PARENTS, PEERS, AND RISKY SEXUAL BEHAVIORS IN RURAL

AFRICAN AMERICAN ADOLESCENTS

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PARENTS, PEERS, AND RISKY SEXUAL BEHAVIORS IN RURAL AFRICAN AMERICAN ADOLESCENTS

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THESIS ABSTRACT
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The current study examined the relationships among parenting factors (closeness, communication, support, and monitoring), peer deviance, and adolescent risky sexual behavior in a sample of rural African American youth (N = 689). More specifically, the goal of the current investigation was to discover whether the effects by parenting factors and peer deviance on adolescent risky sexual behavior were unique, additive, or redundant. Analyses were conducted separately by sex; correlations reveled that closeness was negatively associated with risky sexual behavior for female adolescents, while both monitoring and peer deviance were associated with risky sexual activity for both males and females. Regression analyses provided evidence that parenting constructs had no effect on risky sexual behavior. However, peer deviance was a significant predictor and explained approximately 8% of the variance for both male and female

participants. Thus, findings indicate that peer deviance, but not parenting factors, was a salient predictor of risky sexual behaviors in this rural African American sample. Due to the high percentage of the sample that reported engaging in risky sexual behaviors, and because of the serious consequences which may result from such activities, it is suggested that further work focus on etiological factors for risky sexual behavior in this extremely understudied population. Such findings may be useful in designing both prevention and intervention efforts aimed at reducing rates of adolescent risky sexual behaviors.

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STYLE MANUAL

In the current investigation the American Psychological Association's Publication Guidelines 5.0 were followed. The statistical software package used for data analyses was SPSS 15.0.

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INTRODUCTION

In recent years, adolescent sexual behaviors have remained a concern, both for the individual as well as for society. Of particular interest are risky sexual behaviors, those that increase the risk of unintended pregnancy or sexually transmitted disease. According to the Centers for Disease Control and Prevention (CDC), in 2005, nearly half of all high school students had engaged in sexual intercourse and of these only 63% used a condom at last intercourse (CDC, Healthy). In 2000, 15-19 year olds accounted for 13% of all pregnancies. Also in 2000, people age 15 to 24 accounted for roughly one-quarter of the sexually active population, however, nearly half of all new cases (9.1 million of almost 19 million) of sexually transmitted diseases reported that year occurred in this age group (Guttmacher Institute, 2006b). Young people also have higher than average rates of syphilis, gonorrhea, and chlamydia.

When an adolescent becomes pregnant this has serious implications not only for her and the child's father, but also for society as a whole. Studies have shown that babies born to adolescent mothers are at higher risk for adverse health outcomes, including premature birth and low birth weight, and also may face more hardship later in life due to higher risks for poverty, neglect, abuse, and early child-bearing (Guttmacher Institute, 1994). Although in recent years the number of adolescent mothers who complete high school has increased, they are still less likely to continue their education in college (Guttmacher Institute, 1994), thus their future occupational options may be limited. It has

also been estimated that teen pregnancy and childbearing costs taxpayers approximately $9 billion dollars each year (Hoffman, 2006).

Sexually transmitted diseases contracted during adolescence are also a concern for society. Many STDs do not produce symptoms, especially in females, and thus adolescents may unknowingly pass them along to new partners. Of particular concern for females is that since many STDs are asymptomatic they may go untreated and lead to health complications later on in life, including fertility problems and cancer (certain types of Human Papillomavirus have been linked to cervical cancer). Adolescents who contract sexually transmitted diseases also cause a financial burden to society. It has been estimated that each year STDs (for the whole population, not just adolescents) cost taxpayers roughly $13 billion dollars (Guttmacher Institute, 2006).

Many studies have focused on identifying factors that may influence an adolescent's decision about whether or not to engage in risky sexual behaviors. By combing through the relevant literature it becomes readily apparent that two factors in particular are often associated with adolescent risky sexual behavior- peers (e.g., Ary, Duncan, Duncan, & Hops, 1999; Doljanac & Zimmerman, 1998) and parents (e.g., Fingerson, 2005; Regnerus & Luchies, 2006). Even though these studies have revealed a wealth of information on how either peers or parents influence an adolescent's sexual behavior, only a small number of studies have examined the combined effects by these two areas of socialization (e.g., Maguen & Armistead, 2006). Also, many of these studies have focused only on risk factors for risky sexual behavior associated with parenting and peer relationships. Few studies have tried to identify ways in which parents may provide a buffer for adolescent sexual activity.

Another shortcoming in recent studies is that most focus on a narrow subset of the adolescent population, namely European American middle-class youth who reside in an urban setting. Some studies have taken a comparative approach and examined sexual behavior in two or more racial groups (e.g., Costa, Jessor, Donovan, & Fortenberry,1995; Doljanac & Zimmerman, 1998; Hutchinson, 2002); however, very little research exists that has focused explicitly on minority populations, such as African American or Hispanic youth (e.g., DiClemente, Wingood, Crosby, Sionean, Cobb, Harrington, et al., 2001; Kapungu, Holmbeck, & Paikoff, 2006). This is an unexpected finding considering that African American adolescents are at a greater risk for experiencing the detrimental consequences of risky sexual behaviors. In general, research has shown that African American female youth begin puberty earlier than females of other ethnic groups (Herman-Giddens & Slora, 1997). This means that they may become sexually active earlier than their counterparts from other racial groups.

In fact, many studies and national statistics collected by the Centers for Disease Control and Prevention (CDC) have shown that both male and female African American adolescents begin engaging in sexual activity earlier than adolescents from other racial groups (CDC, YRBSS; Upchurch, Levy-Storms, Sucoff, & Aneshensel, 1998). Since they begin sexual activity earlier this puts them at a greater risk for having multiple sexual partners, which increases the risk of being exposed to sexually transmitted diseases (STDs). In 2004 only 15% of teenagers were African American, yet they accounted for nearly three quarters of newly reported AIDS cases (CDC, HIV-related). Recent figures support this and document that African Americans, especially females, have disproportionately higher rates of several STDs, particularly HIV/AIDS. In 2005,

the rate of AIDS cases in African American adults was approximately 10 times higher than that of European American adults; the rate for African American adult females was 24 times that of European American adult females (CDC, HIV-related). In 2004 the rate of chlamydia in African Americans females was 8 times that of European American females, and that of African American males was 11 times that of European American males (Guttmacher, 2006b). Also, the rate of gonorrhea in African Americans was 19 times the rate in European Americans in 2004.

African American female adolescents also have a higher rate of unintended pregnancies than adolescent females from other ethnic groups (Guttmacher, 2006a). In 2002, the CDC reported that although teenage pregnancy rates had decreased for both European American and African American adolescents, African American females age 15-19 were more than twice as likely as European American females to become pregnant (138.9/1000 versus 49.0/1000) (CDC, Healthy). These figures document the great need to further study African American youth in particular and to examine whether known etiological risk factors from studies on European American youth also generalize to African American youth, but also to test for potential differences that may account for the apparently large observed differences in rates of risky sexual behaviors, STDs, and unintended pregnancies.

As mentioned above, the majority of studies that have focused on adolescent sexual behavior have been conducted with samples drawn from an urban or suburban environment. Only a handful of studies that have focused on adolescent sexual behavior have done so with a sample drawn from rural communities (e.g., Scaramella, Conger, Simons, & Whitbeck, 1998); even fewer studies have focused on African American

adolescents from a rural environment (e.g., Murry, Berkel, Brody, Gibbons, & Gibbons, 2007). Researchers have pointed to the need to further study adolescents in rural communities as they are at least as likely as urban peers to suffer the detrimental consequences of engaging in risky behavior, and may even be at more risk than those living in urban and suburban areas (Loda, Speizer, Martin, Skatrud, & Bennett, 1997; Bennett, Skatrud, Guild, Loda, & Klerman, 1997). Data collected by the Alan Guttmacher Institute show that rural teens engage in sexual activity at levels comparable to their urban peers (Guttmacher Institute, 1994).

However, rural adolescents may be more likely to engage in risky sexual activity. A study by Walker, Harris, Blum, Schneider, and Resnick, (1990) found that when using a birth control method rural adolescents were more likely to use a less effective method, such as condoms, whereas urban adolescents are more likely to use a hormonal method, such as the birth control pill. This same study found that rural adolescents used their chosen method of birth control less consistently than did urban adolescents.

In addition to perhaps being more likely to engage in risky sexual behavior, rural adolescents may also be more likely to suffer negative consequences due to these behaviors. A report by Slifkin, Goldsmith, and Ricketts (2000) for the Cecil G. Sheps Center at the University of North Carolina at Chapel Hill found that compared to European American urban (29%) and rural women (28%) and also non-European American urban women (23%), rural non-European American women receiving Medicare had the lowest rates (mean of 17%) of Pap tests (cervical cancer screening) using data from the mid-1990's. As already stated many STDs are asymptomatic in women and if left untreated may lead to cervical cancer. Since non-European American

women who live in rural areas are less likely to be screened for cervical cancer acquisition of an STD may be even more harmful for them than for European American women.

Also while rural and nonrural adolescents have similar rates of pregnancy there is some evidence that suggests rural adolescents have higher birth rates than nonrural adolescents. Bennett et al. (1997) used data from 1990 for eight states in the southeast region. They found that in six of these states rates of birth for rural adolescents age 15-17 were higher than birth rates for their urban counterparts. This same study showed that for the region as a whole birthrates were higher for African American adolescents than for European American adolescents in all age groups (5/1000 versus >1/1000 for 10-14 year olds and 156 versus 86 for 18-19 year olds).

One explanation for the difference in birthrates between rural and urban adolescents is that rural adolescents have less access to abortion providers than nonrural adolescents. Bennett et al. (1997) found that for the southeastern states in which abortion data were available the rate of abortion was higher overall for metropolitan areas (20/1000 pregnancies) than rural areas (9/1000 pregnancies) regardless of the age or race of the woman (this includes women ages 20-44 in addition to adolescent females). For African American adolescents the disparity between abortion rates in urban and rural areas was especially pronounced. For African American females ages 15- 17 the abortion rate was 13/1000 in rural areas and 30/1000 in urban areas, for 18-19 year olds the rate was 23/1000 for rural areas and 61/1000 for urban areas.

Adolescents residing in rural communities may also face more barriers to health care services than those adolescents who reside in urban or suburban communities. A

report by Pathman, Konrad, and Schwartz (2001) for the Cecil G. Sheps Center based on data from the United States Census, the American Medical Association and the American Hospital Association from 1990 showed that those people living in predominately African American rural towns in Southern states are more likely to face longer travel time to get access to health care services than those living in urban areas. In addition to long travel times, the range of health care providers in rural areas is not diverse, and rural adolescents are less likely than urban adolescents to be covered by private health insurance or public assistance (Loda et al., 1997).

The current study will address the above mentioned shortcomings and gaps in the work on adolescent sexual behaviors by examining how both parent and peer factors influence adolescent sexual behaviors. This investigation will also center on a sample of African American adolescents drawn from a rural community, thus focusing on an extremely understudied population. It has been found in previous work using samples of European American adolescents that both parents and peers are influential in the sexual decision-making of adolescents. The current investigation will examine whether or not these are also salient factors in African American adolescents' sexual behaviors.

In particular the current study will focus on two dimensions of parenting- an affective dimension and a behavioral dimension. The affective dimension of parenting will focus on the overall quality of the parent-child relationship and also three concepts closely linked to the parent-child relationship- parental closeness, parental support, and communication between the parent and adolescent. A behavioral dimension of parenting, namely parental monitoring, will also be examined. The literature review will focus on these parenting dimensions and how they have been found to relate to a wide variety of

risky adolescent sexual behaviors in previous empirical efforts. The role of deviant peers will also be examined. The current study will attempt to see if parenting factors and deviant peers influence the sexual decisions of African American adolescents, in particular those who live in a rural neighborhood.

Conceptual Background

Richard Jessor's Problem-Behavior Theory is a useful theoretical framework that has been applied successfully to different populations (Costa et al., 1995; Jessor, Turbin, & Costa, 1998, 2003). In particular, it is applicable in populations in which disadvantage is a factor (Jessor et al., 1998). Problem-Behavior Theory is used as a conceptual backdrop for the current study because it considers not only the influence of risk factors (those which are hypothesized to increase an adolescent's participation in harmful behaviors) for problem behaviors, but also protective factors (those which are hypothesized to decrease an adolescent's participation in harmful behaviors). Furthermore, studies have shown that protective factors should be considered when dealing with risk for problem behavior since protective factors may actually buffer the effects of risk (e.g., Jessor et al., 1998).

Costa et al. (1995) conducted a study in which they used Problem-Behavior Theory as a theoretical framework to test the effects of psychosocial unconventionality, a combination of risk factors, including low academic expectations and attitudinal tolerance of deviance, on adolescent early initiation of sexual intercourse. The authors found that their model, which was based on Problem-Behavior Theory, was appropriate for European American and Hispanic adolescents in the sample; however, they concluded that in their sample the model did not fit well for African American adolescents. The

authors suggested that this could have been a result of sample selection bias. This was a longitudinal study in which only those adolescents who were virgins at wave 1 were included. However, approximately one quarter of the African American female sample and one half of the African American male sample were already sexually experienced at wave 1, thus greatly reducing the African American sample size.

