A TEST OF PROBLEM BEHAVIOR THEORY WITH HIGH-RISK ADOLESCENTS AND YOUNG ADULTS: EFFECTS OF PEER DELINQUENCY, PEER ATTACHMENT, AND PEER INVOLVEMENT

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CHAPTER I

Overview of Study

Adolescent/young adult delinquency, marijuana use, and sexual risk-taking represent significant problems to our society. As such, they constitute areas warranting scientific investigation. For years, research has focused on a variety of variables associated with the etiology and maintenance of adolescent delinquency and drug use. More recently, this same attention has been turned toward exploring sexual risk-taking. One theoretical model that has attempted to collectively examine delinquency, drug use, and sexual risk-taking is Problem Behavior Theory (PBT; Jessor & Jessor, 1977).

Problem Behavior Theory has served as the primary model for explaining the relationships between behaviors such as alcohol use, drug use, sexual risk-taking, and delinquency in adolescents and young adults. PBT was originally based on the social-psychological relationships between and within three "systems": the personality system; the perceived environment system; and the behavior system (Jessor & Jessor, 1977). Thus far, two conclusions can be drawn from previous research on PBT. First, adolescent/young adult behaviors such as marijuana use, delinquency, and sexual risk-taking have been found to be significantly correlated, and there is evidence that these three behaviors may represent a single factor, i.e., problem behavior. Second, the most consistent and powerful predictor of problem behavior is Friends' model of problem behavior (FMPB), which can be viewed generally as peer delinquency (Jessor & Jessor, 1977; Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995; Ary, et al., 1999). In other words, peer delinquency

would appear to be the most proximal factor for an adolescent engaging in problematic behavior.

Although many theoretical assumptions have been made concerning the interpersonal relationships between adolescents/young adults and their delinquent peers, few studies have directly assessed these interpersonal relations. When research has investigated the interpersonal relationships between delinquent peers and adolescent delinquency, the results have been inconsistent (e. g., Colvin & Pauly, 1983; Conger, 1976; Elliot et al., 1985; Elliot & Voss, 1974; Erickson & Empey, 1965; Hindelang, 1973; Johnson, 1979; Linden & Hackler, 1973; Massey & Krohn, 1986). Additionally, among the studies that have directly assessed interpersonal relationships among delinquent peers, most include critical methodological limitations (Gillaspy, 2002).

Utilizing the results garnered from theoretical frameworks of problem behavior theory (Jessor & Jessor, 1977), primary socialization theory (Oetting & Donnermyer, 1998), control theory (Hirschi, 1969), and attachment theory (Bowlby, 1969), the current study had three aims. First, the study sought to replicate the findings of past research focusing on problem behavior, specifically that delinquent behavior, marijuana use, and sexual risk-taking behavior form a single factor representing problem behavior. Second, the study examined the effects of peer delinquency on problem behavior. Third, this study attempted to replicate and extend the findings of Gillaspy (2002), which found significant gender differences with regard to the influence of peer delinquency, peer involvement, and peer attachment on adolescent delinquent behavior. The current study sought to determine if these same differential gender relationships existed with regard to a single-factor representing problem behavior.

There were four main hypotheses for the current study. The first hypothesis was that adolescent/young adult delinquent behavior, marijuana abuse symptoms, and sexual risk-taking behavior would form a single factor. Thus, it was hypothesized that the total scores

for the three measures assessing these behaviors would statistically represent a single factor representing problem behavior. The second hypothesis was that peer delinquency would be positively associated with adolescent/young adult problem behavior (i. e., delinquent behavior, marijuana abuse symptoms, and sexual risk-taking behavior). The third hypothesis was that the level of peer attachment and peer delinquency would be associated with adolescent/young adult problem behavior for young women. The fourth hypothesis was that peer involvement would moderate the relationship between peer delinquency and problem behavior for young men.

To further examine peer delinquency and problem behaviors, a review of Oetting and Donnermyer's primary socialization theory (Oetting & Donnermyer, 1998), Bowlby and Ainsworth's attachment theory (Ainsworth, 1969; Bowlby, 1969), and Hirschi's social control theory (Hirschi, 1969) is provided. First, primary socialization theory is discussed to illustrate the relationship between peer delinquency and problematic behaviors. Second, attachment theory is used to address the nature of interpersonal relationships between adolescents and young adults. Lastly, social control theory is used to illustrate the relationship between peer delinquency, peer attachment, and delinquent behavior. Additionally, literature on problem behavior theory will be reviewed, and aspects of the study's methodology, analysis, and results are discussed.

