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Father Influence on Adolescent Sexual Debut

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A thesis submitted to the faculty of  
Brigham Young University  
in partial fulfillment of the requirements for the degree of

Masters of Science

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## ABSTRACT

### Father Influence on Adolescent Sexual Debut

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Guided by the limited previous literature of adolescent sexual debut and father behaviors, this study examined the influence of father warmth, involvement, and monitoring on adolescent age of sexual debut and likelihood of sexual debut before age 16. Participants and measures were drawn from the Flourishing Families Project and included 346 families and variables from measures completed by adolescents and their parents. A zero-inflated Poisson model was used to test the relationship between father variables and adolescent sexual debut. Gender differences were also analyzed. The findings indicate that an increase in father warmth correlates with a decreased age of sexual debut for adolescent sons and daughters. Results also suggest that an increase in father engagement is related to an increase in the age of debut. However, this variable was also associated with increasing the likelihood of debut for adolescent sons. No significance was found between father monitoring and the age or likelihood of debut. Findings suggest that father variables, independent of mother behaviors, uniquely influence adolescent sexual debut; these effects seem to be protective in some circumstances, while increasing risk in other instances. Implications for future research is considered.

Keywords: adolescent sexual debut, father warmth, father monitoring, father involvement

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## Introduction

Of the adolescent sexually behaviors considered risky, a critical one is sexual debut. Not only does an earlier debut or one before age 16 increase the likelihood of participation in other risky sexual behaviors, it also raises the risks for high cost consequences including unintended pregnancy, sexually transmitted infections, single parenthood, future marital distress, future marital instability, low income, and partner violence (Cavazos-Rehg et al., 2010; Price & Hyde, 2011; Simon et al., 2013; Zimmer-Gembeck & Helfland, 2008). For example, in 2000, it was estimated that over 9.1 million new cases of STIs, which is just under half the total number of new cases, can be attributed to those between the ages of 15-24 (Weinstock, Berman, & Cates, 2004), and an estimated 6.5 billion tax dollars was spent treating those 9.1 million new cases of STIs (Chesson, Blanford, Gift, Tao, & Irwin, 2004). Additionally, an estimated 19-20 billion tax dollars is spent annually on the short and long term costs associated with teenage pregnancy (Goldfarb, 1997; Rosenthal et al., 2009). These estimates do not include the costs associated with negative psychological outcomes (e.g., depression and anxiety) for those adolescents who engage in risky sexual behaviors (Hallfors, Waller, & Ford, 2004; Simons, Burt, & Tambling, 2013). Considering the societal and individual costs resulting from an earlier sexual debut and other risky sexual behaviors, it is not surprising that they constitute the fourth greatest health concern for those between the ages of 13 and 18 years (Eaton et al., 2012).

Research has identified parenting behaviors as a crucial factor in understanding adolescent sexual debut (Buhi & Goodson, 2007; Cavazos-Rehg et al., 2010; Deptula, Henry, & Schoeny, 2010; Kincaid, Jones, Sterrett, & McKee, 2012; Kotchick et al., 2001; Lansford et al., 2010; Price & Hyde, 2011). However, the majority of these studies have either emphasized the mother-adolescent relationship or relied on measures that do not distinguish between the mother

and father (Deptula et al, 2010; Guilamo-Ramos et al., 2012; Kincaid et al., 2012; Lansford et al., 2010). Consequently, very few studies have incorporated variables specific to the father-adolescent relationship, creating a gap in the literature regarding father behaviors and adolescent sexual debut (Guilamo-Ramos et al., 2012).

Because of the immense emotional and economic costs associated with age of sexual debut, it is imperative to increase understanding regarding factors that can contribute to a minimization of risky sexual behavior. This study adds to the extant literature by examining the influence of father behaviors on adolescent age of debut and the occurrence of debut. This will be investigated with longitudinal survey data taken from the Flourishing Family Project, using validated adolescent and parent behavioral and attitude measures, while controlling for key socio-demographic variables (i.e., socio-economic status and race of family).

## **Review of Literature**

### **Theoretical Rationale**

The adolescent sexual debut literature has not yet reached a consensus towards a theoretical framework to guide its research or interpret results. A recent article reported that approximately 40% of the 69 adolescent sexual debut articles reviewed were atheoretical (Buhi & Goodson, 2007). This same article found that of the articles that are theory-guided, they utilize Problem Behavior Theory, Social Learning Theory, Theory of Planned Behavior, and Ecological Systems Theory (Buhi & Goodson, 2007). These theoretical frameworks have been helpful in understanding adolescent sexual debut, but offer little explanation of any significant association between parent behaviors and adolescent sexual debut. A theory that addresses the dyadic relationship between mother and adolescent and father and adolescent and significance to sexual debut is needed. Even though it has not previously been used in adolescent sexual debut research, Attachment Theory, which focuses on the influence of relationships, offers a theoretical

framework for understanding the significant influence of parents on age of adolescent sexual debut, as well as adolescent's decision to debut.

According to Attachment Theory, early caregiver-infant relationships form an internal working model of attachment. This model shapes how individuals views their own worthiness of being loved, based upon the responsiveness of others to their needs (Ainsworth et al., 1978; Bowlby, 1973; Buist, Deković, Meeus, & van Aken, 2004; Collins et al., 2002; Lieberman, Doyle, & Markiewicz, 1999). This internal working model develops into an attachment style, wherein one feels either securely or insecurely attached to parents (Buist et al., 2004). When individuals are securely attached to a parent, they are likely to view themselves as being worthy of love and thus, expect that others will reliably respond to their needs (Buist et al., 2004). In contrast, when individuals are insecurely attached, they are likely to feel unworthy of love. Consequently, they expect others to be unreliable in responding to their needs, making it seem threatening to rely on others (Buist et a., 2004). With a few exceptions, attachment security has been found to be relatively stable and influential from childhood to adulthood (Allen, McElhaney, Kuperminc, & Jodl, 2004; Bowlby, 1980; Bolwby, 1982; Buist et al., 2004).

### **Effects of Attachment on Adolescents**

Despite adolescence being a stage of attachment transition towards peers, parents remain the primary attachment figures in early adolescence and influence adolescent outcomes (Ainsworth et al., 1978; Collins et al., 2002; Cooper et al., 1998; Lieberman, Doyle, & Markiewicz, 1999). During adolescence, secure attachment with parents encourages emotional and cognitive autonomy (Allen, Porter, McFarland, McElhaney, & Marsh, 2007). For example, adolescents reporting a secure parent-attachment are more likely to report higher self-esteem, higher self-satisfaction, higher autonomy, and better social skills. They are also less likely to

report anxiety or depression, and less likely to be involved in deviant behaviors (Allen, Moore, Kuperminc, & Bell, 1998; Allen et al., 2007; Armsden & Greenberg, 1987; Buist et al., 2004; Deković, 1999; Leadbeater, Kuperminc, Blatt, & Hertzog, 1999). Conversely, adolescents reporting an insecure attachment are more likely to report depression, anxiety, externalizing behaviors, and delinquent behaviors (Allen et al., 1998; Allen et al., 2007; Buist et al., 2004; Deković, 1999; Leadbeater et al., 1999).

Of the benefits associated with secure attachment, the reduction of internalizing behaviors, such as depression and anxiety, is critical in relation to sexual debut. Internalizing behaviors have been found to be positively correlated with risky behaviors including sexual debut (Marsh, McFarland, Allen, McElhaney, & Land, 2003). Thus, secure attachment between parents and adolescents serves as a buffer against the internalizing behaviors (depression and anxiety) that can make one more susceptible to sexual debut and may indirectly influence the motivation to debut.