In other studies Problem-Behavior Theory has been found appropriate for use with an African American population (e.g., Jessor et al., 1998). A study conducted by Vazsonyi, Pickering, and Bolland (2006) used a similar conceptual background (risk-protective factors framework) in order to study the effects of parenting processes for at-risk African American youth. They used a sample of poor inner-city African American adolescents to assess how parenting processes influence health-compromising (sexual activity and substance use) and violent behaviors. The authors concluded that parents serve as an effective buffer to problem behaviors in a high-risk African American sample.

In order to have a well rounded view of adolescent sexual risk taking it is important to consider not only those factors that put adolescents at risk for making poor sexual decisions, but also those that buffer adolescents from the harmful consequences of risky sexual activity. Risk and protective factor frameworks have been shown to work well in diverse populations, including those that are particularly disadvantaged (Jessor et al., 1998) and African American populations (Vazsonyi et al., 2006). Problem Behavior Theory is a well-studied and empirically validated risk and protective factor framework. Therefore, Problem Behavior Theory seems to be an appropriate choice to frame the current study.

LITERATURE REVIEW

This section will provide a review of recent studies that have dealt with the relationship between parents, deviant peers, and adolescent sexual behavior. Particular emphasis will be given to those studies that have relied upon an African American sample. However, due to the relative lack of studies which have done so it will also be important to include studies that were conducted with other ethnic groups. The first part of this review will focus on the ways in which parents may affect the sexual decision-making of their adolescent. Next there will be an examination of the ways in which the behavior of an adolescent's peers may influence the sexual practices of that adolescent. The review will then conclude with a close examination of those studies that have relied upon samples drawn from rural communities.

Parental Influence

Throughout their lifetime, the majority of adolescents have probably spent more time with a parent than with anyone else. Thus it would make sense that parents would influence the behavior, including sexual behavior, of their adolescent. Even though this seems commonsense the literature has failed to definitively back up this assertion. Researchers have tried to establish a clear link between the parent-child relationship and adolescent sexual behavior. However, the results of these studies appear to be mixed. Some researchers assert that parents can have an effect on their adolescent's sexual behavior (e.g., McNeely, Shew, Beuhring, Sieving, Miller, & Blum, 2002; Moore &

Chase-Lansdale, 2001); others claim that parents have little to no effect (e.g., Taris & Semin, 1997). Previous studies that have focused on the relationship between parenting and adolescent sexual behavior have examined a wide array of parenting dimensions. For the purposes of the current effort two parenting dimensions will be considered. First the affective dimension of parenting, which consists of constructs such as parental warmth and support, parent-child relationship quality, and general communication between parents and adolescents. Secondly, parental monitoring will be examined.

Parent-child relationship quality. Rose, Koo, Bhaskar, Anderson, White, and Jenkins (2005) conducted a study in which they examined several factors associated with parenting that may have an influence on adolescent sexual behavior. Two of the parent-child relationship factors that were measured included family cohesion, which was a measure of family closeness, and also overall parent-child relationship quality. A non-random sample of 408 fifth grade students (99% African American) who attended schools located in those school districts in Washington D.C. with the highest rates of teen pregnancy completed a self-report questionnaire. The primary caregiver of the child also completed a self-report survey similar to the one completed by their child. The majority (82%) of surveys completed by the caregiver were done by the child's mother.

The results of the study done by Rose et al. (2005) showed that family cohesion, or closeness, was not significantly correlated with any of the child outcomes, which included having already engaged in sexual intercourse or having intentions to within the next year. Therefore, this variable was excluded from further analyses. It is important to note here that only the caregiver's survey included questions about family cohesion and not the child's survey. However, the authors did find an effect related to the other parent-

child variable- overall relationship quality. Although overall relationship quality was not significantly correlated with any child outcomes the authors did use this variable in further analyses in order to see if perhaps there was an interaction between overall quality of relationship and child's gender. A significant effect was found whereby adolescent females who had poor quality relationships with their caregiver were substantially more likely than males to have already engaged in sexual intercourse ($OR = 28.24$). However, at higher levels of relationship quality females were much less likely than males to have engaged in sexual intercourse ($OR = 0.05$).

Another study conducted by Regnerus and Luchies (2006) also found that the effect of the overall parent-child relationship on adolescent sexual behavior differed by gender. This study relied on data from the National Longitudinal Study of Adolescent Health (Add Health) a stratified, nationally representative study of adolescents in the 7th through 12th grades. The sample used for this study consisted of 2,368 adolescents residing with both biological parents who reported being virgins at Wave 1 of data collection and were age 15 or older. Overall quality of parent-child relationship, as assessed by the adolescent, was measured during Wave 1 of data collection. Relationship quality was measured separately for mothers and fathers to see if the gender of the parent would have an effect.

The participants were then asked again during Wave 2 of data collection whether or not they had engaged in sexual intercourse. Regnerus and Luchies (2006) found that the influence of overall parent-child relationship quality differed depending on both the gender of the parent and of the adolescent. The quality of the mother-child relationship was not a significant predictor of sexual initiation by the second wave of data collection.

Similarly, no effect was found in regards to the quality of the relationship between father and son. A relationship was found between quality of father-daughter relationship and sexual initiation by Wave 2 ($OR = 0.79, p < 0.05$), however, when other variables were added to the model, such as number of romantic partners, this relationship was reduced to a statistical trend ($OR = 0.85, p < 0.10$).

Although the study by Regnerus and Luchies (2006) found that quality of the mother-child relationship did not significantly influence adolescent sexual initiation, another study conducted with the Add Health data set found that the mother-child relationship is an important factor in the timing of adolescent sexual activity (McNeely et al., 2002). This study is different from many others in that it is based solely on the mother's report and not the adolescent's (with the exception of the dependent variable of sexual intercourse). The sample used for this study was also taken from Waves 1 and 2 of data collection, but was larger ($N = 12,006$) due to the fact that adolescents from non-intact homes were included. However, since the focus of this study was on those adolescents who initiated sexual activity early only those who were virgins and ages 14 or 15 at Wave 1 were included in data analysis.

Again separate analyses were conducted for female and male adolescents and differences were found based on the child's gender. McNeely et al. (2002) report that the quality of the overall mother-son relationship was not a significant predictor of whether or not the adolescent had engaged in sex between Waves 1 and 2 of data collection. However, when mothers reported that they were satisfied with their relationship with their daughter, the adolescent was less likely to have engaged in sexual intercourse between Waves 1 and 2 of data collection ($HR = 0.62, p < 0.05$).

Moore and Chase-Lansdale (2001) also found the mother-daughter relationship to be an important factor in predicting whether or not an adolescent female will become sexually active. However, they did not find that the quality of the mother-daughter relationship was a significant predictor of adolescent pregnancy. For this study data were collected from African American females who resided in neighborhoods with high rates of poverty. Participants were age 15 to 18 and were randomly drawn from three disadvantaged neighborhoods in Chicago; data collection was part of the Families in Communities Study. The sample was comprised of 289 females and their primary caregiver, both of which completed a 75 minute structured interview and an additional survey. In this study quality of the parent-child relationship was assessed with 12 items taken from the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987), an example item is, "I like to get my mother's point of view on things I'm concerned about." In addition to this and other measures adolescents also reported their age of first intercourse, if applicable, and also whether or not they had ever been pregnant.

Results showed that adolescents who reported lower quality relationships with their mothers were more likely to have had sex and also to have been pregnant than those adolescents who reported high quality mother-daughter relationships. In logistic regression analyses quality of the mother-daughter relationship was a significant addition to the baseline model predicting sexual activity and this variable remained significant even after the inclusion of other variables, including peer influences ($OR = 0.38$, $p < 0.05$). However, mother-daughter relationship quality did not remain a significant predictor of adolescent pregnancy.

Gender is obviously an important factor when considering the effect that the parent-child relationship may have on the adolescent's sexual decisions. Another factor that may play a role in this relationship is the age of the adolescent. Maguen and Armistead (2006) found that a high quality parent-child relationship has a negative association with adolescent sexual activity, above and beyond the effects of perceived peer behaviors. However, they also found that this relationship differs depending upon the age of the adolescent. Participants were 568 African American females age 12 to 19 recruited as part of a larger study aimed at HIV prevention. Baseline questionnaires were completed which asked participants whether or not they had ever had sex and about a number of peer and parental factors. The quality of parent-child relationship was assessed through the 20-item Conflict Behavior Questionnaire (CBQ; Prinz, Foster, Kent, & O'Leary, 1979). In this sample the CBQ had high reliability ($\alpha = 0.90$).

Results showed that quality of parent-child relationship was a significant predictor of abstinence above the influence of adolescent age, the perceived sexual attitudes and behaviors of peers, and the perceived sexual attitudes of parents ($\beta = -0.11, p < 0.01$) for the entire sample. However, this result differed depending on the age of the adolescent being studied. Separate hierarchical logistic regression analyses were conducted for the younger sample, ages 12 to 15, and the older sample, age 16 to 19. In the younger sample quality of the parent-child relationship failed to reach statistical significance in the regression equation predicting adolescent abstinence. However, in the older sample parent-child relationship quality remained a significant predictor of abstinence above the other variables entered into the equation ($\beta = -0.11, p < 0.05$). Thus, the quality of the

parent-child relationship may be more influential in adolescent sexual decision making at different ages.

A great deal of research has been conducted on the link between the overall quality of the parent-child relationship and the sexual behavior of the adolescent. Although the majority of studies find some sort of an effect on the adolescent's sexual behavior, this effect is often unclear. For example, some studies have found that overall relationship quality is only an important predictor of sexual activity when the adolescent is female (Rose et al., 2005). Others have found that the gender of both the child and the parent are important. For example, Regnerus and Luchies (2006) found only the father-daughter relationship to be predictive of engaging in sexual activity and concluded that the mother-child relationship had no statistically significant effect. Yet others (McNeely, et al., 2002, Moore & Chase-Lansdale, 2001) have found the mother-child relationship to be important in predicting involvement in sexual activity, but not for other outcomes, such as pregnancy. Finally, gender may not be the only factor complicating the association between parent-child relationship quality and risky sexual behavior. Some have argued that parental influence differs as a function of the child's age (Maguen & Armistead, 2006; Treboux & Busch-Rossnagel, 1995). Thus the parent-child relationship may be more influential at certain times in the adolescent's life.

Parental warmth, closeness, support, and communication. While some researchers have chosen to examine the overall parent-child relationship, other have chosen to examine a specific aspect of that relationship, such as warmth (e.g., Kapungu et al., 2006), closeness (e.g., Fingerson, 2005), support (e.g., Doljanac & Zimmerman, 1998), or communication (e.g., Hutchinson, 2002). As is the case with studies dealing

with general parent-child relationship quality, those studies dealing with specific parent-child issues also provide mixed findings.

Davis and Friel (2001) show evidence that closeness with a parent is an especially important factor for adolescent females in regards to their decision to engage in sexual activity. The primary purpose of this study was to examine the relative influences of both family structure and context on adolescent sexual activity. The data used in analyses came from wave 1 of the Add Health data set. The total sample used for analyses was 6,261 females and 6,106 males aged 11 to 18 years old. Those who had been married, who did not have mother data, those who did not live with a female caregiver, those who had lived with their caregiver for less than 6 months, and those who were 19 or older were excluded from analyses. Mother-child relationship quality was measured with 5 items responded to by adolescents dealing with the amount of warmth, love and communication in the relationship. Two outcome measures were used in the study- age at sexual initiation and number of sexual partners.

Results revealed that quality of mother-adolescent relationship was an important predictor of age at first intercourse ($OR = 0.84$, $p < 0.001$) for females, but not males. Relationship quality was not predictive of number of sexual partners for either males or females. Interestingly, the mother's satisfaction with her relationship with her child was predictive of age of first intercourse for both males ($OR = 0.84$, $p < 0.001$) and females ($OR = 0.90$, $p < 0.001$), and of number of sexual partners for females ($OR = -0.19$, $p < 0.05$).

Hutchinson (2002) found that the effects of communication between parents and children may differ depending upon the gender of the child. This study focused on the

relationship between sexual discussions between parents and their daughters and the sexual behaviors of their daughters. In this study 234 females age 19 to 21 were interviewed regarding a number of parental behaviors, including general communication with parents. Participants were also asked about their own previous sexual behaviors, including age of first intercourse, contracting an STD, and consistent condom use before the age of 18. The sample was composed of approximately equal numbers of Hispanic (n = 65), African American (n = 78), and European American (n = 91) females and was drawn randomly from a list of licensed drivers in the state in which the study was conducted.

