homes from all 50 states and the District of Columbia were randomly selected (with information from the U.S. Census Bureau) as the pool of potential participants. In-person screenings were then conducted to verify eligibility and determine which families were willing to participate. Families were promised payment in exchange for participation. (For a complete description of the sampling procedures, including procedures for sample weighting, see Moore et al., 2000).

Participant ages ranged from 12-16 at baseline, and they were 23-27 at Year 12 of data collection. In all, 8,984 participants were surveyed at Base Year, and 7,490 were retained throughout the remaining years. Of the initial sample, 51% were male and 49% were female; 51.9% were White, 26% were Black, 21.2% were Hispanic/Latino, and 0.9 % of mixed race (U. S. Bureau of Labor Statistics, 2010). Included in the total baseline sample were two subsamples: a nationally representative sample of 6,748 respondents and an oversample of Hispanic and Black respondents living in the U.S (n = 2,236).
Participants were surveyed once during the Base Year and then once annually since 1997. A parent of the eligible adolescent completed the Parent Questionnaire which included demographic information on members of the household and extensive information on parent education, work history, family background, child health, and current family dynamics. The biological mother was the first choice to complete this questionnaire followed by the biological father. Step- and adoptive parents were considered, if the biological parents were not available. The target adolescent then completed the Youth Questionnaire which included extensive information on family dynamics (including interactions with parents), dating and sexual history, and substance use history. Parents were compensated $10 for their Base Year responses. The adolescents were not compensated.

Respondents were interviewed 12 months later and each subsequent year. For Years 2-13, the target youth completed the Youth Questionnaire; however, parents only provided updates on household composition and financial information. The most recent data (Year 12) were collected in 2008. In addition to the Parent Questionnaire and Youth Questionnaire, interviewers collected educational data by the School Survey. During Years 1 and 3, school officials completed the questions about school organization and policies and the youth’s academic performance. These data have identifying information and are restricted and not used here.

**Sample**

The outcome measures of interest to the current investigation included responses from Year 3 (1999). This round was chosen for two reasons. First, one measure of sexual activity regarding having sexual intercourse before the age of 15 would not be appropriate for earlier rounds, because the youngest participants were 12 years old at baseline. Using Year 3 data ensured that most participants were at least 15 years old, increasing the potential sample size for the analysis. Second, the fathering variables of interest were not measured after Year 3.

The original Year 3 sample included 8,984 respondents. Because the current investigation focuses on the father-daughter relationship, males were excluded from the study, reducing the sample to 4,385. Females who had ever married or cohabited were also excluded because this study is concerned with those living at home. This further reduced the sample to 4,121. Also, because of the focus on adolescents, females 18 years-of-age and older were excluded, reducing the sample again to 2,444. Finally, based on the original survey methodology, respondents who
were not currently living with their mother or father did not answer the relationship quality items related to that parent. Thus, they were excluded from this study as well.

The final sample used in the analysis here consisted of 1,527 adolescent females under the age of 18 who had never married or cohabited and were living at home with at least one parent. The mean age of this weighted sample was 15.93 (SD = .87, range 14-17). The race/ethnicity makeup was as follows: 76.7% White, 12% Hispanic, 10.3% Black, and 1% Mixed Race. Of the sample, 73.5% lived with both biological parents, 26.5% lived with a biological parent and a step-parent (married or cohabiting partner as a father/mother figure). The mean family income over Years 1-3 was between $50,000-$59,999. Complete descriptive information on the final sample used here (N = 1,527) appears in Table 2.

Measures

Several measures were used to assess the relationship quality of mother and father relationships, daughter’s sexual activity, and several control variables known to affect the dependent variables.

Indicators of Relationship Quality

Four measures of the relationship quality between parents and daughters are included that assess levels of support and harshness.

Support. Paternal and maternal support is measured by 2 items reported by the daughters regarding their mothers and fathers. The first item asks: “How often does your father/mother praise you for doing well?” The second item asks: “How often does your father/mother help you do things that are important to you?” For these items, respondents answer on a 5-point Likert-type scale, ranging from 0 = Never to 4 = Always. A composite support score was constructed from the two items, so possible scores range from 0-8 with higher scores representing more frequent perceived support for the designated parent. Support items from survey Years 1-3 were included. Six items similar to these were used as a measure of parental support in another investigation of the parent-child relationship and were found to have strong psychometric properties as indicated by coefficient alpha levels above .88 and confirmatory factor analysis results indicating excellent model fit (Koon et al., 2010). Coefficient alpha levels for support scores in the current sample appear in Table 2 and range from .67 to .80, depending on the referent parent and the year of data collection.
**Harshness.** Paternal and maternal harshness is measured by 2 items reported by the daughters regarding their mothers and fathers. The first item asks: “How often does your father/mother criticize you or your ideas?” The second item asks: How often does your father/mother blame you for problems?” For both items, respondents answered on a 5-point Likert-type scale, ranging from 0 = *Never* to 4 = *Always*. A composite score was constructed from the two items, so possible scores range from 0-10 with higher scores reflecting more frequent perceived harshness from the designated parent. Harshness items from survey Years 1-3 were included. Three items similar to these were used as a measure of parental harshness in another investigation of the parent-child relationship and were found to have strong psychometric properties as with the parental support items (Koon et al., unpublished manuscript). *Coefficient alpha* levels for harshness scores in the current sample appear in Table 2 and range from .50 to .62, depending on the referent parent and year of data collection.