### **Motivation to Sexually Debut**

A review of the extant literature revealed no studies explicitly linking adolescent attachment to adolescent sexual debut. However, some studies' findings about adolescents' motivations for seeking sexual relationships can be connected to attachment. Studies of adolescent sexual motivation suggest that older adolescents seek intimacy in their sexual relationships, while younger adolescents seek sexual relationships to reduce anxiety, keep their partner interested, and to increase their self-esteem (Cooper et al., 1998; Dawson, Shih, de Moor, & Shrier, 2008). Thus, the differences among older adolescents and younger adolescents in the motivation for sexual relationships may reflect a variation between secure and insecure



attachment in the parent-adolescent relationship (Gentzler & Ferns, 2004; Cooper et al., 1997; Schachner & Shaver, 2004).

Those who debut at an earlier age may do so because the parent-adolescent attachment relationship is insecure (Collins et al., 2002; Lieberman, Doyle, & Markiewicz, 1999). This insecurity could motivate the need to seek out others in order to obtain the security that their parents are not providing (Cooper et al., 1998; Schachner & Shaver, 2004). From these studies, we posit that adolescent sexual motivation may reflect the attachment security found within the parent-adolescent relationship, where a secure attachment is associated with a delayed debut and an insecure attachment is associated with an earlier debut (Gentzler & Ferns, 2004; Cooper et al., 1997; Schachner & Shaver, 2004).

### **Age at Sexual Debut**

There is no current consensus of an ideal age to sexually debut (Madkour, Farhat, Halpern, Godeau, & Gabhainn, 2010; Zimmer-Gembeck & Helfland, 2008). Some argue the riskiness associated with debut before the age of 18. However, adolescents younger than 16 are at a higher risk for more short-term and long-term consequences because they lack the cognitive ability, skills, and experience needed to avoid many of the potential consequences associated with earlier sexual debut (Kincaid et al., 2012; Madkour et al., 2010; Miller et al., 1997; O'Donnell, O'Donnell, & Stueve, 2001; Spriggs & Halpern, 2008). Some of these potential consequences include higher risks for STIs and other risky sexual behaviors, unintended pregnancy, suicide and depression, single parenthood, marital distress/instability, and partner violence (Cavazos-Rehg et al., 2010; Hallfors et al., 2004; Kincaid et al., 2012; Price & Hyde, 2011; Simon et al., 2013; Zimmer-Gembeck & Helfland, 2008). These consequences are especially costly for younger adolescent girls, who are more likely to endure pregnancy and

parenthood alone. In addition, if they do marry, they are more likely to marry young, placing them at a higher risk for domestic partner violence and marital instability (Bowling & Werner-Wilson, 2000).

Considering the devastating consequences linked with a sexual debut before age 16, it is critical to identify factors that facilitate secure attachment. Doing so will decrease the need to seek outside sources for attachment security, allowing young adolescents to delay age of sexual debut until they are sufficiently cognitively developed to handle the possible effects of sexual debut (Kincaid et al., 2012; Madkour et al., 2010; O'Donnell, O'Donnell, & Stueve, 2001; Spriggs & Halpern, 2008). Because previous research has either examined sexual debut independent of age (e.g., Regnerus & Luchies, 2006), or debut within an age range of 15-19 (e.g., Rink et al., 2007), it is unclear if both likelihood and age of debut are influenced by parent behaviors. This study intends to examine both of these questions.

### **Parent Behaviors and Adolescent Sexual Debut**

While we found no study that used an attachment variable in studying sexual debut, previous studies have examined the influence of parenting behaviors, and specific behaviors have been found to influence that the development of secure attachment (Kotchick et al., 2001). Based on the parenting behaviors identified by previous research, this study examines the influence of mother/father warmth, mother/father monitoring, and mother/father engagement on age and likelihood of adolescent sexual debut. These variables were chosen because research suggests that through parental warmth, monitoring, and engagement, the child can create a secure attachment that allows them to safely explore and interact with their world in the transition from childhood to adolescence (Grossman et al., 2002). These variables were chosen not only because of their potential similarity to significant attachment behaviors, but findings for such as the

nature of the effect have been mixed and further research is needed to clarify the relationship between these variables and adolescent sexual debut (Buhi & Goodson, 2007; Buist et al., 2004; Deptula et al., 2010; Guilamo-Ramos et al., 2012; Kincaid et al., 2012; Kotchick et al., 2001; Lansford et al., 2010; Ream & Savin-Williams, 2005).

To understand the influence of the parent-adolescent relationship on adolescent sexual debut, the literature has incorporated mother self-reports and adolescent reports of parent behaviors. While such findings have been insightful, they have traditionally neglected to incorporate a father report (Deptula et al., 2010; Guilamo-Ramos et al., 2012; Kincaid et al., 2012; Lansford et al., 2010; Miller et al., 1997; Miller et al., 2001; Miller, 2002; Whitbeck et al., 1993; Zimmer-Gembeck & Helfland, 2008). In regards to fathers, the adolescent sexual behavior literature has historically been limited to two variables, father presence in the home and ability to provide resources (Guilamo-Ramos et al., 2012). Recent attachment research has found that fathers are more than a secondary attachment figure and play companion, but serve as primary attachment figures and may have expanded roles associated with child and adolescent development (Bowlby, 1982; Burns, 2008; Grossman et al., 2002; Kerns et al., 2006; Lamb & Lewis, 2010; Pleck, 2010; Tither & Ellis, 2008). Adolescent sexual debut research has begun to incorporate this new view of the father in relation adolescent behavior, but a gap still exists in examining the unique influence of fathers on adolescent debut. Additionally, of the limited research that has been conducted, measures for father influence do not include a comprehensive examination of these factors particularly with father, mother, and adolescent reports of father warmth, father monitoring and father engagement (Guilamo-Ramos et al., 2012).

## **Father Warmth and Sexual Debut**

This study defines father warmth as those behaviors that express a willingness to be emotionally open, supportive, and loving with the adolescent. These are behaviors that allow for emotional expression and support through challenges. These behaviors also facilitate secure attachment between the father and adolescent and thus, serve as a protective factor against an earlier debut (Collins et al., 2002; Grossman et al., 2002).

Of the studies found in the literature, three used self-report data on the emotional quality/closeness within the father-adolescent relationship and its effect on sexual debut (Ream & Savin-Williams, 2005; Regnerus & Luchies, 2006; Rink et al., 2007), while one used observational data (Scharf & Mayseless, 2008). In these studies, the adolescents reported on a single item measure of emotional quality/closeness, “How close/connected do you feel to your father/mother” (Regnerus & Luchies, 2006). This limits the interpretation of these studies because the definition of the emotional quality and closeness in the relationship will vary from adolescent to adolescent. By using multiple reports and a reliable 5-item measure, this study ensures a greater likelihood that participants are reporting on the same factors.

Previous studies identified a relationship between adolescent daughter-reported father warmth and her sexual debut. A negative correlation was found between daughter-reported father closeness and the onset of sexual debut during the two years of the study (Ream & Savin-Williams, 2005; Regnerus & Luchies, 2006; Rink et al., 2007). Due to the two-year limitation of these studies, unless the adolescent was near the age of 16, these studies did not study if father warmth delayed the age of debut to a point of less risk. The current study uses multiple wave data (over 6 waves), allowing an examining of not only increases/decreases in adolescent age, but if the debut occurs before the age of 16 or not. To date, no studies found in the extant

literature found that father warmth influenced the age of sexual debut for adolescent sons despite indications that attachment between the same gender parent and adolescent is more secure, and thus more influential during adolescence (Sarracino, Presaghi, Degni, & Innamorati, 2011). From the literature then, it would appear that father warmth influences adolescent daughters, but nothing has been found yet regarding the influence of father warmth for adolescent sons.