It was found that general communication with parents did have an effect on the sexual activity of the participants, though these effects seemed to differ depending upon the gender of the parent. The author used a Cox Proportional Hazard model in order to determine the effect of parental communication on the initiation of sexual activity. It was determined that females who had a higher quality of communication with their father were less likely than those with poor communication to have become sexually active prior to age 18. In fact, the risk of initiating of sexual intercourse decreased 19% for each one-unit increase in quality of father-daughter communication. Communication with father was not a significant predictor of consistent condom use, however, communication with the daughter's mother was. Daughters who reported high quality communication with their mother were nearly twice (OR = 1.60) as likely to consistently use condoms as those who reported poor communication. No direct effects of parenting on STD contraction were found. However, it was speculated that communication with parents

may be indirectly related to STD acquisition due to the relationships found between parent-child communication and sexual initiation and consistent condom use.

Kapungu and colleagues (2006) also concluded that the effects of parent-child relationships with regards to sexual activity may differ depending upon the gender of the adolescent. In this study data collected as a part of the Chicago HIV Prevention and Adolescent Mental Health Project Family Study, a longitudinal study of African American families, were used to examine the relationship between parental warmth and control and adolescent sexual behavior. Participants were 274 children, with an average age of 11 years at baseline and of 13.3 years at follow-up, who lived in high poverty areas. Those who had engaged in sexual activity before baseline were excluded from analyses. Both baseline and follow-up interviews were conducted with the child and the primary caregiver. The child and caregiver also participated in videotaped family interaction tasks.

Parental warmth was assessed through multiple informants. Both the primary caregiver and the child completed a 10-item questionnaire adapted from the Positive Parenting Measure (Gorman-Smith, Tolan, & Huesman, 1996) with the addition of some items that were found to reflect the study construct. In addition to this parental warmth was rated by two observers based on the videotaped family interactions, interrater reliability was 0.80 for parental warmth. Analyses revealed that the effects of parental warmth differed depending upon the gender of the child. The authors concluded that adolescent males whose parents were both warm and less controlling, what is termed permissive parenting, are at higher risk for sexual activity. Contrary to this, females

whose parents are low in warmth but high in control, what is referred to as authoritarian parenting, are at a higher risk for sexual activity.

Fingerson (2005) also used the Add Health data set in order to test the relationship between various parenting measures of mothers and adolescent sexual behavior. This study was based on Wave 1 data from 7,908 mother-child dyads where the child was between the ages of 15 and 18. One of the variables of interest was mother-child closeness, assessed by adolescent report based on the combination of two questions-satisfaction with overall relationship and satisfaction with the way in which communication occurs. Results indicated that the closer the adolescent felt to their mother the less likely they were to be sexually active. For those teens in the sample who had already engaged in sexual activity, when they reported being close to their mother they also reported having fewer sexual partners than those who reported feeling less close to their mother.

Doljanac and Zimmerman (1998) found parental support to be a significant predictor of a number of risky sexual behaviors in African American adolescents. The participants were recruited as part of a longitudinal study examining school dropout and because of this only students with a grade point average at or below 3.0 were included. The sample consisted of 679 African American and 145 European American adolescents. The average age of the total sample was 14.5 years. Participants completed both a face-to-face interview and a self administered questionnaire.

A composite measure of high risk sexual behavior was formed by combining participant responses to questions about whether or not they had ever had sex, their age at first intercourse, number of times they have had sex, and number of sexual partners they

have had. Participants also responded to two questions regarding their condom use-whether or not they used a condom at first intercourse and how often they use condoms. One of the predictor variables used in this study was parental support, which was assessed with a shortened 5-item version of the Parental Support Scale (Procidano & Heller, 1983).

Separate analyses were conducted for the African American and European American adolescents in the sample. Parental support was significantly and negatively related to high risk sexual activity for African American adolescents ($r = -0.08, p < 0.05$) but not for white adolescents. In the final model parental support was not predictive of high risk sexual behavior for either group. Parental support was significantly related to condom use ($r = 0.14, p < 0.01$) for African American but not European American adolescents. However, in the final regression model parental support was not significantly related to condom use in African American adolescents, yet it was for European American adolescents. It is noteworthy that the final model for condom use, which included not only parental support but also parental monitoring, family conflict, and several peer centered variables, explained far less variance for African Americans ($R^2 = 0.05$) than for European American adolescents ($R^2 = 0.33$). Perhaps suggesting that those variables usually considered important predictors of condom use for European American adolescents may not be similarly important for African American adolescents.

In a study about the ways in which an adolescent's social context may affect their risk for becoming pregnant Scaramella et al. (1998) found that parental warmth was an important predictor of adolescent pregnancy. Data collected as a part of the Iowa Youth and Families Project were used to examine the relationship between parental warmth and

adolescent involvement in a pregnancy. The sample used in this study was comprised of 368 adolescents, their parents, and a sibling who was closest in age to the target adolescent, with complete assessments across the seven year longitudinal study. The gender of the target adolescents was nearly equally divided (52% female, 48% male). All families resided in a rural area and were European American.

During each assessment the family completed a videotaped interaction task that lasted approximately 35 minutes. Parental warmth was assessed by observer ratings of 11 behaviors, including communication and positive reinforcement, toward the target child. Parental warmth scores from wave 1 were used in analyses and both mother and father were rated separately. To assess adolescent pregnancy interviewers asked the target adolescent whether they had ever been pregnant (females) or had ever gotten someone pregnant (males).

Parental warmth for mothers and fathers separately was not significantly related to adolescent pregnancy in bivariate analyses. However, when both parental warmth scores were combined to form the latent construct of parental warmth this was significantly correlated with pregnancy involvement ($r = -0.16, p < 0.01$). Parental warmth was also significantly related to the other variables- association with deviant peers, academic competence, and risky behavior (substance use and delinquency) all of which were significant predictors of pregnancy involvement in the final model. Therefore, parental warmth may have both direct and indirect ties to adolescent pregnancy.

Using structural equation modeling techniques it was determined that the best model for the data was the original theory based model with the addition of a path

directly from academic competence to pregnancy involvement. In this model the relationship between parental warmth, deviant peer association, academic competence and pregnancy involvement was mediated by adolescent risk-taking. In the final model parental warmth was significantly related to risk taking ($\beta = -0.13, p < 0.05$) which was predictive of pregnancy involvement ($\beta = 0.29, p < 0.05$). Parental warmth was also predictive of deviant peer association ($\beta = -0.19, p < 0.05$), which was also related to risk-taking behavior ($\beta = 0.47, p < 0.05$). Lastly, parental warmth was associated with academic competence ($\beta = 0.24, p < 0.05$), which had a direct link with pregnancy involvement ($\beta = -0.11, p < 0.05$). The results of this study and the final model provide evidence for both the direct and indirect links between parental warmth and adolescent pregnancy.

Taken together these studies appear to provide evidence that specific parenting behaviors are related to adolescent sexual activity. It appears that parental warmth may have differing effects on an adolescent's sexual behavior based on the gender of the adolescent (Davis & Friel, 2001; Kapungu et al., 2006). While warmth has been found to be predictive of pregnancy involvement (Scaramella et al., 1998), it was not predictive of the number of sexual partners an adolescent has (Davis & Friel, 2001). However, it was found that closeness to a parent is associated with having fewer partners and also with being less likely to engage in sexual activity (Fingerson, 2005). Hutchinson (2002) found that the quality of communication between parents and adolescents may affect some sexual behaviors, such as being sexually active and condom use, but that these effects differ by gender of the parent. This study also found that parent-adolescent communication has no effect on STD acquisition. The relationship of parental support

and risky sexual behavior may be affected by the adolescent's ethnicity (Doljanac & Zimmerman, 1998).

Parental monitoring. The final parenting dimension that is relevant to the current study is monitoring. Parental monitoring has been defined in subtly different ways throughout the literature. However a basic definition of parental monitoring can be thought of as the extent to which parents know what their adolescent is up to, where they go, and who they go there with.

DiClemente and colleagues (2001) conducted a study in which they examine the effects of parental monitoring on a number of sexual risk behaviors. Recruiters for the study screened 1,130 adolescents who resided in low income neighborhoods in Birmingham, Alabama in order to determine whether or not they were eligible for study participation. In order to be eligible adolescents had to be African American, between 14 and 18 years old, unmarried, and sexually active within the last 6 month period. African American female adolescent were chosen as the target sample due to disproportionate rates of adverse consequences of sexual behavior found in this group. Of those screened 609 were eligible for the study and 522 elected to participate. The authors reported that those who refused participation did so mainly due to conflicts with employment schedules. Participants completed a self-report questionnaire and an interview in which they were asked about sexual risk behaviors.

Parental monitoring was measured with two questions about whether parents knew where the participant was and who they were with when they were not at home. Participants rated these questions on a Likert-type scale from 1 (never) to 5 (almost always). Those who responded almost always to both questions were coded as having

high levels of parental monitoring (approximately 62.5% of the sample) and all others were considered to have low levels of parental monitoring. Adolescent sexual behavior was assessed with five variables- having multiple sexual partners, having a male partner who has a concurrent female partner, condom use during last intercourse, having a new partner within the past 30 days, and contraceptive use during the previous 5 sexual encounters. STD infection was also assessed. In addition to completing the self-report surveys participants also provided vaginal swab specimens to be tested for the presence of three STDs (*Chlamydia trachomatis, Nesseria gonorrhoeae, and Trichomonas vaginalis*).

Bivariate analyses indicated that parental monitoring was significantly associated with all five sexual risk behaviors at the $p < 0.05$ level. In multivariate analyses all associations remained significant with the exception of having a nonmonogamous male partner ($p = 0.06$). Participants who perceived less parental monitoring were nearly twice as likely to have not used a condom during their last intercourse ($OR = 1.7, p = 0.01$), to have multiple partners ($OR = 2.0, p = 0.05$), and to have not used any type of contraceptive during recent intercourse ($OR = 1.9, p = 0.05$). They were also three times more likely than those participants who perceived high levels of parental monitoring to have a new sexual partner within the last 30 day period ($OR = 3.0, p = 0.02$).

Parental monitoring also appears to be a predictor of adolescent acquisition of sexually transmitted diseases. Using the same sample described above Williams, Wingood, DiClemente, Crosby, McCree, Liau, et al. (2002) examined perceived parental monitoring as a potential predictor of adolescent female *Chlamydia trachomatis* infections. The authors found that low levels of perceived monitoring were significantly

associated with a positive chlamydia test ($PR = 1.47$, $p < 0.05$). Those factors which were significantly related to a positive test in the bivariate analyses (low perceived monitoring, non-condom use in the past 30 days, length of relationship and positive gonorrhea test) were then used in the logistic regression analyses. In multivariate analyses low levels of perceived parental monitoring remained an important predictor of testing positive for chlamydia ($OR = 2.12$). Another important finding from this study is that adolescents who tested positive for gonorrhea were also more likely to test positive for chlamydia ($OR = 5.01$). This shows that adolescents who have acquired an STD may have in fact been infected with multiple STDs. Since both of the infections looked at in this study may not produce noticeable symptoms adolescents may potentially infect others with multiple STDs.

This same sample was used as a baseline for longitudinal analyses conducted by Crosby, DiClemente, Wingood, Harington, Davies, Hook, et al. (2002) in which the effects of parental monitoring on pregnancy were assessed. Again using an African American sample was useful in this study due to higher rates of adolescent in pregnancy in African American adolescents. Of the baseline sample of 522 participants, 482 adolescents (92%) completed the follow-up assessment which consisted of a pregnancy test. Only those adolescents who were not pregnant at baseline were included in analyses, leaving a total of 410 participants. Approximately one-third of the sample reported at least one previous pregnancy. However, a prior pregnancy was not significantly related to level of perceived parental monitoring. Those adolescents who reported a low level of monitoring at baseline were more likely to have a positive pregnancy test at follow-up ($OR = 2.50$ $p < 0.04$).

However, a study conducted by Borawski, Ievers-Landis, Lovegreen, and Trapl (2003) reports that parental monitoring has no influence on the sexual behavior of females. Data were collected from 9th and 10th grade students in 6 high schools that were participating in an HIV prevention intervention, which was not related to parenting processes. In total there were 692 participants, mean age of 15.7 years, who completed a self-report survey post intervention. The sample was equally divided by gender (50.1% female) and ethnically diverse (36% African American). The 6-item Parental Monitoring Scale (Silverberg & Small, 1991) was used to measure parental monitoring ($\alpha = 0.88$). An example item from the scale is, "When I go out at night, my parent(s) know where I am."

The authors argue that research devoted to the effects of parenting practices on adolescent sexual behavior are all too often one dimensional, that is, researchers address only one parenting practice at a time, most often parental monitoring. In order to address this gap in the literature the authors decided to include other parenting related variables, including what they term negotiated unsupervised time with peers. This construct was assessed with four items that were developed for use in this study. The four questions used in this scale were, "I am allowed to stay out past curfew *as long as I call home first*," "I am allowed to have friends over when my parents are not home *as long as I tell my parents beforehand*," "I am allowed to have opposite sex friends in my bedroom," and "There is a place in my house where I am allowed to hang out with my friends where my parents won't bother us." Based on these questions and given the general definition of parental monitoring provided at the beginning of this section it can be argued that these questions do tap into the construct of monitoring. For this reason the results based on negotiated unsupervised time with peers as well as those results based on parental

monitoring will be summarized. Parental monitoring and unsupervised time with peers were correlated in the study (r = -0.25, $p < 0.01$). There were statistically significant mean level differences in terms of parental monitoring and negotiated unsupervised time with peers for those who reported having had sex, having had sex recently, and intending to have sex in the next 3 months ($p < 0.001$). There were also significant mean level differences in parental monitoring, but not unsupervised time with peers, for those participants that reported consistent condom use ($p < 0.05$). Finally, mean differences were found for unsupervised time with peers, which was associated with carrying condoms ($p < 0.001$) and refusing to have sex when protection was not available ($p < 0.05$). Neither construct was significantly associated with having had an STD.