**Indicators of Daughter Sexual Activity**

Two indicators of daughter sexual activity were assessed: sexual intercourse and early vs. delayed onset. Regarding sexual intercourse, respondents were asked “Have you ever had sexual intercourse, that is, made love, had sex, or gone all the way with someone of the opposite sex?” Responses were *yes or no*, and a dummy coded variable was created. Regarding early vs. delayed onset of sexual activity, respondents who reported that they had engaged in sexual intercourse (*n* = 226) were also asked, “How old were you when you first had sexual intercourse?” A dummy coded variable was created to classify daughters as *early* (< 15) or *delayed* onset (≥ 15) of sexual activity. This age designation is common in studies of this nature (Ellis et al., 2003).

**Control Variables**

Several correlates were noted in the literature review as influencing adolescent sexual activity, and some were available in the current data. Thus, these were included in the analysis as control variables: age, race, delinquent behavior, dating frequency, family income, family structure, maternal education, and maternal age at first birth.

Respondents reported their *age* at each year of data collection, and they reported their *race* at baseline as: Black, Hispanic, Mixed race, or White. After frequencies were calculated for descriptive purposes, I recoded the variables into two categories (Non-white, White) to be included as a dummy variable in the analysis. I did this because the logistic regression analysis did not recognize 4 groups for this categorical predictor (Mixed-race was excluded), so I opted to
include Black, Hispanic, and Mixed-race respondents in the Non-white group rather than remove Mixed-race from the analysis and potentially lose statistical power.

Kirby’s (2007) review of sexual activity correlates categorized substance use and criminal activities (e.g., stealing, violence) as delinquent behaviors. In the NLSY data, criminal activities were labeled “delinquent” behaviors, and substance use was considered a separate concept. For purposes of this study, delinquent behavior, as conceptualized in the literature review (substance use and criminal activities), consists of two indices constructed by the data administrators: the substance abuse index (SUI) and the delinquent behavior index (DBI).

Responses to questions asking if the respondents had ever used alcohol, marijuana, or tobacco were combined to create the SUI. Respondents received a mark of 1 for each substance used; the marks were then added to produce the following intervals: 0, 1, 2, 3. I added the SUI’s from Years 1-3 to create a composite SUI score. This represents the respondents’ overall substance use history as of survey Year 3, and scores ranged from 0-9.

Responses to a question asking if the respondent had engaged in 10 behaviors were combined to create the DBI. These behaviors included: ever run away from home, carried a handgun, belonged to a gang, purposely damaged property, stolen something worth < $50, stolen something worth > $50, sold stolen property, been in a fight, sold drugs, or been arrested. Respondents received a mark of 1 for each behavior committed, and the total number of marks represented the DBI score. I combined DBI scores from Years 1-3 to create a composite DBI score. This represents the respondents overall delinquent behavior history as of survey Year 3, and possible scores ranged from 0-30. Coefficient alpha levels for the two indices are not included, because the frequency of each type of substance abuse and delinquent behaviors are not assumed to be correlated with the frequency of the other types (Moore et al., 2000).

Respondents also reported their dating frequency since the last interview: “Thinking back over the past year, how often have you had a date or gone out with someone of the opposite sex in an unsupervised social outing? Responses were: 1 = never, 2 = few (1-3 times), 3 = less than once a month (4-11 times), 4 = once or twice a month (12-25 times), 5 = once a week or more (more than 50 times). I created a composite score from Years 1-3 to reflect the respondents’ dating history to date. Only those who reported having ever dated someone (n = 1166) were asked this question. Thus, respondents who reported they had never been on a date (n
were added to the *never* group. Scores ranged from 0-15 with higher scores representing a higher dating frequency.

The respondents reported household income (family income) for the previous year. Responses were in increments of $10,000 and ranged from 1 = $0-$9,999 to 16 = $150,000 +. I took the average income from survey Years 1-3 to reflect family income history to date.

*Family structure* indicates the parental composition of the adolescent’s residence: 1 = two biological parents, 2 = biological parent and stepparent (or parent’s current partner and the adolescent’s parent figure). Due to restrictions in the data, only adolescents residing with a parent answered the relationship quality variables. Those in alternate structures (e.g., single parent, grandparents) were excluded from the analysis.

*Maternal education* was reported by the responding parent as the highest degree the mother received at Year 1: 1 = None, 2 = High school diploma/GED, 3 = Associate/Junior college (AA), 4 = Bachelor’s degree (BA, BS), 5 = Master’s degree (MA, MS), 6 = Professional degree (DDS, JD, MD, PhD). Thus, higher scores reflect higher levels of education. Maternal education was only reported at Year 1.

*Mother’s age at birth* was reported by the responding parent regarding mother’s age at the birth of her first child.