### **Father Involvement and Sexual Debut**

This study defines father involvement as father engagement in activities relating to school, day-to-day life, and recreational activities. Attachment Theory postulates that an appropriate amount of father involvement increases the adolescent's perception that he or she can rely on attachment figures to provide emotional and instrumental support (Bowlby, 1982). Based on this, it is postulated that as the adolescent becomes more confident in the responsiveness of the father, the greater sense of security he/she experiences, decreasing the likelihood of an earlier debut.

Father involvement is a protective factor against other risky sexual behaviors, including intercourse without birth control and having a high number of sexual partners (Carlson, 2006; Coley et al., 2009; Deptula et al., 2010; Dilorio et al., 2007; Rew, Carver, & Li, 2011). However, the only study that examined father involvement and sexual debut variables reported no significant findings (Ream & Savin-Williams, 2005). With only one study in the literature, little can be concluded about the influence of father involvement on sexual debut, emphasizing the need for further research.

### **Father Monitoring and Sexual Debut**

This study uses a narrower definition of father monitoring than that of other studies. We define father monitoring as the effort the father makes to solicit knowledge from the adolescent

about his/her activities, peers, and whereabouts (Fletcher, Steinberg, & Williams-Wheeler, 2004). Results for using this definition of monitoring have been mixed. Some findings suggest that the correlation between parent solicitation and problematic outcome behaviors is insignificant (between .2-.3); another study found that it parent monitoring provides a potentially protective effect against risky behaviors (Fletcher et al., 2004; Kerr, Stattin, & Burk, 2010; Stattin & Kerr, 2000). Despite the mixed findings, it was determined that father solicitation best reflects the father's proactive effort to monitor the adolescent. Consequently, we propose that an appropriate amount of father monitoring helps to establish boundaries, while still permitting autonomy and allowing the adolescent to safely explore and create an identity (Grossman et al., 2002). By creating such an environment, there is less opportunity to pursue sexual relationships, and thus increases the age of sexual debut.

Of the studies found that examined parental monitoring (Kotchick et al., 2001; Lansford et al., 2010; Rew et al., 2011; Wight, Williamson, & Henderson., 2006), only one also examined adolescent sexual debut (Miller et al., 1986). This study found that a curvilinear relationship exists between adolescent-reported father and mother monitoring and adolescent sexual debut. The study reported that moderate parental control lowered rates of sexual debut, while stricter or more permissive parental monitoring increased self-reported rates of sexual debut (Miller et al., 1986). Theoretically, if the father is too restrictive or too permissive in establishing boundaries with the adolescent, the security within the relationship diminishes, and the adolescent seeks out other potential attachment figures to either find warmth lacking in the parent relationship or to reduce anxiety. Thus, a moderate amount of father monitoring reinforces the warmth and reliability needed to develop a secure attachment, while extremes on either end reduce it. This study differs from previous research by collecting data from multiple reporters using items that

emphasize father efforts to monitor the adolescent.

### **Adolescent Gender, Father Influence, and Attachment**

Furthermore, as has been done in other adolescent sexual behavior studies, we will use adolescent gender as a moderator between the effects of father variables and the age of debut. Adolescent gender has inconsistently been found to be a moderator of the effect of father behaviors on sexual debut (Ream & Savin-Williams, 2005; Regnerus & Luchies, 2006; Rink et al., 2007). However, with so few studies, further research is needed to clarify the moderating effect of adolescent gender. Research suggests that secure attachment in same-gender parent-adolescent relationships is more protective than in opposite-gender parent-adolescent relationships. Consequently, it is expected that this study will yield similar findings, where a strong father-adolescent son relationship is likely to be more protective than the father-adolescent daughter relationship (Diener, Isabella, Behunin, & Wong, 2008; Kerns et al., 2006; Lieberman et al., 1999; Paterson, Pryor, & Field, 1995; Sarracino et al., 2011; Verschueren & Marcoen, 2005).

### **Current Study**

The current study advances the research concerning father behavior and its effects on adolescent sexual behavior by addressing limitations found in previous studies. Using an Attachment Theory framework, this study will test for the influence of father warmth, involvement, and monitoring on adolescent sexual debut, while controlling for similar mother behaviors. This study differs from previous research through its emphasis on father behaviors, and the use of multiple reporters of mother and father behavior. This study asks two questions, if these father behaviors influence the age of debut and if they influence the likelihood of debut before or after the age of 16. Age 12 was chosen as the minimum age because our sample

contained no reports of sexual debut before this age. Based upon previous research findings and the framework provided by Attachment Theory, we propose the following hypotheses:

H1: A report of high father warmth will be positively associated with the age of debut and negatively associated with the likelihood of debut before age 16 for adolescent sons and daughters.

H2: A report of high father involvement will be positively associated with the age of debut and negatively associated with the likelihood of debut before age 16 for adolescent sons and daughters.

H3: A moderate report of parental monitoring will be positively associated with the age of debut and negatively associated with the likelihood of debut before age 16 for adolescent sons and daughters. It is also predicted that this relationship will be curvilinear, where high or low reports of father monitoring will be associated with decreases in the age of debut and increase the likelihood of debut before the age of 16.

### **Controls**

In this study, we will be controlling for the mother equivalent of the father-reported behaviors in order to examine the unique influence of fathers. We will also be controlling for income and race, because of their influence on age at sexual debut (Kotchick et al., 2001).

### **Method**

#### **Participants**

Participants were drawn from a longitudinal study of families with adolescents, the Flourishing Family Project. The sample was collected from a large urban area in the Northwest and reflects the area demographics. In 2007, families were recruited using the Info USA national database, which contained over 80 million households across the United States. Families with a



child between the ages of 10 and 14 were first identified from census tracts that mirrored the socio-economic and racial stratification of reports of school districts within the target community. Of the 744 eligible families contacted, 500 agreed to participate (147 single-parent, 348 two-parent). The retention rate from Wave 1 to 6 was 92% (465 participants at Wave 6).

During the initial first five waves, video recorded interviews and self-administered questionnaires were conducted in the homes of participating families. Beginning in the sixth wave, data were collected online. To decrease the burden of the online questionnaire, a validated method of planned missing data was used (Little & Rhemtulla, 2013). Four surveys were created, each with different scale items missing. For each scale, a maximum of one fourth of the questions were missing and, for each scale, at least one question was asked across all four surveys. Data were imputed with the `ice` command in Stata (single imputation; Royston, 2005). Appropriate distributional assumptions were used for each item. To increase imputation accuracy, scales from Wave 5 were used as information to impute the planned missing scores in Wave 6. Other demographics (i.e., site, adolescent gender, adolescent race, and family income) were also included in the imputation procedure.

The final sample size for the current study was 346 adolescents (173 girls and 173 boys). Only adolescents from two-parent homes were included because the majority of single-parent homes only had the mother present, preventing the study of father influence in these homes. Other missing data were minimal (< 5%) and were also imputed with the Stata `ice` command.

In this sample, average current adolescent age was 16.3 years ( $sd=1.00$ ) with a range of 14 to 19. Average family monthly income was \$6,785 ( $sd = 5,376.28$ ). Diversity of the adolescent sample was the following: 76.67% identified as “White”, 7.5% identified as “African-American”, 4.17% identified as Asian-American, .58% identified as Hispanic, and 10%

identified as “other” or “multi-ethnic”.

Data was recoded from its indicated wave of collection to the reported age of the adolescent respondent. For measures of father behaviors, this study used data collected from adolescent and family participants taken when the adolescent was age 12. Sexual debut data was taken from waves 4 through 6.