Those predictors found to be useful in bivariate analyses were used in subsequent multivariate analyses. Significant interactions between gender and parenting processes were found and thus analyses were conducted separately for males and females. For males parental monitoring was only significant in predicting consistent condom use (OR = 2.03, $p < 0.01$). However, unsupervised time with peers was predictive of ever having sex (OR = 1.71, $p < 0.001$), having had sex in the past 4 months (OR = 1.81, $p < 0.001$), carrying condoms (OR = 1.61, $p < 0.001$), intentions to have sex within the next 3 months (OR = 1.89, $p < 0.001$), and consistent condom use (OR = 1.92, $p < 0.05$). Neither parenting construct was predictive of having an STD or refusing to have sex due to lack of protection. Results were similar for females, except that parental monitoring was not significantly predictive of any of the sexual behaviors assessed. Negotiated unsupervised time with peers was found to be predictive of ever having had sex (OR = 1.67, $p < 0.001$), having had sex in the last 4 months (OR = 1.67, $p < 0.001$), carrying condoms (OR =

1.39, $p < 0.05$), intending to have sex in the next 3 months ($OR = 2.11$, $p < 0.001$), and refusing to have sex due to lack of protection ($OR = 1.78$, $p < 0.01$). Neither monitoring nor unsupervised time with peers was predictive of consistent condom use or having had an STD for females.

Li, Stanton, and Feiglman (2000) conducted a study in which they examined the relationship between perceived parental monitoring and risk behaviors. The sample for this study was a combination of three cross-sectional African American samples (1992 survey $N = 455$, 1994 survey $N = 355$, 1996 survey $N = 349$) taken from low-income urban neighborhoods collected via self-report surveys. The Parental Monitoring Scale (Silverberg & Small, 1991) was also used in this study to assess parental monitoring, with reliabilities of 0.70, 0.77, and 0.73, respectively for the three sub-samples. Again in this study it was found that there is an interaction between gender and monitoring, such that females perceive higher levels of monitoring than males. Sexual behavior, as defined by a 3 item scale, was only assessed in the 1992 and 1994 surveys. For each of these samples it was shown that perceived parental monitoring was negatively associated with sexual behavior for both males (1992 survey: $r = -0.24$, $p < 0.0001$; 1994 survey: $r = -.26$, $p < 0.001$) and females (1992 survey: $r = -0.14$, $p < 0.05$; 1994 survey: $r = -0.48$, $p < 0.0001$).

These same authors conducted a similar study in which they used an African American sample and looked at the relationship between perceived parental monitoring and risky behaviors (Li, Feiglman, & Stanton, 2000). However, this study was longitudinal in design. The sample was composed of 383 participants recruited from recreation centers serving three public housing developments. Participants were part of a

larger intervention called Focus on Kids, which is aimed at reducing HIV risk. At baseline the mean age of the sample was 11.39 years, follow-up assessments were completed at 6 months, 1 year, 18 months, 2 years, 3 years, and 4 years (mean age = 15.15). The sex of participants remained relatively stable and equal over time, at baseline 56% of the sample was male and at 4 years there were 47% males.

Monitoring was again measured with the 6-item Parental Monitoring Scale (Silverberg & Small, 1991). Based on scores from this scale the sample was divided into three groups- low, medium, and high- using arbitrarily assigned cutoff scores. The items assessing monitoring were given at baseline, 1 year, 2 years, and 4 years, and thus only these years were used in analyses. Reliability for the scale ranged from 0.87 to 0.92 across baseline and follow-up assessments. It was found that for the most part perception of parental monitoring remained stable over time, the strongest correlations were between baseline and year 1 ($r = 0.47, p < 0.0001$) and between year 2 and year 4 ($r = 0.48, p < 0.0001$). Monitoring scores at year 1 and at year 4 were not correlated; however, there was a relationship between baseline and year 4 ($r = 0.32, p < 0.01$). Across all four years of assessment parental monitoring was significantly and inversely related to having had unprotected sex, although the significance of the association varied across assessments. In regression analyses parental monitoring was predictive of unprotected sex ($\beta = -0.131$, $p < 0.05$).

The baseline data collected from the previous study were also used in combination with data from five other cross-sectional data sets in order to assess the effects of parental monitoring in a large sample of African Americans (Rai et al. 2003). The data from the 6 data sets were all collected from adolescents participating in

community based intervention and prevention efforts. Only adolescents between the ages of 13 and 16 were selected for analyses, this left a total of 1,279 participants. In all six data collections the Parental Monitoring Scale (Silverberg & Small, 1991) was used to measure monitoring, a reliability of 0.83 was found overall. Using mean level comparisons females were found to perceive a higher level of parental monitoring than males ($p < 0.0001$). In two of the five relevant data sets as well as overall, mean level differences in parental monitoring were found between those reporting ever having had sex and those reporting not having had sex ($p < 0.0001$). However, no significant association between parental monitoring and consistent condom use was found in any of the data sets in which such information was gathered.

Longmore, Manning, and Giordano (2001) found that parental monitoring may be important not only during adolescence, but also immediately prior to this period. Using a nationally representative longitudinal data set, the National Survey of Families and Households, preadolescent parenting strategies reported by parents at time 1 were compared to adolescent self report of dating and sexual behaviors at time 2. African American families were purposely oversampled and accounted for 10.5% of the total analytic sample. Of the 848 adolescents who were interviewed at time 2 some were eliminated from the sample due to missing data or because they had not yet reached 14 years old. The sample consisted of 752 adolescents (mean age = 14.8) at time 2.

Parental monitoring was assessed through a face-to-face interview with one of the parents of the focal adolescent. These interviews took place during wave 1 which occurred approximately 4 years before wave 2 during which time the focal child was considered a preadolescent. Monitoring consisted of a scale of three sets of questions.

The first asked about whether or not the child was allowed to be at home alone after school, during the day, at night, or overnight. Possible responses were "not allowed," "sometimes/it depends," and "allowed". Next parents were asked if the child had to let the parent know where they were when they were not home. Answers were "hardly ever," "sometimes," and "all the time." Lastly parents were asked whether they restricted either the type of television or the amount of television that the child watched. The parental monitoring scale had a reliability of 0.63.

Using hazard ratios it was found that parental monitoring at time 1 was significantly related to later report of sexual activity and this relationship remained significant even in the final model in which all other variables were present ($HR = 0.69$, $p < 0.05$). The race of the adolescent was also a significant indicator of sexual activity in all analyses in which it was entered, including the final model. African American participants had a significantly higher hazard of engaging in sexual activity than European American adolescents ($HR = 2.62$, $p < 0.001$).

Wu et al. (2003) decided to add a parental monitoring intervention to a risk reduction intervention in order to see if the addition of this component would have an effect on risky adolescent behaviors, including sexual activity. The main intervention, Focus on Kids, consisted of 8 group sessions with 5 to 10 participants and two older group leaders. As mentioned previously, the goal of the intervention is to reduce the risk of HIV infection. All participants in the sample ($N = 817$) received the main intervention. Additionally, 496 of those participants were randomly assigned to also receive a parental monitoring intervention, Informed Parents and Children Together, where an instructor came to the adolescent's home and showed the participant and their parent a video about

monitoring and also had them engage in a role-play situation. Lastly, a third condition existed in which approximately half ($N = 238$) of those who received the parental monitoring intervention also received booster sessions at 6 months post intervention.

At baseline, adolescent participants completed measures about various risk behaviors, including having had sex and condom use during the last sexual intercourse. Participants were also questioned about their perceptions of parental monitoring using the Parental Monitoring Scale (Silverberg & Small, 1991) (baseline $\alpha = 0.87$; 6 month $\alpha = 0.93$; 12 month $\alpha = 0.94$). At baseline, there were no significant differences in reported risk behaviors between intervention groups. At the 6 month follow up it was found that there were significant differences between the main intervention only group and the main intervention plus parental monitoring group with regards to both sexual activity and unprotected sex. However, by the 12 month follow up this effect had become non-significant, even for the group that also received booster sessions.

Empirical studies that have dealt with the link between parental monitoring and adolescent risky sexual behavior are similar to those that deal with the affective dimension of parenting in that an effect is present, however, it is unclear exactly what that effect is. As was the case with parent-child relationship quality, it appears that the gender of the child may moderate the relationship between parental monitoring and risky sexual behavior. While monitoring may have some impact on male sexual risk taking, it seems to be an especially salient predictor of a variety of female sexual risk taking behaviors. For female adolescents high levels of monitoring are associated with never having engaged in sex (Rai et al., 2003), being older at first intercourse, having fewer partners, less likelihood of having a new sexual partner within the past 30 days, increased

condom and contraceptive use (DiClemente et al., 2001), having fewer or no STDs (Williams et al., 2002), and lower risk of pregnancy (Crosby et al., 2002). Perhaps this is due to the fact that studies have shown that females perceive higher levels of monitoring than males (Li, Stanton, & Feiglman, 2000; Rai et al., 2003).

However, not all studies have agreed on these findings. For instance, Rai et al. (2003) found no significant relationship between parental monitoring and unprotected sex. Borawski and colleagues (2003) reported that parental monitoring was not a significant predictor of any of the sexual risk behaviors examined in their study. However, in this study unsupervised time with peers, which can be thought of as conceptually similar to parental monitoring, was significantly related to many of the risk outcomes. Also, Williams et al. (2002) found that for females monitoring was inversely related to STD acquisition, yet Borawski et al. (2003) found that neither parental monitoring nor unsupervised time with peers was predictive of adolescent STDs for either gender.

Although there are discrepancies about the precise relationship of parental monitoring and specific sexual risk behaviors (such as condom use and STD acquisition), it should be evident that parental monitoring does play some role in adolescent sexual risk taking. Looking at the studies that have been reviewed it is clear that overall higher levels of parental monitoring are associated with less involvement in risky sexual behaviors. Monitoring has been found to be negatively related to risky sexual behaviors in longitudinal (Li et al., 2000b; Longmore et al, 2001) efforts. Parental monitoring also appears to be significantly related to adolescent sexual risk in diverse populations, including African American adolescents (Crosby et al., 2002; DiClemente et al., 2001;

Li, Feigelman, & Stanton, 2000; Li, Stanton & Feigelman, 2000; Rai et al., 2003; Williams et al., 2002). Finally, adding parental monitoring to an intervention designed to lessen adolescent sexual risk has shown some promise, at least in the short term (Wu et al., 2003). Taken together the reviewed studies demonstrate that parental monitoring is an important consideration when examining adolescent sexual risk behaviors.

Peer Influence

In addition to spending time with their parents, adolescents also spend a great deal of time with their peers. Since the majority of adolescents in the United States attend school, it is safe to say that they are spending a large portion of their day with same age peers. Many adolescents also spend time outside of school hours with peers. Thus it seems commonsense that peers may have an influence on the behaviors of an adolescent.

There has been much research dedicated to the study of peer groups and how peers may play a role in the activities that an adolescent does or does not choose to engage in. One aspect of the peer group that has been studied extensively is delinquency. There is a well established link between peer group delinquency and a variety of adolescent problems (Ary et al, 1999; Garnier & Stein, 2002; Goldstein, Davis-Kean, & Eccles, 2005; Weaver & Prelow, 2005). Many empirical studies have focused on the link between adolescent delinquency and risky sexual behavior. Problem Behavior Theory posits that the vast majority of adolescents are not specific offenders. This means that if an adolescent is involved in one deviant behavior, such as delinquency, it is highly likely that the adolescent is also engaged in more deviant behaviors, such as risky sexual activity. There has not however, been a great deal of research dedicated to the relationship between peer delinquency and adolescent sexual behavior (Ary et al, 1999;

Doljanac & Zimmerman, 1998). The current study seeks to show a direct relationship between peer deviance and adolescent risky sexual behavior.

Doljanac and Zimmerman (1998) conducted one of the few studies to examine a direct relationship between peer deviance and the sexual behavior of the target adolescent. Peer influence consisted of three domains- peer problem behaviors, peer alcohol use, and peer illicit substance use. Furthermore peer problem behavior was broken down into aggressive behavior and peer theft. Peer aggressive behavior was assessed with a three item scale that asked about the number of friends who engage in fights, who carry a knife, and who carry a gun ($\alpha = 0.72$). Peer alcohol abuse was measured with four items dealing with how often friends drink beer or hard liquor, whether they drink at school, and whether they have a drinking problem ($\alpha = 0.77$). Finally peer illicit substance use was measured by asking adolescents how many of their friends used marijuana at least once per month and how many of their friends have ever used cocaine.