**Data Analysis**

**Preliminary Analysis**

To assess the normality of the data, I reviewed the sample descriptive statistics paying special attention to the skewness and kurtosis values. I also reviewed the bivariate correlation matrix to determine if multicollinearity is an issue among the variables of interest.

**Binary Logistic Regression**

I used the following strategy to assess the relationship between father-daughter relationship quality and sexual activity in adolescent daughters. To test *Hypothesis 1* (Higher levels of paternal support will be associated with lower likelihood of sexual intercourse, and higher levels of paternal harshness will be associated with higher likelihood of sexual intercourse in daughters) and *Hypothesis 2* (Higher levels of paternal support will be associated with lower likelihood of early sexual activity, and higher levels of paternal harshness will be associated with
higher likelihood of early sexual activity, I performed a binary logistic regression with maximum likelihood estimation (ML).

Binary logistic regression is appropriate, because the main dependent variables are dichotomous. Results show the change in the odds that a respondent engaged in sexual intercourse and whether the intercourse was early vs. delayed based on the level of support and harshness she perceived in her relationship with her father (above and beyond the influence of mother’s support and harshness and the control variables). To determine the independent contribution the father relationship makes to the overall model, I entered the control variables into Block 1, the mother support and harshness into Block 2, and father support and harshness into Block 3. A comparison of the control-only model with the models that include the mother and father relationship quality variables, allows one to see the independent contribution of the daughter’s perception of the relationship with each parent to her sexual behavior above and beyond the influence of the known correlates of sexual activity used in this study.

**Model tests.** To determine if any non-important variables were included in the model, I used several model tests. The log likelihood (-2LL) statistic is a measure of model fit. Perfect model fit is indicated by -2LL=0, so smaller numbers indicate better model fit (Pedhazur, 1997). The change in -2LL across competing models shows whether each added predictor adds significant predictive value to the model. The -2LL difference test follows a chi-square distribution and is included in the SPSS output (Y. Yang, personal communication, November 14, 2007).

The Nagelkerke $R^2$ statistic shows how each of the predictors influence the model by running a model with predictors against a model with no predictors (Pedhazur, 1997). The $R^2$ value used in logistic regression is similar to the $R^2$ value used in multiple regressions in that a statistic equal to 1.0 indicates perfect fit (Y. Yang, personal communication, November 14, 2007). Changes in Nagelkerke $R^2$ show the change in model fit across competing models.

To test the overall fit of the predicted model, I used the Hosmer-Lemeshow (HL) test of model fit. This test considers how the pattern of predicted scores from the model matches the pattern of actual scores (Y. Yang, personal communication, November 14, 2007). This test also follows a chi-square distribution in that a significant $p$-value indicates poor model fit. In addition, I examined the classification tables in the output which show the accuracy of my
predictions about group membership. This table shows the percentage of cases that are predicted properly by the model (Pedhazur, 1997).

**Sample Size**

One important aspect of a study is an adequate sample size. In social sciences research, it is important to know that you have enough participants to obtain the necessary power for your analysis. Statistical power refers to the probability of finding an effect that truly is there (Grimm & Yarnold, 2004). In other words, the more statistical power in your study, the more likely it is that you will find a significant effect, if it is exists. Effect size is another important consideration in this discussion. For the current study, the effect of father involvement on daughter outcomes is seen as the size of the odds ratio. Ellis et al. (2003) found a rather large effect size for father involvement and daughter sexual outcomes (odds = 2.01). For a logistic regression assuming this large effect size, an alpha level of .05 and power = .95, Hsieh, Bloch, and Larsen (1998) recommend a sample size of at least 320 participants. The final sample of 1,527 was large enough to have the statistical power to detect significant effects, if they are present in the data.

**Missing Data**

In any analysis, missing data are a common occurrence that must be addressed. Deleting missing cases or using mean imputation of missing data are common strategies used to account for missing data; however, these strategies can bias the results. For this study, I followed Schafer and Graham’s (2002) recommendation of using Maximum Likelihood (ML) estimation to account for missing data. This method replaces a missing value with the estimate that has the highest probability (maximum likelihood) of being correct, based on the distribution of the observed scores (non-missing data). Because the estimate is selected through an iterative likelihood procedure, ML produces standard errors which are less biased than case deletion or standard mean imputation (Schafer & Graham). I analyzed the data with the SPSS statistical package using ML as the estimation method.

**Sample Weights**

Because the data set contains oversamples of Black and Hispanic participants, the appropriate weights were applied to the descriptive analysis as recommended in the NLSY97 sampling report (see Moore, Pedlow, Krishnamurty, & Wolter, 2000; Young & Johnson, 2010). However, these scholars recommend using un-weighted data for analyses such as logistic
regression when researchers include variables from more than one survey year. Thus, the regression analysis for this study was conducted with un-weighted data.
CHAPTER FOUR

RESULTS

In this chapter, I report the results of the descriptive and binary logistic regression analyses for variables predicting sexual intercourse and age of onset of sexual intercourse in adolescent women. Descriptive statistics were calculated with weighted data, whereas I used un-weighted data to conduct the logistic regressions. I used maximum likelihood estimation (ML) for the logistic regression analyses to account for missing data.