### **Measures**

Parental Monitoring (parent and adolescent versions). Father monitoring was assessed using 4 items that make up the Parent Solicitation subscale from a modified version of the 19-item questionnaire used by Kerr and Stattin (2000). Items responses ranged from 1 (*never*) to 5 (*always*) with higher scores indicating greater parental monitoring. A sample item for the Parent Solicitation subscale includes (for parents) “I start conversations with my child about things that happen at school” and (for adolescents) “ My parents start conversations with me about things that happen at school”. Kerr and Stattin (2000) reported a Cronbach’s alpha coefficients of .70 for the parental solicitation subscale. Our sample reported a Cronbach’s alpha of .71 and higher for all reporters. For sample statistics for this variable refer to Table 1.

Parental involvement (all versions). This measure assessed for parental involvement as perceived by the child for both mothers and fathers with an 8-item modified version of the Inventory for Father Involvement (Hawkins et al., 2002). Responses ranged on a likert scale from 1 (*never*) to 5 (*very often*) with sample items such as “give you encouragement” and “act as a friend to you.” Higher scores indicate higher level of parental involvement. Previous reliability coefficients (Hawkins et al., 2002) have been found to range from .69 to .80 for the 5 distinct subscales.

This study only considered those parental involvement variables that made up the Engagement subscale (items 1, 2, 4, & 7). Items in this measure for parents include “Attending your child’s activities”. Items in this measure for the adolescents include “Attend my activities”. Our sample reported a Cronbach’s alpha ranging from .59 to .72. For other sample statistics, please refer to Table 1.

Parental warmth (all versions). Parental warmth was measured using the Authoritative Connection subscale from the Parenting Styles and Dimensions Questionnaire-Short Version (PSDQ; Robinson, Mandleco, Olsen, & Hart, 2001). This measure assesses parental behaviors centered around warmth and support including items for parents such as “I encourage the child to talk about his or her troubles” and for the child, “My parent is responsive to my feelings and needs”. Responses range on a five point Likert-type scale from 1 (*never*) to 5 (*always*), with higher scores indicating higher levels of warm parenting behaviors. A previous study found the reliability coefficient (Cronbach’s Alpha) for the mother’s self report to be .56 (Wu et al., 2002). Our sample reported an  $\alpha$  of .76 and higher for all reporters. For other sample statistics, please refer to Table 1.

Age at sexual debut (adolescent version). This measure is taken from an adolescent self-report measure from the Three Cities Study used to assess adolescent health (Lohman & Billings, 2008). These questions were open-ended and are designed to collect data on an adolescents’ past and present sexual experiences.

Participants in the study had the opportunity to report their age of debut at waves 4-6. We chose to use the first reported age whether it was reported at wave 4, 5, or 6 assuming that it reflected the response least susceptible to reporting error. Seventy six percent of those in the sample reported no sexual debut within the given time range of 12-16. Over 21% of the

adolescents reported debuting by age 16 with a mean age of 15.32 (SE = .96) for females and 14.85 (SE = 1.09) for males.

The reported age was then recoded 0 to 5, where a higher value indicates a riskier age of debut. If the respondent did not report sexual debut or reported debut after age 16, it was coded as 0. Otherwise, reports were coded 1=16, 2=15, 3=14, 4=13, and 5=12. After recoding, the mean was  $M = .40$  (.91). For a breakdown of the frequency of the reported age refer to figure 1. Demographics. Demographics controlled were adolescent gender (1 = male, 0 = female), the natural log of income, and parent's report of adolescent's race (white = 0, other = 1). Because adolescents who are Caucasian have different outcomes for sexual debut from adolescents who are ethnically diverse, race was controlled for in this sample (O'Donnell et al., 2001). This was done by dummy coding the variable so that those who reported themselves as "white" were coded as a 0, and all other participants were coded as a 1. All other minorities were combined into one group because the sample did not provide a substantial amount of racial diversity to warrant dividing the minority groups into sub-groups.

### **Analytic Strategy**

Analyses were conducted in Stata 13. In all models, the outcome variable was the first reported age of sexual debut during waves 4-6. Using Stata's built-in options for categorical indicators, the main effects were estimated separately for female and male adolescents. Thus, initial models contained the values of these main effects for each gender. The main effect of gender should represent the constant for each group (i.e., gender is specified with the "ibn." prefix and suppress the constant). Doing so simplifies the output, enabling clearer interpretation of main effects by gender (for a detailed and highly useful description of this analytic strategy see Mitchell, 2012). If the two-way interactions were not significant for males or females they

were dropped from the model and the main effects model become the final model. The final model was fit using a zero-inflated Poisson model.

A Poisson model is designed for count data while maintaining an appropriate Type I error rate and requires three criteria (Atkins & Gallup, 2007; Coxe, West, & Aiken, 2009). It requires that 1) the dependent variable is a probability distribution for nonnegative integers (e.g., age of sexual debut), 2) the rate of occurrence strongly influences the shape of the distribution (see figure 1) and 3) overdispersion must be minimal with ideally the distribution mean equal to the distribution variance. By accounting for the zero-inflation of this model, all three criteria were met and a zero-inflated Poisson model was deemed an appropriate model for this study.

Atkins & Gallop (2007) explain that a zero-inflated model assumes the presence of two different types of people within the sample (those who debut and those that do not) and uses two models to account for and identify these differences. Applied to this study, the first model examines variances within the occurrence of sexual debut (score = 1-5) and the second model examines the presence (score = 1-5) or absence of sexual debut (score = 0) (Atkins & Gallup, 2007). A Vuong test further verified the decision to use a zero-inflated Poisson model. A Vuong test compare the selected predictors for both the zero-inflated model and the standard model and indicates if there are an excessive amount of zeros (Atkins & Gallup, 2007). Results of the Vuong test revealed that the zero-inflated model ( $z = 7.49^{**}$ ) was significant and thus zero inflation is present. Another option usually considered for count models is a negative binomial regression, but after comparing the models, greater fit (BIC = 713) was found for the zero-inflated Poisson model, then the equivalent zero-inflated negative binomial regression model (BIC = 719.71).

## Results

### Descriptive Statistics

A t-test of the means (see Table 1) indicated that only two of the reported means, adolescent report of mother monitoring and father report of father warmth, were significantly influenced by the gender of the adolescent. A pairwise bivariate correlation (see Table 6) was run on the data. The adolescent reports of all 3 mother and father behaviors were significant with correlation values above .60 (father and mother parental solicitation .76,  $p < .00$ , father and mother parental warmth .73,  $p < .00$ ; father and mother parental engagement .68,  $p < .00$ ). Reported age of sexual debut was not highly correlated with any of the controls or the parenting behaviors. We also tested for multi-collinearity, but did not find that the removal of any variables significantly increased or decreased the results. From this we conclude that multi-collinearity is not influencing the results of this study.

### Age of Sexual Debut and Parenting Behaviors

The results show significance between variance in the age of sexual debut and race of the adolescent, the gender of the adolescent, mother self-report of parental solicitation, father self-report of parent warmth, and father self-report of parent engagement. Table 2 contains final models for the interactions between variance in age of sexual debut and parenting behaviors.

Tables 4 and 5 contain only the significant results and the log odds of these results

If the adolescent reported being Caucasian, then the age of debut is associated with an increase by a factor of  $\exp(.73) = 2.07$ , ( $p < .05$ ). Thus, if all other variables are similar and both race groups sexually debut, a Caucasian's age of debut will be 2.07 times older than the minority groups within the sample. If the adolescent is male, then the age of debut is associated with a decrease by a factor of  $\exp(-.81) = .45$ , ( $p < .00$ ). Thus, if all other variables are similar and both

genders sexually debut, a male's age of debut will be .45 times younger than that reported by females.