Results revealed that for African American adolescents there were significant bivariate associations between all of the peer variables and the target adolescent engaging in high risk sexual behaviors. Both measures of peer delinquency, peer aggressive behavior ($r = 0.28, p < 0.01$) and peer theft ($r = 0.21, p < 0.01$) were significantly related to high risk sexual activity. Peer alcohol use ($r = 0.30, p < 0.01$) and peer illicit substance use were also significantly associated with risky sexual behavior. Only one of the peer variables, peer theft ($r = -0.11, p < 0.05$) was significantly correlated with condom use for African American males. However, three of the four peer variables were significantly related to condom use for European American adolescents. Again this shows that perhaps

factors related to sexual risk in European American adolescents are different from those for African American adolescents.

The relationship between the adolescent's own deviance and sexual behavior was also assessed. Antisocial behavior of the target adolescent was assessed through both violent and non-violent delinquency. Violent delinquency was assessed with seven items that dealt with individual fighting, group fighting, hitting a person in a position of authority, and carrying weapons ($\alpha = 0.74$). Non-violent delinquency was measured with a 10-item scale that included questions about theft, property damage, and selling illegal drugs ($\alpha = 0.83$). It was found that both violent delinquency ($r = 0.28, p < 0.01$) and non-violent delinquency ($r = 0.28, p < 0.01$) were significantly correlated with high risk sexual behavior. Similarly, violent delinquency ($r = -0.13, p < 0.01$) and non-violent delinquency ($r = -0.12, p < 0.05$) were also significantly related to condom use for African American adolescents.

Garnier and Stein (2002) conducted an 18 year longitudinal study in which they examined a number of both parental and peer variables and the ways in which they influenced two adolescent problem behaviors, namely drug use and delinquency. Participants were part of the Family Lifestyles (FLS) Project which includes a subsample of families that were considered to be nonconventional, based on family attitudes or drug use. The FLS project started following 205 families in 1974. Participants were selected from a random sample of obstetricians and completed interviews, self-report questionnaires, home observations, ratings by project staff, and clinical assessments across 15 waves of data collection. The sample for the current study included 198 families who had complete data, a retention rate of 98% over the 18 year study period.

Adolescents completed surveys about their own lifetime substance use, which included questions about alcohol, marijuana, and hard drug use. Delinquency over the past 6 months was measured with three subscales including 5 items assessing aggressive behaviors ($\alpha = 0.85$), 5 items dealing with criminal behaviors ($\alpha = 0.60$), and 4 items about theft or burglary ($\alpha = 0.70$). Adolescents also reported the number of their friends who engaged in substance use and delinquency (for the three delinquency scales $\alpha = 0.75$, $\alpha = 0.78$, and $\alpha = 0.65$, respectively). Peer problem behaviors were highly and significantly correlated with teen problem behaviors. Peer delinquency was associated with both teen delinquency ($r = 0.83$) and teen substance use ($r = 0.66$). Peer substance use was also related to both teen delinquency ($r = 0.69$) and teen substance use ($r = 0.88$). All associations were at the $p < 0.001$ level.

Analyses were conducted with structural equation modeling and the final path model showed an overall good fit (Robust Comparative Fit Index (*RCFI*) = 0.94, *RMSEA* = 0.034). The final model, which included not only the peer factors, but also family and individual factors, was able to explain 71% of the variance in adolescent delinquency and 76% of the variance in adolescent drug use. The strongest predictors of the problem behavior outcomes were the peer deviance factors. Although sexual behavior of the target adolescent was not assessed, this is an important study to consider since Problem Behavior Theory assumes that risky sexual behaviors, substance use, and delinquency are all part of one problem behavior syndrome and should thus be predicted by a similar set of factors.

Goldstein and colleagues (2005) also conducted a longitudinal study about the effects of both parents and peers on a variety of problem behaviors, including sexual

behaviors. Participants were originally recruited from 23 middle schools in a Maryland county as part of a school evaluation study. The Maryland Adolescent Development in Context Study (MADICS) is a selection of these families based on parent participation and on getting a sample representative of each school. The participants were assessed six times beginning when they were in the 7th grade until three years after high school graduation. Initially the sample was comprised of 1,482 adolescents and their families. Data analyzed in the present study were collected from 1, 357 African American and European American adolescents and their families at three time points, namely 7th grade, 8th grade, and 11th grade. Both the adolescent and their parents completed in home interviews and self-report questionnaires.

Problem behavior was assessed at both 7th grade and 11th grade through adolescent report, and included measures of drug and alcohol use, sexual behaviors, and delinquency in the past 6 months. Parents were asked to rate the extent to which their child was involved with negative peers in the 8th grade using a 5 item scale ($\alpha = 0.73$). Adolescents also completed a measure about their peers dealing with how much unsupervised time they spent with them on a typical day. Extreme peer orientation, a tendency to go along with a problem behavior in order to fit in with friends, was assessed by adolescent report on a 4-item scale ($\alpha = 0.67$) in the 8th grade. Finally, adolescents reported their perceptions of the quality of the relationship they had with their parents in the 7th grade using a 7-item scale ($\alpha = 0.77$).

Significant correlations were found between parent and peer variables and adolescent problem behaviors. Positive family affect was significantly and negatively associated with problem behavior in both the 7th ($r = -0.21, p < 0.01$) and 11th ($r = -0.08,$

$p < 0.05$) grades. Family affect was also related to extreme peer orientation ($r = -0.14$, $p < 0.01$) and having negative peers ($r = -0.11$, $p < 0.01$), but not unsupervised time with peers. All three peer variables, extreme peer orientation ($r = 0.29$, $r = 0.31$), unsupervised time with peers ($r = 0.09$, $r = 0.19$), and having negative peers ($r = 0.21$, $r = 0.18$), were related at the $p < 0.01$ level to problem behavior in both the 7th and 11th grades respectively. Finally, problem behavior in the 7th grade was also associated with problem behavior in the 11th grade ($r = 0.34$, $p < 0.01$).

The study also included a test of the proposed model using structural equation modeling. In the final model peer characteristics mediated the relationship between parenting variables and problem behavior. The model fit the data well ($RMSEA = 0.03$ and $CFI = 0.99$, $p < 0.05$) and explained 19% of the variance in 11th grade problem behavior. It should also be noted that separate models were fit to test for different model fit due to gender or race of the participants and no significant differences were found indicating that the model fit equally well for both genders and also for European American and African American adolescents.

Ary et al. (1999) conducted a study in which they also examined the effects of both peer and family factors on adolescent problem behaviors in which they found similar effects for peer delinquency. Participants were originally enrolled in a longitudinal study researching family factors that may be related to teen substance use. Recruitment occurred via advertisements in local newspapers and fliers posted in community centers. The current study was based on 196 families (51% male, 92% European American, mean age of 16 years) and three consecutive waves of data

collection. Adolescents and parents filled out self-report questionnaires at the researchers' laboratory.

Positive family relations were measured with 3 items assessed by both parents and adolescents. Inadequate parental monitoring was measured with 3 items and peer deviance with 7 items also based on both parent and adolescent report. Adolescents also reported on their sexual behavior with two questions about their number of sexual partners in the past year and whether or not they have had sex with a partner who is currently having sex with others.

Structural equation modeling was used to test a model in which time 1 and time 2 family factors and time 2 deviance were used to predict time 3 problem behavior. The model fit the data adequately ($CFI = 0.91$) and accounted for 52% of the variance in problem behavior. There was a significant direct effect from deviant peers to problem behaviors ($\beta = 0.656$, $p < 0.05$). While the direct effect of parental monitoring on problem behaviors was not significant there was an indirect effect mediated by deviant peers ($\beta = 0.251$, $p < 0.05$). This study also provided evidence for a single problem behavior construct, which explained 67% of the variance in the problem behaviors assessed, including antisocial behavior, substance use, and risky sexual behavior.

Weaver and Prelow (2005) also found that association with deviant peers mediated the relationship between parent factors and problem behaviors in a sample of African American and European American adolescents. Participants were 248 adolescents (82 African American, 56 European American, mean age of 13 years) recruited from an urban school district in the northeast. Participants completed self-report surveys in small groups. Maternal parenting style was assessed with a survey, which

includes two subscales dealing with demandingness (7 items, African American $\alpha = 0.76$, European American $\alpha = 0.81$) and responsiveness (7 items, African American $\alpha = 0.82$, European American $\alpha = 0.91$). Adolescents also completed a 5-item scale dealing with deviant peer association (African American $\alpha = 0.79$, European American $\alpha = 0.85$). Problem behaviors were assessed with three scales measuring delinquency (6 items), nonphysical aggression (7 items), and physical aggression (7 items).

For European American adolescents analyses revealed that there was an interaction between maternal responsiveness and demandingness. Responsiveness had a negative relationship with demandingness at low, average, and high values of demandingness; responsiveness explained 6%, 23%, and 25% of the variance of problem behaviors, respectively. Associating with deviant peers was significantly related to problem behaviors in the structural equation model ($\beta = 0.15$, $p < 0.001$). An indirect relationship between maternal factors and problem behaviors was found to be mediated by association with deviant peers. The final model accounted for 54% of the variance in problem behaviors. For African American adolescents no significant interactions were found. The only significant path found was between associating with deviant peers and problem behaviors ($\beta = 0.13$, $p < 0.001$) while controlling for maternal factors. For African American males there was a relationship found between maternal responsiveness and association with deviant peers ($\beta = -0.16$, $p < 0.001$); however, this same relationship was not significant for African American females.

Barnes, Hoffman, Welte, Farrell, and Dintcheff (2007) conducted a study in which they examined the relationship between adolescents' time use and problem behaviors. Participants were part of a larger longitudinal study about alcohol use and

other problem behaviors. Data for the current study were taken from wave 3, in which 606 adolescents, mean age of 16.5 years, provided data. Roughly half of the sample was female (55%) and approximately one-third was African American (30%).

A variety of problem behaviors were assessed, including how often adolescents drank alcohol or used drugs in the past year, how often in the past 30 days they had smoked cigarettes, how many times they had sex in the past year, and number of lifetime sexual partners. Adolescents also reported their delinquent activities by completing a modified version of the delinquency scale from the National Youth Survey, which included items about minor and serious deviant acts. Adolescents also reported how much time per week they had spent engaged in a number of activities, such as homework, sports, extracurricular activities, watching television. Time with family and time with peers was also assessed. It is important to note that time with peers did not necessarily measure time spent in delinquent activities.

Results indicated that adolescents spent more than twice as much time with peers (23.3 hours) as with family (10.2 hours) per week. It was also found that African American adolescents spent more time with peers per week (25.6 hours) than did European American adolescents (22.3 hours). Both time with peers and time with family were significantly correlated with all five problem behavior outcomes. Peer time was positively related to frequency of drinking (r =0.23, $p < 0.001$) and drug use (r =0.20, $p < 0.001$), cigarette smoking ($r = 0.14$, $p < 0.01$), delinquency ($r = 0.19$, $p < 0.001$), and sexual activity ($r = 0.18$, $p < 0.001$). However, time with family was negatively associated with frequency of drinking ($r = -0.21$, $p < 0.001$) and drug use ($r = -0.18$, $p < 0.001$), cigarette smoking ($r = -0.20$, $p < 0.001$), delinquency ($r = -0.17$, $p < 0.001$), and

sexual activity ($r = -0.18$, $p < 0.001$). Hierarchical regression analyses were conducted for all five problem behavior indicators. Both time with family and with peers remained significant predictors in all five regression models. The full regression model was able to explain 23.7% of the variance in adolescent sexual behavior. An interaction between gender and peer time was found such that the negative effect of time with peers was more pronounced for males than for females with regard to sexual activity. The researchers also tested for an interaction between family time and peer time, however, none was found. Thus there was no evidence in this study to suggest that family time buffers the effects of peer time on problem behaviors.

Spending time with peers is a large part of an adolescent's daily life. In fact, it has been shown that for a given week adolescents spend about twice as much time with their peers as they do with their family, and this is even more pronounced for African American adolescents (Barnes et al., 2007). It has also been found that in general the more time an adolescent spends with peers the more likely he or she is to engage in a variety of problem behaviors (Barnes et al., 2007). There is also an established empirical link between spending time with delinquent, deviant, or negative peers and engaging in a wide array of problem behaviors (Goldstein et al., 2005; Weaver & Prelow, 2005), including delinquency or deviance (Garnier & Stein, 2002), drug use (Garnier & Stein, 2002), and risky sexual behaviors (Ary et al., 1999; Doljanac & Zimmerman, 1998). Although there are only a few studies which have tested a direct link between peer deviance and risky sexual behavior in the target adolescent (Ary et al., 1999; Doljanac & Zimmerman, 1998), such a relationship can be inferred. Empirical studies have shown that having delinquent peers is related to the adolescent also engaging in delinquent or

deviant behaviors (e.g., Doljanac & Zimmerman). Conceptually this makes sense as Problem Behavior Theory posits that diverse adolescent problem behaviors, including deviance, substance and alcohol use, and risky sexual activity are all interrelated.