Preliminary Analysis

The first step in this analysis was to explore the normality of the data. I examined the skewness and kurtosis statistics and the bivariate correlation matrix to explore the normality of the data and potential multicollinearity. A common rule-of-thumb for the accepted skewness range is ±2 and the accepted kurtosis range is ±7 (Pedhazur, 1997). All variables except Delinquency Scores Index fell within these ranges (see Table 3 for complete statistics). However, the rules-of-thumb are not definitive, and higher values can be accepted (Ming Cui, personal communication, March 18, 2011) without compromising the normality of the data. As such, the variables in this study are assumed to be normally distributed. The bivariate correlation matrix yielded no evidence of multicollinearity among the variables (see Table 1). Paternal Support at Years 2 and 3 had the highest correlation ($r = .68, p \leq .05$), but this would be expected across the survey years. Thus, multicollinearity is not an issue in this analysis. Having evidence of normally distributed scores and no multicollinearity, I proceeded with the main data analysis.

Binary Logistic Regression

For both hypotheses, I used binary logistic regression to calculate the influence of perceived paternal support and harshness on the sexual activity of adolescent daughters. This influence is represented by the change in the odds of daughters having engaged in sexual intercourse for each unit change in support and harshness above and beyond the influence of the control variables and maternal support and harshness. I entered the control variables, maternal variables, and paternal variables in a stepwise manner to see the added contribution of each set of predictors. The following models resulted from the analysis: the baseline model with no predictors, the covariate only model, the maternal variables model, and the paternal variables model. Comparison of each model shows the independent contribution of the variables in each
model beyond the variables in the previous model. The results of the final model for each hypothesis appear in Tables 4 and 5.

In addition to the omnibus test of model significance, I used several other model quality statistics. First, the classification percentage shows the model’s ability to correctly classify daughters into two groups: engaged in sexual intercourse vs. not engaged. Model quality improves as the classification percentage increases. Second, the Hosmer-Lemeshow (HL) test indicates how well model predictions match the actual scores. A non-significant HL statistic indicates good model quality. Next, the Nagelkerke $R^2$ statistic is similar to the $R^2$ statistic in standard multiple regression: perfect model fit is indicated by a value of 1.0. Higher values indicate better model quality. Finally, changes in the -2Log Likelihood (-2LL) show the value of predictors added to the model. -2LL = 0 indicates perfect fit, so smaller values show better model quality.

**Hypothesis 1.** How are self-reported perceptions of paternal support and harshness associated with sexual activity in adolescent females? I expected that higher levels of perceived paternal support will be associated with lower likelihood of sexual intercourse in daughters, and higher levels of perceived paternal harshness will be associated with higher likelihood of sexual intercourse in daughters.

A complete listing of the logistic regression results appears in Table 4. Contrary to what was expected, neither the father nor the mother relationship quality variables of support and harshness significantly predicted whether daughters engaged in sexual intercourse ($p \geq .05$). Also contrary to the expected result, the control variables of family structure (two biological parents vs. a biological parent and a stepparent), maternal education level, and maternal age at first birth also did not significantly predict the dependent variable ($p \geq .05$). However, consistent with adolescent sexuality literature, race ($B = .82, e^B = 2.28$), age ($B = -.76, e^B = .47$), family income ($B = -.09, e^B = .97$), substance use ($B = .24, e^B = 1.27$), delinquency ($B = .20, e^B = 1.22$), and dating frequency ($B = .17, e^B = 1.18$) significantly predicted the odds of adolescent women engaging in sexual intercourse.

These results are interpreted in the following way regarding the likelihood of engaging in sexual intercourse:

1. Minority females are 2.28 times more likely than White females;
2. For each year older, respondents were less likely;
3. For each unit increase in family income (≈ $10,000), respondents were 0.97 times less likely;
4. For each additional illegal substance used, respondents were 1.27 times more likely;
5. For each additional delinquent behavior reported, respondents were 1.22 times more likely;
6. For every unit increase in dating frequency, respondents were 1.18 times more likely.
This pattern of significance was consistent across all models in the stepwise analysis.

The results in Table 6 show that each of the models in the stepwise logistic regression showed reasonable fit to the data (e.g., -2LL decreased across models, non-significant HL test, \( R^2 \) increased, high classification percentage, and significant omnibus test). The fit statistics for the final model were: -2LL (620.35), HL (\( p = .51 \)), \( R^2 = .35 \), classification percentage (89.1%), omnibus test: \( \chi^2 (21) = 228.64, p < .001 \). This model explains about 35% of the variance in daughter sexual activity scores. However, despite the high overall classification percentage, this model was much better at classifying those who had not engaged in sexual intercourse (97.8%) than those who had engaged in sexual intercourse (27.1%). In other words, the significant variables in this model tell us more about those who have not had sex than those who have.

Although the overall model fit was reasonable for each model, the mother and father variables did not significantly add to the prediction of the model beyond the influence of the control variables. In fact, the overall classification percentage decreased slightly (.2%) from the maternal variable model to the paternal variable model. Further, the low classification percentage of the sexual intercourse group increased only slightly from the control variable model (22.9%) to the maternal variables model (28.6%) and decreased in the paternal variables model (27.1%). Also, the HL statistic decreased slightly as well (.02). Together, these statistics indicate that the addition of the maternal and paternal relationship quality variables did not improve the model’s ability to predict the odds of group membership beyond the influence of the significant control variables. Thus, the hypothesis was not supported.