For every one point increase in mother's self-report of solicitation about adolescent activities, the reported age of sexual debut is younger for both adolescent females and males [for females, by a factor of  $\exp(-1.31) = .27$ , ( $p < .00$ ); for males, by a factor of  $\exp(-.898) = .41$  (.34), ( $p < .00$ )]. For every one point increase in father's self-report of warmth, the reported age of debut is younger for adolescent males and female [for females, by a factor of  $\exp(-.66) = .52$ , ( $p < .00$ ); for males, by a factor of  $\exp(-1.24) = .29$  ( $p < .00$ )]. For every one point increase in the father's self-report of engagement, the reported age of sexual debut is older for adolescent males, but not for females [for males, by a factor of  $\exp(1.18) = 3.26$  ( $p < .00$ )].

### **Likelihood of Sexual Debut and Parenting Behaviors**

Significant interactions effect were found between the likelihood of sexual debut and adolescent gender, adolescent race, mother self-report of parent solicitation, father self-report of parent warmth and father and mother reports of parent engagement. Table 3 contains final models for the interactions between father and mother behaviors and the likelihood of sexual debut before age 16. Tables 4 and 5 contain only the significant results and log odds of these results.

Caucasian adolescents are more likely to debut before age 16 [by a factor of  $\exp(2.64) = 13.98$ , ( $p < .05$ )]. Thus, Caucasian adolescents 13.98 times more likely to debut before the age of 16 compared to those in the minority group. Male adolescents are less likely to debut before the age of 16 compared to females [by a factor of  $\exp(-.98) = .38$ , ( $p < .00$ )].

For every one point increase in a mothers' report of her solicitation about adolescent activities, the likelihood of sexual debut before age 16 decreases for adolescent female and males

[for females, by a factor of  $\exp(-2.72) = .07$ , ( $p < .00$ ); for males, by a factor of  $\exp(-2.92) = .05$ , ( $p < .00$ )]. For every one point increase in the father's self-reported adolescent engagement, adolescent males, but not females are more likely to sexually debut before age 16 [for males, by a factor of  $\exp(1.84) = 6.33$ , ( $p < .05$ ). For every one point increase in the mother's self-reported adolescent engagement, adolescent females, but not males are more likely to debut before age 16 [for females, by a factor of  $\exp(2.11) = 8.22$ , ( $p < .05$ )].

### **Discussion**

Using an Attachment Theory framework, this study tested for the influence of father warmth, involvement, and monitoring on adolescent sexual debut, while controlling for similar mother behaviors. This study was unique in its emphasis of father behaviors and use of multiple reporters to measure mother and father behavior. Analysis was performed using a zero-inflated Poisson model. The zero-inflated Poisson model allows for the analysis of the influence of father behaviors on the age of debut and the likelihood of debut (Atkins & Gallup, 2007). Guided by the limited previous literature (Guilamo-Ramos et al., 2012; Miller et al., 1986; Ream & Savin-Williams, 2005; Regnerus & Luchies, 2006; Rink et al., 2007; Scharf & Mayseless, 2008), we predicted that a higher report of father warmth and involvement would increase the age of debut and decrease the likelihood of sexual debut. We also predicted to find that a moderate report of father monitoring would increase the age of sexual debut and decrease the likelihood of sexual debut.

Our results were inconsistent with our predictions. We found that an increase in the report of father warmth was associated with a decrease in the age of debut for adolescent sons and daughters, and was not associated with the likelihood of sexual debut. We found that an increase in the report of father involvement was associated with an increase in the age of debut



of adolescent sons and an increase in the likelihood of their debut. We found that father monitoring was not associated with sexual debut for adolescent sons or daughters. Significant associations were also found for control variables, adolescent gender and race, and mother variables including, mother solicitation with adolescent sons and daughters and mother engagement with daughters. These findings are complex and at times contradictory, and will require follow-up studies before further interpretation can be offered. However, some potential explanations are offered here.

### **Adolescent Race and Sexual Debut**

Previous studies with samples drawn from higher-risk and lower income populations have found that African-American males are at a higher risk for an earlier sexual debut than other populations (Halpern et al., 2007; Kotchick et al., 2001; Rew & Horner, 2003; Rew et al., 2011; Santelli et al., 2004; Smith, Guthrie, & Oakley, 2005; Udry, Kovenock, Morris, & van den Berg, 1995). This study's sample was drawn from a lower risk mostly upper-middle to upper class population that was 76.67% Caucasian. This study found that while being Caucasian is associated with a later debut compared to minority groups, they are still more likely debut before the age of 16. We believe that the differences between the sample populations (high-risk predominantly non-white vs. low risk pre-dominantly white) potentially explains the differences between these and previous findings. However, further research with less at-risk populations is needed before further implications can be drawn from these findings.

### **Adolescent Gender and Sexual Debut**

We found that if a male debuted, it was associated with a younger age of debut, but a decreased likelihood of debut before age 16. We posit that if the opportunity presented itself, there are less consequences to inhibit an adolescent male from having sex before the age of 16

(Bowling & Werner-Wilson, 2000). With less discouragement, the adolescent male is likely to debut at a younger age if given the chance. However, it would appear that the opportunity to debut would not be very common for adolescent males within this sample, thus the decreased likelihood of debut before the age of 16. There could be any number of environmental explanations that could be posited, but further research is needed before further explanation can be offered.

### **Father Warmth and Sexual Debut**

We expected that father warmth would protect against earlier debut and likelihood of debut, (Ream & Savin-Williams, 2005; Regnerus & Luchies, 2006; Rink et al., 2007; Rodgers, 1999; Scharf & Mayseless, 2008), but found it was associated with a younger debut for adolescent males and females and had no effect on the likelihood of debut. Our results would seem contrary to the importance of warmth in attachment (Ainsworth et al., 1978; Bowlby, 1973; Bowlby 1983; Collins et al., 2002). A potential explanation may be associated with our definition of father warmth. We defined father warmth as a willingness to be emotionally open, supportive, and loving with the adolescent. However, warmth as a response to externalizing and internalizing behaviors that precede adolescent sexual debut would be counteractive and would likely reflect father permissiveness (Baumrind, 1991; Grossman et al., 2002). Permissiveness is highly correlated with adolescent externalizing behaviors including a younger sexual debut (Leadbeater et al., 1999). Thus, father warmth is potentially inductive of an earlier adolescent sexual debut.

### **Parent Involvement and Sexual Debut**

We expected that father involvement would be associated with a younger debut and a decrease in the likelihood of debut (Carlson, 2006; Coley et al., 2009; Deptula et al., 2010;

Dilorio et al., 2007; Rew, Carver, & Li, 2011). We found that increased father involvement was associated with an older age of adolescent son debut and an increased adolescent son debut likelihood. We also found that increased mother involvement was associated with increased adolescent daughter likelihood. The significant influence of mother-daughter and father-son relationships was consistent with previous findings, where sons and daughters seek out stronger attachments with the same-gender parent (Diener, Isabella, Behunin, & Wong, 2008; Kerns et al., 2006; Lieberman et al., 1999; Paterson, Pryor, & Field, 1995; Sarracino et al., 2011; Verschueren & Marcoen, 2005). However, the association between involvement and debut likelihood seems counter-intuitive. Parent involvement has been indicated as protective for other sexual behaviors (Carlson, 2006; Coley et al., 2009; Deptula et al., 2010; Dilorio et al., 2007).