Beyond the direct effects of peer deviance on adolescent problem behaviors, having deviant peers may also mediate the relationship between other factors and adolescent risk behaviors. For instance, Ary et al. (1999) found that deviant peer association was both directly associated with adolescent problem behaviors, including risky sexual behaviors, and also mediated the relationship between parental monitoring and such problem behaviors. Goldstein et al. (2005) present a similar finding where peer variables mediated the relationship between family affect and adolescent problem behaviors, including risky sexual activities.

The relationship between associating with deviant peers and adolescent problem behaviors, including risky sexual behaviors, seems to be clearer than that of family factors and adolescent sexual behaviors. Longitudinal studies have found peer deviance to be an important factor for engaging in diverse problem behaviors (Garnier & Stein, 2002; Goldstein et al., 2005). Also, gender and race do not seem to be an important moderating factor in the relationship between peer deviance and adolescent problem behaviors (Goldstein et al., 2005). Although Barnes et al. (2007) found an interaction between adolescent gender and time with peers, whereby the negative effects of spending time with peers was more pronounced for males than for females, there may be other intervening factors that can account for this finding. This study did not assess peer deviance and thus males in the study may have had more deviant peers than female participants.

Rural Populations

The literature that has been reviewed thus far has focused on samples drawn from non-rural populations (with the exception of Scaramella et al., 1998). Very few studies to date have examined adolescent risky sexual behavior in rural communities. It is known that other community characteristics can influence adolescent sexual behavior. For instance, Kirby (2002) conducted a meta-analysis of over 250 empirical studies dealing with the antecedents of sexual initiation, contraceptive use, and pregnancy. He found that some community characteristics, such as having a higher percentage of African American residents, having a higher unemployment rate, and greater neighborhood monitoring by residents could have an impact on adolescent sexual behavior. Still very few researchers choose to study adolescent sexual activity in a rural context.

Even when studies are done with a rural population, it is usually based on European American adolescents (e.g., Scaramella et al, 1998). A notable exception to this is a study by Milhausen, Crosby, Yarber, DiClemente, Wingood, and Ding (2003) which compared STD/HIV risk behaviors in rural and nonrural African American samples. Results showed that both rural males and females were more likely to report ever having had sex and also not using a condom at last intercourse. It was also found that rural African American adolescent females were more likely than their nonrural counterparts to have begun having sex at an earlier age, to have had three or more lifetime sexual partners, and to have had more than one sexual partner in the last three month period. Clearly these results point to the need to closely examine African American adolescents residing in a rural setting.

Parental and Peer Influences

The role of parents and peers in relation to the sexual behavior of adolescents has been examined extensively. However, the great majority of this research has been dedicated to examining either parental (e.g., Fingerson, 2005; Hutchinson, 2002; Regnerus & Luchies, 2006; Rose et al., 2005) or peer influence (e.g., Jaccard, Blanton, & Dodge, 2005) and little empirical work has looked at the combined effects of parents and peers on adolescent sexual behavior. Even studies that have included measures of both parent and peer characteristics rarely examine how these two influences interact with one another (e.g., Rai, et al, 2003). Only a handful of studies have sought to understand the complex interplay of these two social groups (e.g., Goldstein et al, 2005; Maguen & Armistead, 2006).

To date, there have not been any studies which have examined the collective effects of parents and deviant peers on risky sexual behavior in a rural African American population. This is surprising given that African American adolescents may be more at risk for the previously stated detrimental consequences of risky sexual activity than adolescents of other races and ethnicities.

It is imperative that researchers endeavor to better understand the relationships between parents, deviant peers, and adolescent risky sexual behavior. Although the separate associations between parents and risky sexual behavior and deviant peers and risky sexual behavior are well documented, it is unclear how these two separate influences combine to effect adolescent sexual activity. It is essential to understand whether one of these groups has a stronger influence on sexual behavior than the other. This information would be useful in interventions designed to prevent adolescents from engaging in sexual behaviors that could have adverse consequences for them.

Before the real question of interest, whether parents or deviant peers have a greater effect on an adolescent's risky sexual behavior, can be examined some other issues must first be addressed. Although the effects of parental relationship quality and monitoring have been studied extensively, no studies to date have looked at this relationship in a rural African American sample. Thus, before the combined effects of parental and deviant peer influences can be considered it must first be established that parental relationship quality and monitoring have similar effects on risky sexual behavior in rural African Americans as it does for more well documented racial/ethnic groups (e.g. urban and suburban European American and African American adolescents). Also, many empirical studies have focused on the link between adolescent deviance and adolescent risky sexual behavior (e.g., Capaldi & Crosby, 1996), yet few have tried to establish a direct relationship between peer deviance and adolescent risky sexual behavior (e.g., Bachanas, Morris, & Lewis-Gess, 2002), and to date no studies have done so with a rural African American sample. Once the relationship between parents and peers, separately, and adolescent risky sexual behavior in rural African Americans has been clarified, their combined effects can be examined. The primary focus of the current study is to determine whether parental relationship quality and monitoring and peer deviance have unique, redundant, or additive effects on the risky sexual behavior of rural African American adolescents.

RESEARCH QUESTIONS

1. What are the effects of the parent child relationship on measures of adolescent risky sexual behavior?

   Hypothesis 1: It is expected that a high quality parent-adolescent relationship will be associated with a lower likelihood of risky sexual behaviors.

   a. It is expected that a high degree of closeness in the parent-adolescent relationship will be associated with a lower likelihood of risky sexual behaviors.

   b. It is expected that a high degree of support in the parent-adolescent relationship will be associated with a lower likelihood of risky sexual behaviors.

   c. It is expected that more communication in the parent-adolescent relationship will be associated with a lower likelihood of risky sexual behaviors.

2. What are the effects of parental monitoring on measures of adolescent risky sexual behavior?

   Hypothesis 2: It is expected that more parental monitoring will be associated with a lower likelihood of engaging in risky sexual behaviors.

3. What are the effects of peer delinquency on measures of adolescent risky sexual behavior?

   Hypothesis 3: It is expected that affiliating with deviant peers will be associated with a greater likelihood of engaging in risky sexual behaviors.

4. Are there unique, redundant, or additive effects by parenting and affiliating with deviant peers in risky sexual behaviors?

Hypothesis 4: It is expected that both parenting effects and affiliating with deviant peers will contribute uniquely, and thus additively, to the likelihood of engaging in risky sexual behaviors.

Participants

Data for the current study were collected from a public school in a small, rural town located in the South of the United States. Data were collected from participants in grades 7 through 12. The sample was composed of N=689 (a total of 812 students in the high school) African American male (n= 320, 46%) and female (n= 369, 54%) students. Due to missing data on the main study construct, the analytic sample was limited to N= 394 African American males (n= 147) and females (n= 247). Participants' ages ranged from 12.27 to 20.68 years (M= 15.6). The study was approved by the school superintendent, principal, and the university IRB. A letter was sent home with the students for their parents to sign that explained the importance of the study, which included a letter of support from the school administration, and an Informed Consent letter. Before completing the questionnaire participants were also asked to sign a Minor Assent form. Only questionnaires that were at least 25% completed were included in analyses.

Procedure

Questionnaires were administered during the first hour of the school day over a period of two days. One half of the survey was given on the first day and the second half was completed on the second day. The research team, including the investigator, trained graduate students, and undergraduate students, were available throughout data collection to answer any questions from the participants.

Measures

Participants were asked to complete a survey that included a number of items dealing with issues relevant to adolescents, including questions dealing with parents,

peers, and sexual activity. Demographic information (e.g., sex, ethnicity, and the occupation of the primary wage earner for the family) was also collected.

Sex. Participant's sex was assessed with a single question: "What is your sex?" (1) male or (2) female.

Ethnic/racial background. Ethnicity/race of the students was measured by a single item where participants indicated whether they were (1) African American, (2) Asian American, (3) Caucasian, (4) Hispanic, (5) Native American, or (6) Pacific Islander.

Occupation of primary wage earner. The occupation of the family's primary wage earner was assessed by the question, "Please mark the letter of the category that most closely corresponds with the type of work performed by the primary wage earner in your family. If the primary wage earner in your family is retired, please indicate what he/she did before retirement" (1) owner of a large or major business; executive professional; high-ranking military officer; government official; position requiring an advanced degree such as lawyer, professor, or physician; (2) owner of a small or medium business such as a restaurant or shop; professional such as a manager; administrator; accountant; highly technical position such as a computer programmer; larger or very large farm owner; other military officer; (3) semi-skilled professional such as a police officer, social worker, nurse or insurance agent; skilled craftsman such as a carpenter or electrician; (4) clerical staff such as a bank teller, secretary, or typist; sales representative; entertainer or artist; other military personnel; tenant farmer or owner of a small or medium farm; (5) machine operator; semiskilled worker such as a cook, waiter, or janitor; (6) laborer or service worker such as car washer or farm laborer.

Parental education. Parents' education was assessed with two items, "How much education does your father/stepfather or male caretaker have?" and "How much education does your mother/stepmother or female caretaker have?" (1) does not apply (2) finished elementary or junior high school (through 9th grade) (3) finished high school (through 12th grade) (4) finished some college or technical school (5) has a college degree (4 years) (6) has a graduate degree (advanced degree, e.g., masters or doctorate). The mean of these two responses was taken, such that lower scores indicate low levels of education and higher scores indicate higher levels of education.

Parental relationship quality and parental monitoring. Participants responded to survey questions that asked them about their relationship with their mother and with their father, separately. However, the current investigation will focus exclusively on mother data as most of the adolescents reported residing with their mother and few reported residing with their father. The adolescent's relationship quality with their mothers was assessed with the Adolescent Family Process Measure (AFP; Vazsonyi, Hibbert, & Snider, 2003). The AFP is a 25-item measure that assess closeness (6 items), support (4 items, reverse coded), monitoring (4 items), conflict (3 items), communication (5 items), and peer approval (3 items). The current study focused on three of these subscales, namely closeness, support, and communication, as indicators of the overall quality of the parent child relationship. The monitoring subscale of the AFP was used to assess parental monitoring. For the closeness, support, and monitoring subscales responses were (1) strongly disagree, (2) disagree, (3) neither disagree nor agree, (4) agree, (5) strongly agree. For the communication subscale responses were (1) never, (2) occasionally, (3) sometimes, (4) often, or (5) very often.

Peer deviance. Deviance of peers was assessed with a measure that was developed based on previous work by Warr (1993). The scale consisted of five items assessing peer participation in vandalism, drugs, minor theft, major theft, and assault; (1) none, (2) some, (3) a lot. The measure originally developed by Warr had a different response format (5-point scale) and some items had a slightly different content (e.g., cheating at school), while other items were not part of Warr's scale (e.g., general drug use, assault).

Risky sexual behavior. Adolescent participation in risky sexual activity was assessed with a composite variable formed by six items. The six items will be dichotomized to assess sexual behaviors that are considered risky. A score of zero indicates little or no risk, whereas a score of one indicates sexual risk. Once the six items are dichotomized they will be summed in order to obtain an overall risky sex score ranging from 0 to 6. Those adolescents who had never engaged in sexual intercourse will have a score of zero on the overall measure of risky sexual behaviors, although it is possible for a participant to have been sexually active and still have an overall risk score of zero. Participants were asked "How old were you the first time you had sexual intercourse?" adolescents who reported being 15 or younger at first intercourse will be coded as (1) risk and those who reported being older than 15 or being virgins will be coded as (0) no risk. In order to assess condom use participants were asked "How often do you use condoms?" (1) never, (2) once in a while, (3) most of the time, (4) every time, (5) not applicable. Those who responded never, once in a while, or most of the time will be coded as (1) risk and those who responded every time or not applicable will be coded as (0) no risk. Condom use was chosen as a measure of sexual risk rather than general

contraceptive use due to the effectiveness of condoms in preventing both pregnancy and sexually transmitted diseases. Participants were also asked two questions about their number of sexual partners. First they were asked about the number of partners they had ever had sexual intercourse with (1) one, (2) 2-5, (3) 6-10, (4) more than 10, (5) not applicable. Those who responded 6-10 or more than 10 will be coded as (1) risk and all others will be coded as (0) no risk. Participants were also asked about the number of sexual partners they were currently involved with and the response category was the same as that for lifetime sexual partners. Those who responded not applicable or said that they were presently involved with only one sexual partner will be coded as (0) no risk while all others will be coded as (1) risk. Participants were asked "Have you ever been pregnant (females only) or did you ever get a girl pregnant (males only)?" (1) no, (2) yes, (3) not applicable. Those who answered yes will be coded as (1) risk, others will be coded as (0) no risk. Finally, participants were asked "How many times have you been professionally treated (e.g. nurse or doctor) for a sexually-transmitted disease?" (1) never, (2) once, (3) 2-3 times, (4) 4 or more times, (5) not applicable. Those who responded never or not applicable will be coded as (0) no risk and all others will be coded as (1) risk.

PLAN OF ANALYSIS

In a first step, descriptive statistics were computed in order to examine the distributions of the variables. This was followed by reliability estimates of the main study scales. In another preliminary step, correlation analyses were completed between the main study constructs as well as background variables; this was also used to inform whether background variables needed to be included as controls in subsequent analyses. To test the main hypothesis regression analysis was employed and interactions between parenting variables and peer deviance were computed in order to test for possible moderation effects.