**Hypothesis 2.** For those adolescent females who have engaged in sexual intercourse, how are self-reported perceptions of paternal support and harshness associated with the age of onset of sexual activity? Higher levels of perceived paternal support will be associated with lower likelihood of early sexual intercourse in daughters, and higher levels of perceived paternal harshness will be associated with higher likelihood of early sexual intercourse in daughters.

Consistent with the hypothesis and previous findings on adolescent sexual activity, two variables in the final model significantly predicted early vs. delayed onset of sexual activity in
adolescent daughters: delinquency ($B = .26, e^B = 1.30$) and paternal harshness Year 2. ($B = .37, e^B = 1.44$). The remaining variables did not significantly predict age of onset. (See Table 5 for complete results.) These results are interpreted in the following way regarding the likelihood of early sexual activity:

1. For each additional delinquent behavior reported, respondents were 1.30 times more likely;
2. For every unit increase in father harshness, respondents were 1.44 times more likely.

Although the model produced two significant effects, the overall model was not significant [$\chi^2(21) = 31.54, p > .05$] and displayed a poor fit to the data. Table 6 shows this poor fit pattern for each of the models in the stepwise logistic regression (e.g., low $R^2$ values, low overall classification percentages, and the non-significant omnibus test reported above). The fit statistics for the final model were as follows: $-2LL$ (153.18), $HL (p = .10)$, $R^2 = .28$, classification percentage (70%), omnibus test: $\chi^2(21) = 31.54, p = .07$. Although the $-2LL$ value is lower in this analysis than in the former (620.35), the overall classification percentage is almost 20% lower, the $HL$ statistic nears significance, and the model explained less of the variance in scores $R^2 = .28$ (the sexual intercourse model explained 35% of the variance in sexual activity scores).

Despite the poor overall model quality, interestingly the final model predicted membership in the early onset group with an 81.8% accuracy compared to 50% accuracy for the delayed onset group. In contrast to the previous logistic regression analysis, paternal harshness Year 2 significantly contributed to the prediction of membership in the early onset group above and beyond the influence of the control variables and the maternal relationship variables. The initial early onset group classification percentage (80.7%) decreased in the maternal variables model (78.4%) but increased in the paternal variables model (81.8%). Thus, the hypothesis is partially confirmed, but one should interpret the result with caution in light of the poor model quality.

**Summary of Results**

In summary, Hypothesis 1 was not supported by these data. Father support and harshness did not significantly predict whether daughters engaged in sexual intercourse in this sample of 14-17 year olds. However, consistent with previous findings, several control variables did significantly predict whether daughters engaged in sexual intercourse. Being a minority and reporting higher levels of substance use, higher levels of delinquent behaviors, and more
frequent dating all increase the odds of adolescent females reporting that they had had sexual intercourse. Higher family income and being older decreased the odds of their reporting this.

I found partial support for Hypothesis 2 in these data. Both delinquent behavior and paternal harshness increased the likelihood that respondents were classified as experiencing early onset of sexual activity. Paternal harshness reporting during Year 2 contributed to the overall model above and beyond the influence of the control variables and the maternal relationship variables. The final model also predicted the early onset group with 81.8% accuracy. However, the overall model quality was poor, suggesting lower confidence in the results.
CHAPTER FIVE

DISCUSSION

I investigated the influence of perceived paternal support and harshness on the sexual activity of adolescent females. For those females who engaged in sexual intercourse, I also investigated the influence of paternal support and harshness on the age of onset of sexual intercourse. In this chapter, I discuss the results of these analyses in light of the theoretical orientation used and previous research findings. I also discuss the limitations of the current study, clinical implications of the findings, and future directions for this research.

Influence of Support and Harshness

Related to perceived paternal support, I found no evidence for the influence of this factor on the likelihood of daughters reporting that they had engaged in sexual intercourse or experienced early onset of sexual intercourse. In other words, increases in paternal support did not change the odds of daughters engaging in sexual intercourse or the odds of them experiencing early onset of sexual intercourse. In fact, the effects of paternal support were consistently non-significant in all analyses. However, it would be premature to conclude that paternal support does not influence daughters’ sexual activity, because previous research clearly shows the influence of paternal support on the sexual activity of adolescents (Barber et al., 2005). Perhaps only using two items to constitute support in this study missed other elements of support that have been included in other studies (Barber) and that may be important (e.g. expression of affection). Also, attachment theory and symbolic interactionism outline the importance of a warm and responsive parent and how the meaning created from this supportive interaction strengthens the attachment bond. This analysis simply failed to show an effect beyond what could be expected by chance alone. Failure to reject the null hypothesis does not mean the null hypothesis was proven (Grimm et al., 2004).