One potential explanation is that a reciprocal relationship exists between parent involvement and debut likelihood. Previous studies have found that parenting behaviors influenced problem behaviors including sexual debut and that problem behaviors influenced parenting behaviors (Buist et al., 2004; Keijsers, Branje, Vandervalk, & Meeus, 2010; Ream & Savin-Williams, 2005). This study may have only captured one-side of this relationship. Our findings may suggest that adolescents use negative behaviors to induce involvement from the parents to increase attachment security. The other side of this relationship would potentially find that parents become more distant in response to the negative behaviors. Theoretically then, increased parent involvement at age 12 may reflect parental efforts to respond to poor adolescent behavior that over time decreases in frequency, resulting in the adolescent seeking attachment satisfaction from a sexual relationship. Thus, increased father and mother involvement may not be protective, but a symptom of a dysfunctional relationship. If parents become more involved as a reaction to poor adolescent behavior, then this would explain the relationship between

increased parent involvement and increased likelihood of debut.

### **Parent Monitoring and Sexual Debut**

Previous studies set a precedent to expect that father monitoring would be protective against adolescent sexual debut (Kotchick et al., 2001; Lansford et al., 2010; Miller et al., 1986; Rew et al., 2011; Wight, Williamson, & Henderson, 2006). However, we found that father monitoring had no influence on either age or likelihood of adolescent sexual debut. We did find that increases in mother monitoring decreased the age of debut, but also decreased the likelihood of sexual debut for both genders.

Differences in significance for father and mother monitoring may be indicative of differences in the mother-adolescent and father-adolescent relationships. Higher integration by the parent into the adolescent's life increases the protective influence of parent monitoring on adolescent behaviors (Waizenhofer, Buchanan, & Jackson-Newsom, 2004). Fathers have a tendency to be less involved in their adolescent's life, and therefore, are less likely to fully appreciate the details in their adolescent's day-to-day activities (Hofferth, Stueve, Pleck, Bianchi, & Sayer, 2002). If the father does not understand the context or the specifics of the adolescent's world, his request for knowledge would potentially offer less protection to the adolescent. If the mother is more integrated in the adolescent's life, she is more likely to know the adolescent's peers and their activities, and her knowledge about their activities will be more protective (Waizenhofer, Buchanan, & Jackson-Newsom, 2004). As discussed previously, there may be a reciprocal relationship between adolescent behavior and parent behavior, which would explain the association between increased mother monitoring and decreased age of debut. The increased solicitation by the mother could be a reaction to misbehavior by the adolescent (Buist et al., 2004). Thus while increased mother monitoring may be protective overall, it may also

reflect a response to poor adolescent behavior, which would prevent it from protecting against an earlier debut. However, further research is needed to understand potential protectiveness or lack of protectiveness associated with father and mother monitoring.

### **Alternative Explanation for Results**

Another potential explanation for the counter-intuitive findings is that this study reflects a growing cultural shift in how society and parents respond to adolescent sexuality. Adolescent sexuality is becoming normalized as a step of identity formation and parents may incorporate this normalization into their parenting (Tolman & McClelland, 2011; Welsh, Rostosky, & Kawaguchi, 2000). Just as adolescent perception of sexually active peers increases the likelihood of adolescent sexual activity, parents' perception of the inevitability of adolescent sexual debut may discourage efforts to delay sexual debut, but increase efforts to encourage safer sex. (Page, Hammermeister, & Scanlan, 2000). Increases in warmth, encouragement and monitoring may reflect the father's or mother's attempt to normalize and encourage adolescent identity formation and sexuality. Thus, these parenting behaviors may be encouraging an earlier debut, while also encouraging a safer debut via birth control and protection. However, further research is needed that includes the parents' beliefs on sexuality or adolescent use of safe sex behaviors.

### **Implications for Future Research**

From these findings, there are certain directions, we would recommend for future research to understand fathers influence on adolescent sexual debut. While the scope of this paper was limited to sexual debut, the literature would be well served if other risky sexual behaviors were explored through multiple reports of different parenting variables. By controlling for the efforts of the other parent as well as multiple reporters, one can identify the unique contribution of each parent on the outcome variable as determined by the reporter. For example,

adolescent reported behavior that is significant would indicate that it is the adolescent's interpretation of the behavior that matters. While parent reported behavior that is significant would indicate that the parent is effectively guiding the adolescent from riskier behaviors through attachment efforts.

Adolescent sexual behavior is lacking a unifying theory that can be used to explain not only motivation behind engagement, but the interactive effects as well (Buhi & Goodson, 2007). We would propose here that future research consider the use Attachment Theory. This theoretical model uses attachment relationships to not only explain motivation behind adolescent sexual relationships, but to explain why family process variables are critical to adolescent sexual behavior (Kotchick et al., 2001). We also suggest using different measures for father warmth, father involvement, and father monitoring that may have stronger reliability and better reflect attachment behaviors. Future research would be well served to include adolescent peers. Because adolescents transition from parents to peers for attachment inclusion of peer relationships would facilitate further understanding of this transition and its impact on adolescent outcome behaviors (Allen et al., 2007). Furthermore to understand the changing trends in adolescent sexuality norms, measures of adolescent and parent sexuality beliefs should be incorporated.

Finally, we propose that future research could explore possible moderators of the influence of father and mother behaviors on sexual debut. For example, previous research has found that vagal tone is a moderator between parenting styles and externalizing behaviors (Dyer, Blocker, Day, & Bean, in press), and it would be beneficial to continue to push the literature to identify additional factors that influence adolescent behaviors.

### **Clinical Implications**

For families coming into therapy concerned about their adolescent's sexual behavior,

therapists would benefit by educating parents regarding the influence of their involvement.

Therapists can help parents understand which behaviors may reduce the risk of sexual debut and which might increase it. The therapist must seek to understand the dynamics of the family in order to be able to assess the effectiveness of different parenting behaviors. If the relationships appear to be positive, then encouragement would be given for the father to increase engagement if the identified patient is an adolescent son, and for the mother to increase her monitoring independent of adolescent gender. However, the parents must be made aware of the reality that all that these behaviors may do is decrease the likelihood of debut or increase the age.

### **Limitations**

This study has several limitations. The sample was drawn from a population of predominantly healthy, upper-middle class, Caucasian, two-parent homes. This limits the application of the findings to more diverse and higher risk populations. In addition, this study is highly dependent on the validity of sexual debut age disclosure. Thus, results must be considered with caution as they may be subject to bias (Cavazos-Rehg et al., 2010). While we attempted to mitigate potential biases via confidentiality, reliability of the sexual debut items cannot be guaranteed.

There were some limitations associated with the measures used as well. Item wording in the adolescent sexual debut measure is potentially problematic. The item was worded, “At any time in your life, have you ever had sexual intercourse (that is, made love, had sex, or gone all the way)” and was followed up with “How old were you when you first had sexual intercourse?”. These items do not reflect the changing culture of sexuality, nor wide range of adolescent sexual behaviors (Tolman & McClellan, 2011). Item reliability would be much improved if they classified the specific types of sexual behaviors (oral sex, anal sex, etc.) and inquired as to

whether adolescents engaged in these behaviors. By using a narrow definition of sexual debuting, we are dependent on the adolescent's definition of intercourse, which can mean any number of things. Overall, the parenting behavior measures were reliable (above .70), with the exception of the father involvement measure (between .59 and .72). This low reliability may reflect the inclusion of inappropriate or unrelated items. This lack of reliability may have influenced the findings. A final limitation of this study was the reliance on reports taken at age 12. Much can happen over the course of 4 years, but we operate under the assumption of parenting stability over that timeframe. This may be an inaccurate portrayal of parenting in adolescence and may have influenced findings.