CHAPTER II

INTRODUCTION

One only has to turn on the news or open the daily paper to be reminded of the difficulties adolescents and young adults face today. Marijuana use, delinquent behavior, and the effects of sexual risk-taking receive a substantial amount of attention and constitute concerns for both families and society. Frequently, these problems appear to coincide or overlap with one another, indicating that many youth need help or services for multiple problems. In order to better understand the magnitude of these concerns, a more in-depth examination of the prevalence and impact of these problem areas is warranted.

Delinquent Behavior

From 1989 to 1998, the total number of arrests in the U.S. increased 7% (FBI, 2000). Furthermore, violent crimes, such as murder, forcible rape, robbery, and aggravated assault increased 4% from 1989 to 1998 (FBI, 2000). In 1998, 14.5 million criminal arrests were recorded (FBI, 2000). Although 78% of all persons arrested in 1998 were young men, the number of young women arrested has increased at an alarming rate (FBI, 2000). From 1989 to 1998, there has been a 28% overall increase in young women arrests with a 53% increase in violent crime arrests among young women (FBI, 2000). These statistics not only illustrate the overall increase in crime, but also identify crime among young women as an area of growing concern.

More disturbing still is the increasing number and seriousness of delinquent acts that are carried out by adolescents. Forty five percent of all arrests in 1998 occurred for individuals under 25 years of age (FBI, 2000). Adolescents between the ages of 16 and 24 comprised 36% of all individuals arrested for 1998 (FBI, 2000). When specific crime categories are examined, youth under 25 years of age comprised over fifty percent of all arrests for robbery (63%), burglary (64%), larceny-theft (56%), motor vehicle theft (67%), stolen property (58%), vandalism (68%), weapons (58%), liquor laws (77%), and disorderly conduct (56%) (FBI, 2000). Overall, these statistics indicate that adolescents/young adults comprise the majority of arrests for a wide variety of serious offenses.

Another means of ascertaining the seriousness of adolescent arrests is to examine the court disposition of juvenile offenders taken into custody. From 1995 to 1998, the number of juveniles referred to juvenile court increased only slightly (66% to 69%), but the number of juveniles referred to criminal or adult court rose from 3% to 9% (FBI, 2000). These data suggest that the seriousness of adolescent crimes is also increasing.

Examining the number of juveniles incarcerated is yet another indicator of the seriousness of adolescent delinquent behavior. The Census of Juveniles in Residential Placement conducts a census of public and private residential facilities holding youth under 21 years of age. The total number of juveniles incarcerated on any one day has increased from 91,646 in 1987 to 125,805 in 1997 (Office of Juvenile Justice and Delinquency Prevention, 1999). Notably, in 1997 only 6.5% of adolescents were incarcerated for status offenses, (i.e., crimes illegal for juveniles but not for adults). Again, such data offers further evidence of the increase in number and seriousness of delinquent acts committed by adolescents.

Of those juveniles incarcerated, ethnicity was quite varied, with 40% being African American, 37.5% Caucasian, 18.5% Hispanic, 1.8% Asian, 1.5% American Indian, and 0.3% Pacific Islander (Office of Juvenile Justice and Delinquency Prevention, 1999). Such

variability in ethnicity suggests that research examining adolescent delinquency should target samples with multiple ethnic groups.

Marijuana Use

Marijuana has been found to be the most commonly used illicit drug among youth (National Household Survey on Drug Abuse, 2002). Reports indicate that half a million young adults, ages 18 – 25, used marijuana for the first time in 1999. In 2000, the highest rate of marijuana use in the past month was found among youth nineteen years of age. Additionally, it is estimated that four million young adults between 18 and 25 years of age were current users of marijuana in 2000. Trends indicate that young men were more likely to be users than young women, and Caucasians and African-Americans were more likely to be users than Hispanics. Additionally, unemployed young adults were considerably more likely to be users than full-time or part-time employed persons (National Household Survey on Drug Abuse, 2002). Results for the Center for Disease Control's (CDC) Youth Risk Behavior Surveillance System 2001, revealed that of high school students surveyed, 42.9% reported using marijuana in their lifetime (Morbidity and Mortality Weekly Report, 2002). These statistics demonstrate that marijuana use represents a significant problem for youth and young adults.

Data from the Arrestee Drug Abuse Monitoring (ADAM) program revealed that in the 1990's marijuana replaced crack cocaine as the drug of choice among young adult arrestees (National Institute of Justice, 2001). A comparison of data from the ADAM to data from the Monitoring the Future and National Household Survey on Drug Abuse programs indicated that marijuana use is more prevalent among youth who tend to get in trouble with the law. Furthermore, in 2000 there were 1,579,566 arrests for drug abuse violations in the U.S. Of these arrests, 5.6% were for marijuana sales and manufacturing, and 40.9% were for possession of marijuana (Federal Bureau of Investigation, 2001). Additionally, data from

1988 – 1998 provided by the Office of National Drug Control Policy (2000) estimated that Americans spend approximately 10.4 billion dollars on marijuana annually. Thus, marijuana use is not only prevalent in young people who have interactions with our law enforcement system, but it also represents a significant economic impact on society.