Based on this investigation, I found some support for the influence of perceived paternal harshness as a significant contributor to early onset of sexual intercourse in adolescent females. This contribution is above and beyond that of the influence of the mother-child relationship and other known correlates of adolescent sexual activity. This highlights the independent effect of a father on the sexual activity of his daughter.
Theoretically, paternal harshness would be expected to contribute to a less secure attachment bond between a father and his daughter. In turn, the reduction in secure attachment could translate into early sexual debut as the adolescent searches for security from others (e.g. peers; Allen et al., 1998). This finding related to paternal harshness is consistent with findings from a previous study that found perceived paternal harshness was correlated with more frequent hook-up behavior in college-aged females (Koon et al., 2010). Thus, together these findings could point to the importance of perceived paternal harshness at specific points in his daughter’s life, such as points around the transition from middle school to high school and during emerging adulthood – two key transition periods in development during which parental behaviors may be more impactful on children’s behavior (Barber & Olsen, 2004; Dotterer, Hoffman, Crouter, & McHale, 2008).

I also note an interesting finding from the results (see Tables 4 and 5) that support the argument of the potential importance of timing. In both logistic regression analyses, the following pattern was observed: paternal harshness in survey Years 1 and 3 were associated with a decrease in the odds of early sexual activity (neither effect was statistically significant), whereas paternal harshness at survey Year 2 was associated with an increase in the odds of early sexual activity. This pattern was also observed for maternal support and paternal support in the age of onset model. The mean age of this sample was 14.55 at Year 2, so these women could be transitioning into high school. Future investigations should explore this trend to see how timing of perceived paternal harshness is related to daughter outcomes. In a similar study, Ellis, et al. (2003) found that father absence predict daughter sexual activity and the timing of that absence significantly influenced the age at which daughters engaged in sexual intercourse: earlier father absence increased the odds of daughters engaging in early sexual activity by almost 5 times.

Because the overall model was not significant, I would be remiss if I did not interpret these results with caution. However, the poor model quality could be due to several things. First, in the methods section, I reported Hsieh, et al.’s (1998) recommendation of a sample size of at least 320 participants for a logistic regression assuming a large effect size (odds = 2.01 based on findings from Ellis el al., 2003), an alpha level of .05, and power = .95. The sample of respondents who engaged in sexual activity (n = 226) was below this recommended sample size. Also, the highest odds ratio found in the age of onset analysis was 1.44 (for paternal harshness). Thus, a smaller than recommended sample and smaller than expected effect sizes could have
decreased the power of the overall analysis. In other words, it is possible that I did not have the necessary power to detect other effects that were present which could improve the quality of the model.

Also, variables included in the age of onset analysis (not including delinquent behavior, and paternal harshness) did not significantly contribute to the model. These non-significant factors could be creating statistical “noise,” interfering with the quality of the overall model. Testing a more parsimonious model of the variables found to differ between groups might result in improved model quality and increase the confidence in this finding related to paternal harshness.

The strength of the covariates in these findings is also supported findings from the extant literature on adolescent sexual activity. Consistent with previous research (Kirby, 2007), race, age, substance use, delinquent behavior, family income, and dating frequency were significant contributors to the model predicting engagement in sexual intercourse. Delinquent behavior significantly contributed to the age of onset model. Clearly, these factors, which represent both individual and contextual influences, are important to the sexual activity of adolescent females. Notably, family structure (differentiating two-parent biological families from stepparent families only), maternal education, and maternal age at first birth did not help explain this sexual activity.

Caution must be exercised in interpreting the significance of these covariates in explaining engaging in sexual intercourse, because the final model did not accurately classified membership in the two groups. Remember, the final model was better able to classify those who did not have sex (97.8%) rather than those who had sex (27.1%); it was the latter group of interest in this study. Thus, I have more confidence that these variables can help to identify those who do not engage in sexual intercourse, and much less confidence in using these variables to identify those who do engage in sexual intercourse. Perhaps there are other factors not included in this model (e.g., influence of peers, other family structures) that are important predictors of those who engaged in sexual intercourse.

Limitations and Strengths

There were several important limitations to this study. First, I was unable to include important control variables due to data limitations. Individual attitudes were reported to be the most important predictor of sexual activity (Kirby, 2007), and permissive parental and peer attitudes toward sexual activity are also important. Related to the importance of advancing
theory, this added information could allow us to see if the connection between parents and children is important above and beyond the values of the individual, parents, and peers. For example, it could be that despite sexually permissive attitudes from parents and peers, a secure attachment could still contribute to a delayed onset of sexual activity. These variables were not available in this data set but are important to include in future investigations.

Second, caution should be used when considering the measurement of harshness in this study. The alpha levels of internal consistency (see Table 2) for the paternal and maternal harshness were low (.51-.62). Similar items (6 total) measuring support and harshness showed higher levels of internal consistency in another study (> .80; Koon et al., unpublished manuscript). Thus, the low alpha levels in this study could be attributed in part to the limited number of items used to construct the variables. However, the low internal consistency could simply indicate that the two items measure different constructs. Perhaps blame is not perceived in the same manner as is criticism by adolescent daughters. The two items used for harshness were the only relevant measures for these constructs available in the NLSY97 data.