### **Conclusion**

Adolescent sexual debut is an important area of research that, despite being heavily studied, has still not sufficiently examined father reported data about his behaviors. This study's aim was to address this gap within the context of adolescent sexual debut. This study found that within a sample drawn primarily from upper-middle class Caucasian families, father-reported warmth and engagement as reported when the adolescent was age 12 influenced sexual debut of adolescent sons and daughters, even when controlling for similar mother behaviors. The study's findings also indicate the importance of mother monitoring, mother involvement, adolescent gender and race on adolescent sexual debut.



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**Table 1: Study Variables' Means, Cronbach's Alpha, & Standard Deviations**

| <b>Parent Monitoring</b>  | Mean (SD)  | Reliability    | Two-sample t test with equal variance |
|---------------------------|------------|----------------|---------------------------------------|
| Mother                    | 4.31 (.58) | $\alpha = .77$ | $t = -.46$                            |
| Father                    | 3.92 (.73) | $\alpha = .83$ | $t = -.33$                            |
| Adolescent on Mother      | 3.94 (.79) | $\alpha = .71$ | $t = 2.11^*$                          |
| Adolescent on Father      | 3.57 (.90) | $\alpha = .74$ | $t = 1.61$                            |
| <b>Parent Involvement</b> |            |                |                                       |
| Mother about Mother       | 4.00 (.59) | $\alpha = .59$ | $t = -.25$                            |
| Father about Mother       | 3.96 (.62) | $\alpha = .62$ | $t = -1.69$                           |
| Adolescent on Mother      | 3.70 (.71) | $\alpha = .60$ | $t = .28$                             |
| Father about Father       | 3.57 (.63) | $\alpha = .60$ | $t = -.32$                            |
| Mother about Father       | 3.62 (.68) | $\alpha = .72$ | $t = .00$                             |
| Adolescent on Father      | 3.54 (.78) | $\alpha = .62$ | $t = .02$                             |
| <b>Parent Warmth</b>      |            |                |                                       |
| Mother                    | 4.22 (.53) | $\alpha = .77$ | $t = -.43$                            |
| Father                    | 3.78 (.65) | $\alpha = .76$ | $t = 3.34^{**}$                       |
| Adolescent on Mother      | 3.72 (.84) | $\alpha = .79$ | $t = 1.44$                            |
| Adolescent on Father      | 3.56 (.86) | $\alpha = .76$ | $t = .79$                             |

\* = p value less than .05, \*\* = p value less than .00

**Table 2. Zero-Inflated Poisson Results for Variance in Age of Debut**

| Parameter  | variable influence the age of sexual debut |              |
|--|--|--------------|
|  | b(se)                                      |              |
| <i>Variance in age of debut</i>                          |  |              |
| Race   | .73(.29)*                                  |              |
| Income   | .49(.25)                                   |              |
| FR- of parental solicitation of adolescent at age 12     | .44(.25)                                   |              |
| Age 12 adolescent report of mother parental solicitation | .12(.34)                                   |              |
| Age 12 adolescent report of father parental solicitation | -.04(.26)                                  |              |
| Age 12 adolescent report of father warmth                | .21(.19)                                   |              |
| Age 12 adolescent report of mother warmth                | -.10(.28)                                  |              |
| MR-of warmth for adolescent at age 12                    | .57(.36)                                   |              |
| Age 12 adolescent report of father engagement            | .38(.20)                                   |              |
| MR-of father engagement with adolescent at age 12        | -.59(.33)                                  |              |
| Age 12 adolescent report of mother engagement            | -.17(.21)                                  |              |
| MR-of mother engagement with adolescent at age 12        | .35(.30)                                   |              |
| FR- of mother engagement with adolescent at age 12       | -.44(.22)                                  |              |
|  | Female                                     | Male         |
| <i>Variance in age of debut X</i>                        | B(se)                                      | B(se)        |
| Gender   | .05(.19)                                   | -.81(.18)**  |
| MR-of parental solicitation of adolescent age 12         | -.90(.32)**                                | -1.31(.34)** |
| FR- of father warmth with adolescent at age 12           | -.66(.25)**                                | -1.24(.34)** |
| FR- of father engagement with adolescent at age 12       | .50(.39)                                   | 1.18(.33)**  |

Table 2: \*= significance <.05 and \*\*=significance <.00. Direction of results adjusted to reflect the recoding of the age of debut. Results indicate how each variable influences the age of debut, either increasing it or decreasing it.

**Table 3. Zero-Inflated Poisson Regression Results for Likelihood of Debut**

| Parameter   | Likelihood of sexual debut before age 16 |               |
|---|--|---------------|
|   | No significant gender effect             |               |
| <i>Count of Debut (0 or not 0)</i>  | b(se)                                    |               |
| Race  | 2.64(.84)**                              |               |
| Income  | -.44(.60)                                |               |
| FR- of parental monitoring of adolescent at age 12                        | .87(.57)                                 |               |
| Age 12 adolescent report of mother parental solicitation                  | .31(.79)                                 |               |
| Age 12 adolescent report of father parental solicitation                  | -.52(.60)                                |               |
| Age 12 adolescent report of father warmth                                 | -.53(.42)                                |               |
| Age 12 adolescent report of mother warmth                                 | .29(.68)                                 |               |
| FR- of father warmth of adolescent at age 12                              | -.91(.57)                                |               |
| MR-of warmth for adolescent at age 12                                     | .85(.79)                                 |               |
| Age 12 adolescent report of father engagement                             | .73(.57)                                 |               |
| MR-of father engagement with adolescent at age 12                         | -.72(.63)                                |               |
| Age 12 adolescent report of mother engagement                             | -.57(.55)                                |               |
| MR-of mother engagement of adolescent at age 12                           | .35(.31)                                 |               |
| FR- of mother engagement of adolescent at age 12                          | -.44(.54)                                |               |
| <i>Age of Sexual Debut (age 12-16 &amp; 0 (&lt;16 or not occurring ))</i> | Female                                   | Male          |
| <i>X</i>  | B(SE)                                    | B(SE)         |
| Gender  | .32(.49)                                 | -.97(.35)**   |
| MR-of parental solicitation of adolescent age 12                          | -2.93(1.03)**                            | -2.72(1.00)** |
| FR- of parental engagement with adolescent at age 12                      | 1.66(.90)                                | 1.84(.79)*    |
| MR-of parental engagement with adolescent at age 12                       | 2.11(.92)*                               | -.10(.69)     |

Table 3: Table 2: \*= significance <.05 and \*\*=significance <.00. Indicates the odds that one sexual debut before age 16.



**Table 4. Significant Zero-Inflated Poisson Regression Results**

|                          | Age of debut                           |                 |               | Likelihood of Sexual Debut before age 16 |                 |               |
|--------------------------|--|-----------------|---------------|--|-----------------|---------------|
|                          | No significant gender effects<br>b(se) | Female<br>b(SE) | Male<br>b(SE) | No significant gender effects<br>b(se)   | Female<br>b(SE) | Male<br>b(SE) |
| Gender                   |  |                 | -.98(.20)**   |  |                 | -1.61(.40)**  |
| Race                     | .73(.29)**                             |                 |               | 2.64(.84)***                             |                 |               |
| MR-parental solicitation |  | -.90(.32)**     | -1.31(.34)**  |  | -2.93(1.03)**   | -2.72(1.00)** |
| FR- father engagement    |  |                 | 1.18(.33)**   |  |                 | 1.84(.79)*    |
| MR-mother engagement     |  |                 |               |  | 2.11(.92)*      |               |
| FR- father warmth        |  | -.66(.25)**     | -1.24(.34)**  |  |                 |               |

Table 4: Differences in Significant findings. <sup>a</sup>=no significant interaction effect, \*\*=significance <.00. Direction of results adjusted to reflect the recoding of the age of debut for Age of Debut.