The above discussion speaks to the prevalence of marijuana use and the resulting legal and economic impact, but does not assess the impact marijuana use can have on an individuals' health. Research has found marijuana abuse to be associated with several detrimental health effects, such as frequent respiratory infections, impaired memory and learning, increased heart rate, anxiety, panic attacks, and the development of tolerance to its use (National Institute of Drug Abuse, 2001). One index of the impact marijuana use can have on health can be drawn from examining emergency room admissions. The Substance Abuse and Mental Health Services Administration (2002) reported 96,426 mentions of marijuana use associated with emergency department visits in 2000, and 110,512 mentions in 2001. These data indicate an increase of 15% in the number of mentions of marijuana use associated with emergency department visits. Additionally, a significant number of individuals receive formal treatment for their marijuana use. In 1999, there were 223,597 admissions to treatment facilities where marijuana was the primary substance of abuse (Substance Abuse and Mental Health Services Administration, 2001). Of these admissions, 57% reported using marijuana by the age of 14 and 92% reported using marijuana by the age of 18. Thus, marijuana use among youth and young adults represents a significant public health concern.

Sexual Risk-Taking

Sexual risk-taking can be defined as sexual behavior that places an individual at risk for negative outcomes. In other words, the impact of sexual risk-taking can best be measured by examining data regarding unintended pregnancy, human immunodeficiency

virus (HIV) infection, and other infections from sexually transmitted diseases (STDs), such as chlamydia, syphillis, and gonorrhea. It has been estimated that approximately one million teenagers become pregnant each year (Alan Guttmacher Institute, 1994). The CDC (1998) estimated that 12 million cases of STDs other than HIV are diagnosed annually in the U.S., and that approximately two thirds of these cases are among individuals under the age of 25. Additionally, persons infected with STDs are 2-5 times more likely than uninfected individuals to acquire HIV if they are exposed to the virus through sexual contact (Wasserheit, 1992). Fleming and Wasserheit (1999) cited biological evidence that the presence of other STDs increases the likelihood of both transmitting and acquiring HIV.

The most frequently reported STD is chlamydia; an estimated three million cases occur annually at a cost of more than two billion dollars (CDC, 2001). Teenage girls have the highest rates of chlamydial infection, with as many as one in ten being infected. Young women between the ages of 15 and 19 represent 46% of infections, and those between the ages of 20 and 24 represent an additional 33% (CDC, 2001). Furthermore, chlamydia and gonorrhea infections are highly prevalent among economically disadvantaged youth (Centers for Disease Control and Prevention, 2000). Data on young women entering juvenile detention centers from 24 counties in the U.S. indicated that approximately 15% were positive for chlamydial infection, and 4.9% were positive for gonorrhea. Data for young men entering juvenile detention centers for 30 counties in the U.S. revealed that 6.6% tested positive for chlamydia and 2.4% tested positive for gonorrhea (Centers for Disease Control and Prevention, 2000). These data indicate that STDs represent a significant problem for economically disadvantaged youth and those youth involved in the juvenile criminal system.

The CDC (1998) estimated that half of all new HIV infections in the U.S. are among people under the age of 25, and that the majority of these individuals were infected sexually. Of the total number of AIDS cases in 1997 for young women, 49% were between the ages of 13 – 19, 38% were 20 – 24, and only 21% were twenty-five years or older (CDC, 1998).

In 1995, HIV infection was recognized as the sixth leading cause of death among individuals 15 – 24 years of age (National Center on Health Statistics, 1997). The CDC reports that although the AIDS incidence is declining, there has not been a comparable decline in the number of newly diagnosed HIV cases among youth. Thus, HIV infection continues to represent a significant outcome of sexual risk-taking for adolescents and young adults.

Clearly, adolescent/young adult delinquency, marijuana use, and sexual risk-taking represent significant problems to our society and are areas that warrant scientific investigation. For years, research has focused on a variety of variables associated with the etiology and maintenance of adolescent delinquency and drug use. Additionally, attention has turned toward exploring variables associated with sexual risk-taking. One theoretical model that has attempted to collectively examine delinquency, drug use, and sexual risk-taking is Problem Behavior Theory (PBT). In order to better understand the relationship between adolescent/young adult marijuana use, sexual risk-taking, and delinquent behavior, it is necessary to examine PBT and the empirical research it has generated.