Third, the methodological strategy of the data collection restricted the current study’s sample. Parental relationship quality questions were only collected from respondents who lived at home and who were ≤ 14 years old at the first year of data collection. Respondents did not answer questions used to indicate support and harshness in this study for non-resident parents. It may be that daughters who do not live with their father (but have contact) are also at risk for early sexual activity if that contact includes perceived harshness. Further, it may be that the pattern of significance of perceived support is different for non-resident parents.

Also, because the main focus of the study was harshness and support and there were a high number of variables already in the analysis, I did not include other potentially important aspects of parenting (e.g., parental monitoring, psychological control; Barber et al., 2005). It could be that how much parents know about and supervise the activities of their children (monitoring) or the level at which parents use feelings (e.g., guilt) to influence children (psychological control) are as important as the support/harshness dimensions of parent-child connection.

The current study has several important strengths despite the above limitations. For example, I explored the relationship between father-daughter relationship quality (perceived support and harshness) and daughter sexual activity within the limitations of a nationally
representative sample of adolescents. This allows me to generalize the findings reported here to the broader population of U.S adolescents of the same age and in the same family structures. Also, I am not aware of another research study that included these many known correlates of sexual activity (control variables and parental relationship variables) as in the current study. This allows for a clearer picture of the influence of the father-daughter relationship on daughter sexual activity above and beyond other known correlates of her sexual activity. Finally, I followed Pleck’s (2010b) recommendation that fathering studies control for the influence of the mother-child relationship on the father-child relationship. Showing the independent effects of fathering allow researchers to see the specific contributions of men to their families.

In sum, we have evidence from this study that a daughter’s perception of the level of harshness her father displays towards her and several of the study’s control variables are associated with the age at which she first engages in sexual intercourse. This paternal harshness finding is significant even after controlling for known correlates of adolescent sexual activity and the influence of the mother-daughter relationship. Although one must interpret this finding with caution based on the study limitations, it remains important because paternal harshness is an understudied correlate of sexual activity, and this study shows it to be a potential risk factor for adolescent female sexual activity. Also, this finding is important for clinicians as they attempt to lower the risk of negative outcomes associated with adolescent sexual activity.

**Clinical Implications**

Although I cannot make inferences about the influence of paternal support on the sexual activity of their daughters due to the non-significant findings, I can make certain clinical implications about those factors in this study that were significantly associated with adolescent sexual activity. First, increases in perceived paternal harshness may be associated with an increase in the likelihood of early sexual debut in adolescent daughters, and evidence suggests that an insecure attachment bond is associated with negative outcomes in children (Bowlby, 1969). As such, interventions such as Emotionally Focused Therapy (EFT) that focus on strengthening the attachment bond in dyadic relationships (Johnson, 2004) could be useful in helping fathers gain insight into how their actions are being interpreted by their daughters. Also, fathers could learn new ways of interacting with their daughters that would not be viewed as harsh. This insight and subsequent change in behavior is theorized to create a more positive dyadic interaction and strengthen the attachment relationship between a father and his daughter.
Thus, the improved relationship quality could lower the daughter’s risk for negative outcomes associated with sexual activity such as STI’s and unplanned pregnancy.

Related to interventions targeting significant correlates of sexual activity (delinquent behaviors, dating frequency, race, age, family income), Kirby (2007) suggested that the amount of influence an intervention has on a risk or protective factor will vary by the factor. In the clinical setting, therapists can work with adolescents and their families to eliminate substance abuse and delinquent behaviors by exploring the causes of the behavior and creating structural changes in the family (Crnkovic & DelCampo, 1998). In the educational setting, teaching and other school personnel can inform and educate parents and children about the risks associated with adolescent sexual activity and emphasize the importance of monitoring the dating habits of their adolescents. In turn, parents and adolescents can use this information to make informed decisions about adolescent romantic relationships.

Therapists are unable to affect the race, age, or family income of their clients. Further, being a minority or being young does not automatically create risk for negative outcomes. It is likely that the contextual issues inherent in being a minority (e.g., lower SES) explain the association with negative outcomes. As such, therapists and educators could work toward lowering the risk of negative outcomes (from low SES) by helping parents obtain a higher level of education (e.g., GED classes), find employment (e.g., assist with job applications), or increase their current income (e.g. job skills training to increase marketability for higher paying jobs).

**Future Directions for Research**

The father-child relationship is understudied compared to the mother-child relationship, so I offer two suggestions for the advancement of this line of research which could make a significant contribution to the extant literature. First, Pleck (2010b) suggested that the influence of the parent-child relationship may not be uni-directional. In other words, it is likely that parents influence their children and that the children, in turn, influence the behavior of the parents. It could be that perceived father harshness influences a daughter’s behavior and her behavior contributes to the level of harshness he displays in the future. Pleck (2010b) recommended that researchers test for bi-directional effects in the parent-child relationship using longitudinal analyses which could account for change over time.

Second, incorporating other dimensions of parenting (e.g., monitoring and psychological control) could serve as important covariates that would allow researchers to obtain a clearer
picture of the contributions of father involvement attributed to these other factors. This could contribute to the more holistic view of father involvement as recommended by Marsigio et al., (2000).