RESULTS

In order to examine the relationship between parenting, deviant peers, and adolescent risky sexual behaviors a combination of descriptive statistics, correlations, and hierarchical regression was used. Preliminary analyses were conducted in order to identify potential control variables and to examine the distributions of the variables. After preliminary analyses were conducted it was decided that the way in which some of the variables were conceptualized needed to be reexamined. In a next step correlations were computed and sex was identified as a control variable. Subsequent analyses were conducted by sex.

Preliminary Analyses

Descriptive analyses, including frequencies, were completed to examine the distribution of the variables of interest in the sample used for the current study. From these analyses, it was discovered that there was a high level of risky sexual behavior in this particular sample. Based on the distribution of the variables used to compose the composite variable of risky sexual behavior, it became apparent that the originally proposed cut points were set too high for this sample. Based on the original plan, almost half of the sample was categorized as being at risk on some of the individual sexual behavior variables.

To address this issue, four items of the sexual behavior indicators were recoded. Originally, youth who responded either 14 or younger or 15 as the age at which they first

had sexual intercourse were categorized as being at risk. This was changed to only include the 14 or younger category. Similarly, originally having between 6 and 10 lifetime sexual partners was considered as being at risk; however after preliminary analyses were conducted it was decided that this should not be considered risky for this sample. Therefore, those who reported between 6 and 10 lifetime partners were entered into the no risk category. Condom use was also changed to reflect risk in this sample by including those who responded "most of the time" into the no risk category. Finally, those participants who responded that they had been treated for an STD only once were considered not at risk. These changes in the conceptualization of risky sexual behavior for the current sample resulted in a more reasonable distribution of individual items and of the risky sexual behavior composite.

Descriptive information for the sexual behavior variables can be found in Table 1. Even after changing the coding of the risky sexual behavior items, some remained comparatively high in the current sample. For instance, 38.6% indicated that they had engaged in sexual intercourse at or before age 14. Similarly, about one-quarter of the sample reported having had more than one present sexual partner and using only using condoms once in a while or never. Furthermore, 7.8% reported having more than 10 lifetime partners, 10.8% reported having been pregnant (females) or having gotten someone pregnant (males), and 14.5% reported having been professionally treated for sexually transmitted diseases more than once. Descriptive information for the composite risky sexual behavior construct can be found in Table 2. For the total sample, nearly half of the sample reported not engaging in any risky sexual behaviors, while nearly one-

quarter endorsed two or three of these behaviors. None of the participants endorsed all six of the risky sexual behavior indicators.

Descriptive statistics for the risky sexual behavior composite were also computed by sex and this information can also be found in Tables 1 and 2. A higher percentage of male participants reported engaging in all six risky sexual behavior indicators in comparison to females. In some instances, the differences were quite pronounced. For example, 40.8% of male adolescents reported having more than one present sexual partner, while 10.2% of females reported the same behavior. For both males and females having sexual intercourse at the age of 14 or younger was the most commonly reported risky sexual activity and having more than 10 sexual partners was the least endorsed item.

Descriptive analyses were also completed for the background variables, including family structure, parental education (the mean of both mother and father education), and the occupation of the primary wage earner in order to identify potential confounds and control variables in subsequent analyses. Information about these background variables can be found in Tables 3 and 4. Only approximately one-quarter of the participants reported residing with their biological parents.

Reliability Analyses. In a next step the Cronbach's alpha for each of the parenting scales and the peer deviance scale was computed (Table 5). All five of the scales had strong internal consistency, ranging from $\alpha = 0.81$ (support) to $\alpha = 0.89$ (peer deviance). Reliability analyses were also conducted for each scale by sex. Again, scales were reliable for females, ranging from $\alpha = 0.84$ (support and communication) to $\alpha = 0.92$

(peer deviance) as well as for males, ranging from $\alpha = 0.82$ (communication) to $\alpha = 0.86$ (closeness and peer deviance).

Correlation Analyses

In a next step bivariate correlations were completed to examine the relationships between study variables and to establish potential effects by background variables. Correlations for the total sample can be found in Table 6. None of the background variables (family structure, parental occupation, and parental education) were associated with risky sexual behavior. In fact, family structure variable was unrelated to all variables of interest. However, sex was significantly related to risky sexual behavior ($r = -0.34$, $p < 0.01$), where being female was associated with a lower likelihood of engaging in risky sexual behavior and being male was associated with a higher likelihood of engaging in risky sexual behaviors.

Closeness, communication, and monitoring were all significantly and negatively related to risky sexual behavior ($r = -0.24$, $r = -0.16$, $r = -0.27$, respectively all at $p < 0.01$). Parental support was not correlated with risky sex and was thus dropped from further analyses. In this sample peer deviance was significantly and positively associated with risky sex ($r = 0.38$, $p < 0.01$).

The sex of the adolescent was correlated not only with risky sexual behavior but also with each of the parenting variables and peer deviance. Therefore, it was decided that sex should be used as a control variable in subsequent regression analyses. To further understand the associations between the main study constructs, correlation analyses were also completed by sex (Table 7). For male participants only monitoring ($r = -0.18$, $p < 0.05$) and peer deviance ($r = 0.28$, $p < 0.01$) were associated with risky sex. Also, only

closeness was correlated with peer deviance ($r = -0.20$, $p < 0.01$). It appears that parenting variables were more salient predictors of risky sexual behavior and peer deviance for female participants than for male participants. This difference was especially pronounced in the relationship between closeness and risky sexual behavior, which was not significant for male participants, but was for females ($r = -0.26$, $p < 0.01$). Risky sexual behavior and peer deviance were also significantly and positively related for female adolescents ($r = 0.34$, $p < 0.01$). Due to a lack of association with any of the main constructs of the study all three background variables (family structure, parental occupation, and parental education) were dropped from subsequent analyses.

Regression Analyses

In a next step a series of hierarchical regressions (Table 8) were completed to test the main study hypotheses, which focused on how both parenting variables and affiliating with deviant peers will contribute uniquely, and thus additively, to the likelihood of engaging in risky sexual behaviors. Risky sexual behavior was entered as the dependent variable while all three parenting variables (closeness, communication, and monitoring) were entered in an initial step. Peer deviance was entered in a second step. In order to test for possible moderation effects, interaction terms between parenting variables and deviant peer affiliation were computed and a series of additional regression analyses were conducted where interaction terms were added in a third step. Regression analyses were conducted separately for males and females.

Male Participants. In the initial regression, parenting variables were not significantly related to risky sexual behavior. However, the second model added peer deviance, and it was a significant predictor ($\beta = 0.27$, $p < 0.01$). This model explained

11.4% of the variance in risky sexual behavior. In the final model that tested the effects by interaction terms, none were statistically significant.

Female Participants. Similar to male participants none of the parenting variables were significant in the initial model. The addition of peer deviance ($\beta = 0.29$, $p < 0.01$) was significant. The full model explained 15.4% of the variance in risky sexual behavior for females. The final model tested for effects by interaction terms and none were found to be significant.

DISCUSSION

The current study examined the relationship between parenting variables, peer deviance, and risky sexual behavior in a sample of rural, African American adolescents. More specifically, the purpose of the current study was to determine whether specific parenting variables (closeness, communication, support, and monitoring) and affiliating with deviant peers had unique, additive, or redundant effects on risky sexual behaviors. To date, there have been no empirical studies which have examined the combined effects by parenting constructs and deviant peers in a rural, African-American sample. This seems unexpected because rural African American adolescents are at greater risk than urban African American adolescents and urban or rural European American adolescents for the detrimental consequences of risky sexual activity. Empirical studies have shown that rural adolescents are at least as likely as their urban and suburban counterparts to be sexually active (Guttmacher Institute, 1994) and may be more likely to engage in risky sexual activity, such as using less effective forms of birth control and using contraceptives less consistently (Walker et al., 1990). Rural adolescents have higher birthrates (Bennett et al., 1997) and face more barriers to receiving healthcare (Pathman et al., 2001) than urban or suburban adolescents, including being less likely to be covered by private insurance (Loda et al., 1997). Milhausen et al. (2003) found that compared to their urban and suburban counterparts, rural African American adolescents were more likely to be sexually active and to have not used a condom at last intercourse. In this same

study rural African American females were more likely to have started having sex at a younger age, to have had more than three lifetime partners, and to have had more than one sexual partner in the last three months, than urban or suburban African American females.

Previous studies which have utilized samples of urban and suburban European American and African American adolescents have found that parenting factors such as closeness (e.g., Davis & Friel, 2001; Fingerson, 2005), communication (e.g., Hutchinson, 2002), support (e.g., Doljanac & Zimmerman, 1998), and monitoring (e.g., Crosby et al., 2002; DiClemente et al., 2001; Williams et al., 2002) were negatively associated with adolescent risky sexual behaviors. Past empirical efforts have also documented a direct link between peer deviance and adolescent risky sexual activity (Doljanac & Zimmerman, 1998).

Parenting Variables

In contrast to what previous studies have shown parenting variables were not significant predictors of risky sexual behavior in regression analyses. This was consistent with some work which has also shown that parenting variables have small or no effects on risky sexual activity (e.g., Regnerus & Luchies, 2006; Rose et al., 2005; Taris & Semin, 1997); at the same time, this finding was unexpected given the evidence supporting this link between overall parent-child relationship quality (e.g., McNeely et al., 2002) and adolescents engaging in risky sexual behaviors, even after controlling for peer factors (Moore & Chase-Lansdale, 2001). Previous work has also identified significant relationships between specific parenting variables, such as closeness (e.g.,

Davis & Friel, 2001) and communication (e.g., Hutchinson, 2002) and engaging in risky sexual behaviors.

In the current study, correlations provide evidence that closeness, communication, and monitoring were negatively associated with risky sexual behavior. This is consistent with other studies which have found that parental closeness (e.g., Davis & Friel, 2001; Fingerson, 2005), communication (e.g., Hutchinson, 2002), and monitoring (e.g., Crosby et al., 2002; DiClemente et al., 2001; Williams et al., 2002), are related to adolescent risky sexual behavior. In previous empirical efforts parental support was found to be associated with risky sexual behavior for African American adolescents (Dojanac & Zimmerman, 1998). Unexpectedly, maternal support was not associated with risky sexual behavior or any of the other parenting variables. Support was related to peer deviance, though not in the expected direction. Due to the lack of association with study constructs and the unexpected direction of relationships that were significant, parental support was dropped from all further analyses. This may be an artifact of the scale used to assess parental support. The support subscale of the AFP (Vazsonyi et al., 2003) contains four items, all of which are negatively worded. Participants may have been confused by this as the other items of the AFP are positively worded, and therefore they may have misinterpreted the question.

In bivariate analyses the adolescent's sex was significantly and negatively related to risky sexual behavior, where female participants reported lower levels of risky sexual activity than male participants. In order to better understand how the main study constructs, of parental closeness, communication, monitoring, and peer deviance, are associated with risky sexual behavior bivariate analyses were also conducted by sex. In

the current study parenting variables appeared to be more important for female adolescents. Both parental closeness and monitoring were significantly and negatively related to risky sexual behavior for female participants. For male participants only parental monitoring was significantly associated with risky sexual behavior. Paralleling the current findings, Davis and Friel (2001) also found that closeness with a parent was predictive of age at first sexual intercourse for females, but not for males. Several studies have found that parental monitoring is a strong predictor of a variety of risky sexual behaviors for African American adolescents (e.g., Crosby et al., 2002; DiClemente et al., 2001; Li, Stanton, & Fiegelman, 2000; Williams et al., 2002); the current findings were entirely consistent with this body of work.

It is also interesting that despite strong, negative correlations with risky sexual activity at the bivariate level, parental monitoring was not a significant predictor of risky sexual behavior in regression analyses. Parental monitoring appears to be consistently related to a lower likelihood of risky sexual activity in the literature. For example, Li, Fiegelman, and Stanton (2000) found parental monitoring to be a significant negative predictor of engaging in unprotected sexual intercourse in both bivariate and regression analyses. Parental monitoring has also been established as a useful predictor of risky sexual activity in longitudinal studies (e.g., Longmore et al., 2001) and has shown some promise as part of an intervention designed to lessen the likelihood of engaging in risky sexual behavior (Wu et al., 2003).

Peer Deviance

In bivariate analyses peer deviance was strongly and positively associated with risky sexual activity both for the total sample and for males and females separately.

Similarly, Doljanac and Zimmerman (1998) reported that peer deviance was directly related to risky sexual activity (defined by a composite variable comparable to the one used in the current study) in both European American and African American adolescents. In the current study, peer deviance was significant in the regression model. By itself, peer deviance alone explained approximately 8% of the variance in risky sexual behaviors in both males and females. This is a key finding since few studies have attempted to establish a direct link between peer deviance and adolescent risky sexual behavior (e.g. Doljanac & Zimmerman, 1998). However, a number of studies identified peer deviance as a predictor of problem behaviors (Garnier & Stein, 2002; Weaver & Prelow, 2005), including risky sexual activity (e.g., Ary et al., 1999; Goldstein et al., 2005). These findings are in line with Problem Behavior Theory, which assumes that adolescents are not specific offenders but rather engage in a variety of problem behaviors (Costa et al., 1995; Jessor et al., 1998). Some researchers have recently suggested that deviant peers may be a particularly salient factor for African American adolescents since they spend more time with peers than European American adolescents (Barnes et al., 2007).