**Table 5. Log Odds of Significant Outcomes**

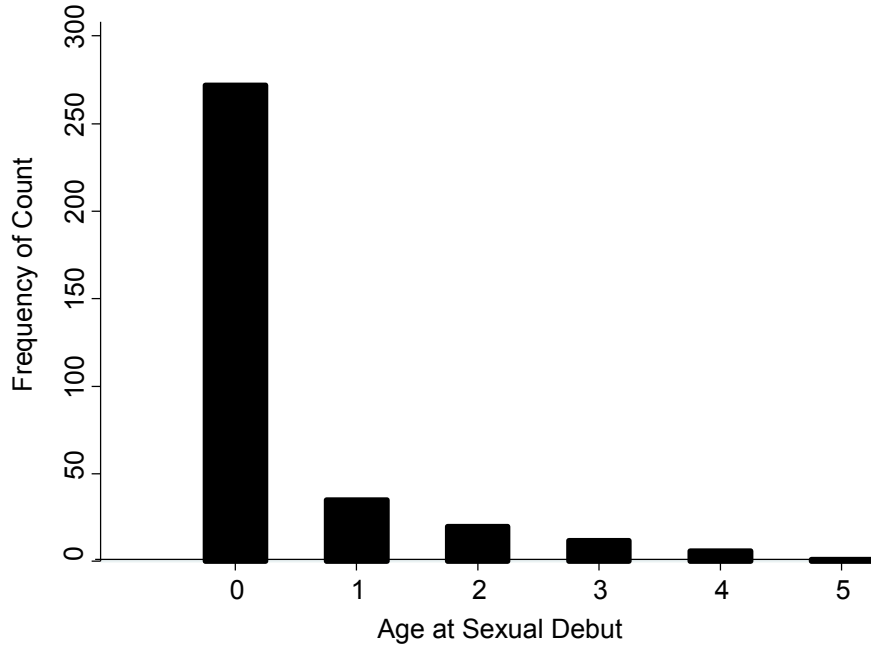
|                         | <i>Age of Debut</i>                     |                   |                 | <i>Likelihood of debut before age 16</i> |                   |                 |
|-------------------------|---|-------------------|-----------------|--|-------------------|-----------------|
|                         | No significant gender effect<br>Exp (b) | Female<br>Exp (b) | Male<br>Exp (b) | No significant gender effect<br>Exp (b)  | Female<br>Exp (b) | Male<br>Exp (b) |
| Gender                  | 2.07                                    |                   | .45             | 13.98                                    |                   |                 |
| Race                    |   | .27               | .41             |  | .05               | .07             |
| MR- Parent Solicitation |   |                   | 3.26            |  |                   | 6.33            |
| FR- Father engagement   |   |                   |                 |  | 8.22              |                 |
| MR- Mother engagement   |   | .52               | .78             |  |                   |                 |
| FR- Father warmth       |   |                   |                 |  |                   |                 |

*Indicate the factor by which the amount increases or decreases based on the direction of the coefficient*

Table 6. Bivariate Correlation Table

|                | Age @<br>debut | Gender | Child<br>Race | Mmon<br>(Mr) | Fmon<br>(Fr) | Mmon<br>(Ar) | Fmon<br>(Ar) | Fwarm<br>(Ar) | Mwarm<br>(Ar) | Fwarm<br>(Fr) | Mwarm<br>(Mr) | Inc. | Feng<br>(Ar) | Feng<br>(Mr) | Feng<br>(Fr) | Meng<br>(Ar) | Meng<br>(Mr) | Meng<br>(Fr) |  |
|----------------|----------------|--------|---------------|--------------|--------------|--------------|--------------|---------------|---------------|---------------|---------------|------|--------------|--------------|--------------|--------------|--------------|--------------|--|
| Age @<br>debut | 1              |        |               |              |              |              |              |               |               |               |               |      |              |              |              |              |              |              |  |
| Gender         | .00            | 1      |               |              |              |              |              |               |               |               |               |      |              |              |              |              |              |              |  |
| Race           | .01            | .07    | 1             |              |              |              |              |               |               |               |               |      |              |              |              |              |              |              |  |
| Mmon<br>(Mr)   | -.11*          | .02    | .17*          | 1            |              |              |              |               |               |               |               |      |              |              |              |              |              |              |  |
| Fmon<br>(Fr)   | -.02           | .02    | .15**         | .21**        | 1            |              |              |               |               |               |               |      |              |              |              |              |              |              |  |
| Mmon<br>(Ar)   | -.06           | -.11   | .15**         | .31**        | .21          | 1            |              |               |               |               |               |      |              |              |              |              |              |              |  |
| Fmon<br>(Ar)   | -.08           | -.09   | .14**         | .26**        | .35**        | .76**        | 1            |               |               |               |               |      |              |              |              |              |              |              |  |
| Fwarm<br>(Ar)  | -.12*          | -.04   | -.08          | .13*         | .22**        | .38**        | .48**        | 1             |               |               |               |      |              |              |              |              |              |              |  |
| Mwarm<br>(Ar)  | -.07           | -.07   | -.15**        | .09          | .23*         | .50**        | .40**        | .73**         | 1             |               |               |      |              |              |              |              |              |              |  |
| Fwarm<br>(Fr)  | .07            | -.18** | -.12*         | .03          | .30**        | .12*         | .16**        | .29**         | .21**         | 1             |               |      |              |              |              |              |              |              |  |
| Mwarm<br>(Mr)  | -.08           | .02    | .06           | .47**        | .18**        | .17**        | .14**        | .25**         | .27**         | .22**         | 1             |      |              |              |              |              |              |              |  |
| LogInc         | -.15**         | -.01   | .08           | .09          | .29**        | .09          | .08          | .01           | -.00          | .06           | .02           | 1    |              |              |              |              |              |              |  |
| Feng<br>(Ar)   | -.07           | -.00   | .18           | .17**        | .32**        | .38**        | .56**        | .44**         | .36**         | .08           | .16**         | .08  | 1            |              |              |              |              |              |  |
| Feng<br>(Mr)   | .02            | .00    | .30**         | .22**        | .34**        | .21**        | .34**        | .24**         | .12*          | .09           | .19**         | .06  | .44**        | 1            |              |              |              |              |  |
| Feng<br>(Fr)   | .07            | .02    | .22**         | .13*         | .46**        | .17**        | .33**        | .14**         | .00           | .26**         | .10           | .12* | .45**        | .57**        | 1            |              |              |              |  |
| Meng<br>(Ar)   | -.05           | -.02   | .20**         | .21**        | .23**        | .46**        | .42**        | .35**         | .39**         | -.01          | .15**         | .01  | .68**        | .26**        | .21**        | 1            |              |              |  |
| Meng<br>(Mr)   | .00            | .01    | .34**         | .29**        | .12*         | .13*         | .13*         | .14*          | .07           | -.03          | .27**         | -.07 | .24**        | .48**        | .14**        | .37**        | 1            |              |  |
| Meng<br>(Fr)   | .06            | .09    | .26**         | .15**        | .24**        | .19**        | .14**        | .07           | .02           | -.03          | .06           | -.01 | .17**        | .37**        | .35**        | .36**        | .44**        | 1            |  |

Significance \*= $\leq .05$  and \*\*= $\leq .00$

**Figure 1. Reported Age of Sexual Debut**

*Figure 1:* Histogram of the counts of the reported age at sexual debut. 0 = no debut or debut after age 16, 1= debut at age 16, 2=debut at age 15, 3=debut at age 14, 4=debut at age 13, and 5=debut at age 12. There was only one in the sample that reported debut at age 12.