Third, to increase confidence in the finding that perceived parental harshness is associated with the early onset of sexual activity, this study should be tested with a larger sample of sexually active adolescents. Given that the effect size in this study was smaller than expected, a larger sample is needed to have enough power to detect these effects. Also, attempting to replicate these findings with a broader age range and including respondents who do not currently live with their parent could help increase the generalizability of these findings to the general population of adolescents. Thus, we could make a significant contribution to the fathering and sexual activity literatures that would be used to inform future interventions with a goal of increasing the health and well-being of adolescents.

In conclusion, the current study confirmed several important correlates of adolescent sexual activity and showed an independent albeit small contribution of a father’s involvement to the well-being of his daughter. These findings contribute to the extant literature on fathering by helping to show what specifically fathers contribute to the development of their children. Here, we see that perceived father harshness is an important predictor of early sexual activity in daughters. This finding also contributes to what we know about the correlates of adolescent sexual behavior. With further testing and replication, this information could be used by therapists, parents, and educators to help reduce the risk for negative sexual outcomes (STS’s and unplanned pregnancy) in adolescent women. Thus, we will have played a small part in protecting the well-being of these societal members.
APPENDIX A

TABLES
Table 1.
*Bivariate Correlations for Control, Relationship Quality, and Sexual Activity Variables (N = 1527).*

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*p < .05.  **p < .01.
Table 2.  
*Indicators of Sexual Activity, Relationship Quality, and Control Variables: Descriptive Statistics (N = 1,527).*

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<tr>
<th>Variables</th>
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<th>M</th>
<th>SD</th>
<th>Range</th>
<th>(\alpha)</th>
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Note: \(\alpha\) = Cronbach’s Alpha, *dating frequency* is composite score from 0-15 with higher scores indicating more frequent dating, *race:* \(n = \) unweighted frequency, *\(n = 1119.*
Table 3.  
Summary of Skewness and Kurtosis Statistics for Study Variables (N = 1,527).

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<th>Variables</th>
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<th>Kurtosis</th>
<th>SE</th>
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44
Table 4.
Summary of Binary Logistic Regression Results for Variables Predicting Sexual Intercourse in Adolescent Females (N = 1,527).

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<th>B</th>
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<th>e^B</th>
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Note: $e^B$ = exponentiated $B$. *$p < .05$. **$p < .01$. ***$p < .001$. Referent group = minorities, two biological parents.
Table 5.

Summary of Binary Logistic Regression Results for Variables Predicting the Age of Onset of Sexual Intercourse in Adolescent Females (n = 226).

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<td>e^B</td>
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Note: \( e^B \) = exponentiated B. *p < .05. **p < .01. ***p < .001. The referent group for race = minorities and the reference group for family structure = two biological parents.
Table 6.
*Summary of Binary Logistic Regression Model Quality Indices for Variables Predicting Sexual Intercourse (n = 1,527) and Age of Onset in Adolescent Daughters (n = 226).*

<table>
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<td>-2LL</td>
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<td>HL</td>
<td>$R^2$</td>
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<td>624.72</td>
<td>66.4</td>
<td>.21</td>
<td>.23</td>
</tr>
<tr>
<td>Paternal Variables</td>
<td>89.1</td>
<td>.51</td>
<td>.35</td>
<td>620.35</td>
<td>70.0</td>
<td>.10</td>
<td>.28</td>
</tr>
</tbody>
</table>

*Note:* % = Overall percentage of correctly classified cases, $HL =$ Hosmer-Lemeshow, $R^2 =$ Nagelkerke $R^2$, -2LL = -2 Log-likelihood. Each model following the no predictor model represents the addition of the specified variables to the previous model.
APPENDIX B

HUMAN SUBJECTS APPROVAL MEMORANDUM
APPROVAL MEMORANDUM

Date: 12/9/2010

To: Justin Koon

Dept.: FAMILY & CHILD SCIENCE

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
Father-Daughter Relationship Quality and Daughter Outcomes

The application that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and two members of the Human Subjects Committee. Your project is determined to be Exempt per 45 CFR § 46.101(b)4 and has been approved by an expedited review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 12/6/2011 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chair of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that
the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is IRB00000446.

Cc: Kay Pasley, Advisor
HSC No. 2010.5428
REFERENCES


Young, R., & Johnson, D. (2010, November). *To weight or not to weight, that is the question: Survey weights in family research.* Paper presented at the Theory Construction and Research Methodology Workshop, Minneapolis, MN.
BIOGRAPHICAL SKETCH

Justin T. Koon

Justin Koon is a doctoral student in the Marriage and Family Therapy program in the Department of Family and Child Sciences. In the spring of 2004, Justin earned a Bachelor’s degree in Christian Studies from North Greenville University in South Carolina. In the summer of 2007, he completed his Master’s degree in Marriage and Family Therapy from John Brown University in Siloam Springs, Arkansas. Justin enrolled in the doctoral program at The Florida State University in the fall of 2007. Under the guidance of Dr. Kay Pasley, Justin’s program of research focuses on the influence of fathers on children with specific emphasis on the father-daughter relationship.