Limitations

Several limitations should be kept in mind while evaluating the results of the current study. First, the current study was cross-sectional and thus causality can not be inferred. Second, all variables, including sexual activity, were assessed relying on adolescent reports. While some consider this a limitation due to questions of reliability and validity, there does not appear to exist a better way in which to assess adolescent sexual activity. Third, the sample used in this study was taken from a rural area of the southern United States and is not representative of all rural African American

adolescents. Thus, generalizations of the study findings can not be made. Lastly, the sample size for the current study was small ($N = 689$) and due to missing data some analyses had an even smaller sample size in analyses by sex. This is a particularly important limitation to note, since some effects seemed to be sizeable and yet did not reach statistical significance (e.g., monitoring in the male sample).

Conclusion

The current effort examined the relationships between four specific parenting variables (closeness, support, communication, and monitoring), peer deviance, and risky sexual behaviors in a rural African American sample. It appears that for this sample peer deviance was a more salient predictor of engaging in risky sexual activity than any of the specific parenting factors examined. In fact, none of the parenting variables examined were predictive of participation in risky sexual behaviors in final regression models. Some researchers have suggested that those factors which are salient predictors of risky sexual activity in European American adolescents may not be predictive of the same behaviors in African American adolescents (e.g., Doljanac & Zimmerman, 1998). It is also possible that factors which influence the decision to engage in risky sexual behavior in urban and suburban adolescents are not predictive of these same behaviors in rural populations. Further research will need to include larger samples from similar populations to ascertain whether non-significant parenting effects were related to sample size limitations in the current study or not.

Perhaps one of the most important implications of the current study is the need for more extensive research of risky sexual behavior in a rural African American population. Previous studies have shown that this particular population is at a great risk for engaging

in risky sexual activities (Milhausen et al., 2003), though it is not known exactly why. In the current study the participants engaged in a very large number of risky sexual behaviors, consistent with some previous work, so much so that sexual risk had to be reconceptualized for analyses. Even after this change, a large percentage of the sample still reported high risk sexual activity, most notably over a third of the sample reported having had sexual intercourse at or before the age of 14. Due to the wide range of possible detrimental consequences of risky sexual activity, which are both costly and potentially fatal, as in the case of HIV/AIDS and cervical cancer, and which affect not only the individual adolescent but also society as a whole, it is imperative that researchers endeavor to discover etiological factors associated with risky sexual behaviors, across ethnic groups and developmental contexts. Findings from such work will prove useful in the development of prevention and intervention efforts. However, given the astonishing levels of risky sexual behavior reported by the sample used for the current study it seems especially urgent that researchers focus on the extremely understudied population of rural African American adolescents.

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APPENDIX A: INSTRUMENTS

Adolescent Family Process Measure (AFP)

Responses: (1) strongly disagree, (2) disagree, (3) neither disagree nor agree, (4) agree, or (5) strongly agree

Closeness

1. My mother often asks about what I am doing in school.
2. My mother gives me the right amount of affection.
3. One of the worst things that could happen to me would be to find out I let my mother down.
4. My mother is usually proud of me when I finish something at which I've worked hard.
5. My mother trusts me.
6. I am closer to my mother than are a lot of kids my age.

Support

1. My mother sometimes puts me down in front of other people.
2. Sometimes my mother won't listen to me or my opinion.
3. My mother sometimes gives me the feeling that I'm not living up to her expectations.
4. My mother seems to wish I were a different type of person.

Monitoring

1. My mother wants to know who I am with when I go out with friends or on a date.
2. In my free time away from home, my mother knows who I'm with and where I am.
3. My mother wants me to tell her where I am if I don't come home right after school.
4. When I am not at home, my mother knows my whereabouts.

Responses: (1) never, (2) occasionally, (3) sometimes, (4) often, or (5) very often

Communication

1. How often do you talk to your mother about other things that are important to you.
2. How often do you talk to your mother about major personal decisions.
3. How often do you talk to your mother about problems you have at school.
4. How often do you talk to your mother about your job plans for the future.
5. How often do you talk to your mother about how well you get along with your teachers.

Peer Deviance

Responses: (1) none, (2) some, (3) a lot

Which of the following acts did you participate in with friends and how often?

1. Vandalism (e.g., smashing bottles, graffiti, and/or destroying property).
2. Drugs (e.g., marijuana, cocaine, heroin, and/or crack).
3. Minor theft ($50 or less).
4. Major theft ($50 or more).
5. Assault (e.g., threatened to hit, hit, or injured someone).

Risky Sex

1. How old were you the first time you had sexual intercourse?
    (1) 14 or younger
    (2) 15
    (3) 16
    (4) 17
    (5) 18
    (6) 19
    (7) 20 or older
    (8) not applicable

2. How often do you use condoms?
    (1) never
    (2) once in a while
    (3) most of the time
    (4) every time
    (5) not applicable

3. With approximately how many different individuals have you *ever* had sexual intercourse?
    (1) one
    (2) 2-5
    (3) 6-10
    (4) more than 10
    (5) not applicable

4. With how many partners are you presently involved sexually?
    (1) one
    (2) 2-5
    (3) 6-10
    (4) more than 10
    (5) not applicable

5. Have you ever been pregnant (females only) or did you ever get a girl pregnant (males only)?
    (1) no
    (2) yes
    (3) not applicable

6. How many times have you been professionally treated (e.g. nurse or doctor) for a Sexually-transmitted disease?
    (1) never
    (2) once
    (3) 2-3 times
    (4) 4 or more times
    (5) not applicable

APPENDIX B: TABLES

Table 1

Descriptive Statistics for Individual Sexual Behavior Items

	Total Sample				Males				Females			
	No Risk (0)		Risk (1)		No Risk (0)		Risk (1)		No Risk (0)		Risk (1)	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Age of 1st intercourse	264	61.4	166	38.6	81	47.1	91	52.9	183	70.9	75	29.1
Been/got pregnant	370	89.2	45	10.8	132	84.6	24	15.4	238	91.9	21	8.1
Sexual partners	390	92.2	33	7.8	145	85.5	24	14.2	245	96.5	9	3.5
Present sexual partners	329	77.6	95	22.4	100	59.2	69	40.8	229	89.8	26	10.2
Condom use	321	75.5	104	24.5	114	65.9	59	34.1	207	82.1	45	17.9
Times treated for STD	365	85.5	62	14.5	144	84.2	27	15.8	221	86.3	35	13.7

Table 2

Descriptive Statistics for the Composite Risky Sex Variable

Risky Sex	Total Sample		Males		Females	
	n	%	*n*	%	*n*	%
0	165	41.9	34	23.1	131	38.4
1	90	22.8	33	22.4	57	16.7
2	85	21.6	43	29.3	42	12.3
3	31	7.9	22	15.0	9	2.6
4	18	4.6	11	7.5	7	2.1
5	5	1.3	4	2.7	1	0.3
6	0	0.0	0	0.0	0	0.0

Table 3

Descriptive Statistics for Demographic Variables

	Total Sample		Males		Females	
	n	%	*n*	%	*n*	%
Family structure						
Biological Parents	168	27.7	80	30.1	88	25.8
Other	439	72.3	186	69.9	253	74.2
Parent Occupation						
1 Executive	19	5.9	10	7.8	9	4.7
2 Professional	78	24.4	32	25.0	46	24.0
3 Semi-Professional	48	15.0	14	10.9	34	17.7
4 Clerical/Sales	99	30.9	42	32.8	57	29.7
5 Semiskilled Worker	51	15.9	24	18.8	27	14.1
6 Laborer/Service	25	7.8	6	4.7	19	9.9
Parent education						
1.0 Not Applicable	31	5.2	18	6.8	13	3.9
1.5	6	1.0	2	0.8	4	1.2
2.0 Elementary School	61	10.2	23	8.7	38	11.3
2.5	43	7.2	15	5.7	28	8.4
3.0 High School	212	35.5	101	38.4	111	33.1
3.5	78	13.0	31	11.8	47	14.0
4.0 Some College	80	13.4	30	11.4	50	14.9
4.5	36	6.0	17	6.5	19	5.7
5.0 College	32	5.4	14	5.3	18	5.4
5.5	8	1.3	4	1.5	4	1.2
6.0 Advanced Degree	11	1.8	8	3.0	3	0.9

Table 4

Descriptive Statistics for Demographic Variables for Analytic Sample

	Total Sample		Males		Females	
	n	%	*n*	%	*n*	%
Family structure						
Biological Parents	108	27.6	46	31.7	62	25.1
Other	284	72.4	99	68.3	185	74.9
Parent Occupation						
1 Executive	14	6.4	6	7.5	8	5.8
2 Professional	52	23.9	18	22.5	34	24.6
3 Semi-Professional	38	17.4	8	10.0	30	21.7
4 Clerical/Sales	61	28.0	24	30.0	37	26.8
5 Semiskilled Worker	37	17.0	21	26.2	16	11.6
6 Laborer/Service	16	7.3	3	3.8	13	9.4
Parent education						
1.0 Not Applicable	24	6.2	13	8.8	11	4.5
1.5	2	0.5	0	0.0	2	0.8
2.0 Elementary School	44	11.3	16	10.9	28	11.5
2.5	34	8.7	10	6.8	24	9.9
3.0 High School	127	32.6	50	34.0	77	31.7
3.5	56	14.4	17	11.6	39	16.0
4.0 Some College	53	13.6	18	12.2	35	14.4
4.5	21	5.4	9	6.1	12	4.9
5.0 College	20	5.1	7	4.8	13	5.3
5.5	3	0.8	3	2.0	0	0.0
6.0 Advanced Degree	6	1.5	4	2.7	2	0.8

Table 5

Reliability Estimates for Parenting Scales and Peer Deviance Scale

Scale	Total Sample		Males		Females	
	n	α	*n*	α	*n*	α
Closeness	519	.88	219	.86	300	.89
Support	516	.81	218	.77	298	.84
Monitoring	525	.84	220	.77	305	.88
Communication	493	.83	213	.82	280	.84
Peer Deviance	461	.89	186	.86	275	.92

Table 6

Correlations between Main Study Constructs and Background Variables for Total Sample

	1	2	3	4	5	6	7	8	9
1. Risky sex	1.00								
2. Family structure	.11	1.00							
3. Parent occupation	.05	.03	1.00						
4. Parent education	.02	.04	.12*	1.00					
5. Sex	-.34**	.05	.04	-.01	1.00				
6. Closeness	-.24**	-.05	.03	.14**	.15**	1.00			
7. Support	.12	.03	.05	-.08	-.10*	-.00	1.00		
8. Communication	-.16**	-.05	-.04	.14**	.12**	.45**	-.04	1.00	
9. Monitoring	-.27**	-.01	-.03	.11*	.23**	.70**	-.02	.39**	1.00
10. Peer deviance	.38**	-.03	.14*	.04	-.24**	-.23**	.18**	-.09*	-.25**

Note. *$p < 0.05$ **$p < 0.001$ Due to pairwise deletion sample sizes may vary by analyses.

Table 7

Correlations between Main Study Constructs and Background Variables for Male and Female Participants

	1	2	3	4	5	6	7	8
1. Risky sex	1.00	.11	.06	-.03	-.26**	-.13	-.25**	.34**
2. Family structure	.16	1.00	.04	.03	-.08	-.04	-.02	.07
3. Parent occupation	-.01	.00	1.00	.15*	.02	-.07	-.07	.18*
4. Parent education	.06	.05	.08	1.00	.12*	.14*	.08	.02
5. Closeness	-.12	-.03	.03	.17**	1.00	.45**	.65**	-.21**
6. Communication	-.13	-.10	.00	.15*	.41**	1.00	.35**	-.10
7. Monitoring	-.18*	-.04	.03	.16*	.75**	.43**	1.00	-.30**
8. Peer deviance	.28**	-.09	.07	.06	-.20**	-.03	-.09	1.00

Note. *$p < 0.05$ **$p < 0.01$, Correlations for male participants are shown below the diagonal and those for female participants are above the diagonal.

Table 8

Regression Analyses for Main Study Constructs by Sex

	Males					Females				
	β	b	SE	ΔR^2	R^2	β	b	SE	ΔR^2	R^2
Step 1				0.04	0.04				0.08**	0.08
Closeness	0.04	0.05	0.18			-0.15	-0.17	0.10		
Communication	-0.07	-0.10	0.13			-0.01	-0.01	0.07		
Monitoring	-0.18	-0.25	0.18			-0.15	-0.16	0.09		
Step 2				0.08**	0.11				0.08**	0.15
Closeness	0.13	0.18	0.18			-0.14	-0.15	0.09		
Communication	-0.08	-0.11	0.13			-0.01	-0.01	0.07		
Monitoring	-0.22	-0.30	0.18			-0.01	-0.08	0.09		
Peer Deviance	0.27**	0.63**	0.19			0.29**	0.60**	0.13		