Problem Behavior Theory

Problem behavior theory (PBT; Jessor & Jessor, 1977) has served as the primary model for explaining the relationships between behaviors such as alcohol use, drug use, sexual risk-taking, and delinquency in adolescents and young adults. It suggests that these separate behaviors form a problem behavior syndrome. Jessor & Jessor (1977) defined problem behavior as follows:

> The concept of problem behavior, rather than connoting some valuative stance, refers to behavior that is socially defined as a problem, a source of concern, or as undesirable by the norms of conventional society and the institution of adult authority, and its occurrence usually elicit some kind of social control response. This definition by adult, conventional society is generally well known to youth through the efforts of agents of socialization and their persistent reaffirmation of legal and social norms. (p. 33)

PBT was originally based on the social-psychological relationships between and within three systems. These three systems are the personality system, the perceived environment system, and the behavior system (Jessor & Jessor, 1977). PBT states that unconventional, or problem behaviors, are determined by the individuals' personality system and the individuals' perceived environmental system.

The adolescents' personality system includes multiple variables which are categorized in three structures: the motivational instigation structure, personal belief structure, and the personal control structure (Jessor & Jessor, 1977). Variables comprising the motivational instigation structure represent goals that an adolescent may be directed towards and motivational sources or pressures associated with certain behaviors. These variables include: value on academic achievement; value on independence; value on affection; the independence-achievement discrepancy; expectation for academic achievement; expectation for independence; and expectation for affection. The personal belief structure constitutes four variables which represent cognitive controls that are exerted against the occurrence of problem behavior. These variables include social criticism, alienation, self-esteem, and internal-external locus of control. Lastly, the personal control structure is represented by three variables which represent control against non-normative behavior: attitudinal tolerance of deviance; religiosity; and the discrepancy between positive and negative functions of problem behaviors.

Variables representing adolescents' perceived environment are classified as either distal or proximal, with distal variables being indirectly associated with problem behavior and proximal variables being directly associated with problem behavior (Jessor & Jessor, 1977). These distal variables represent perceived support from parents and from friends, perceived control from parents and from friends, compatibility or consensus between parents and friends in their expectation for the adolescent, and perceived influence on the adolescent from parents relative to that from friends. Proximal variables represent friend's

approval/disapproval for problem behavior, parental approval/disapproval for problem behavior, and friends' models for problem behavior (FMPB). These proximal variables are theorized to capture the degree to which an adolescent is located in a social context where problem behavior is prevalent and there is social support for its occurrence.

Jessor & Jessor (1977) stated that PBT does not attempt to encompass concepts of maladjustment or abnormality in youth. This theoretical framework was designed to apply to youth in general and not to account for psychiatric disorders. PBT serves to explain problem behavior through normal processes and relationships, both personal and social, which are involved in the daily interactions of youth.

PBT was first empirically tested by longitudinally examining two cohorts of youth across a four year time span (Jessor & Jessor, 1977). These two cohorts consisted of a high school and college sample. The high school sample included participants, randomly selected and stratified by gender and grade, from every grade in three junior high schools and three high schools from a small city in one of the Rocky Mountain States. A sample of 188 young men and 244 young women was assessed yearly from 1969 until 1972. The sample was 89% Caucasian and the socioeconomic status was predominantly middle and upper-middle class. The college sample included participants, randomly selected and stratified by gender, from freshman level classes. The total college sample was assessed yearly from 1970 until 1973 and consisted of 92 young men and 113 young women. The sample was 96% Caucasian and the socioeconomic status was predominantly middle and upper-middle class.

Participants in both cohorts annually completed measures assessing personality, perceived environment, and problem behavior. Problem behavior in this first empirical test of PBT included social protest behavior, drug use, sexual behavior, alcohol use, delinquent behavior, and problem drinking. In this study sexual behavior primarily consisted of age of first sexual intercourse and frequency of sexual intercourse.

Problem behavior variables were initially examined as both continuous and dichotomous variables by means of correlations and Chi-square analyses. Jessor and Jessor (1977) found a significant and positive relationship between all problem behaviors except for social protest behavior. Examination of personality and perceived environment variables revealed that FMPB had the strongest association with problem behavior variables. These relationships were consistent for both genders and for both the high school and college sample.

Notably, a Multiple Problem Behavior Index (MPBI) variable was constructed to allow for problem behavior variables to be represented as one construct. The MPBI was the sum of the five dichotomous variables measuring drug use, sexual behavior, alcohol use, delinquent behavior, and problem drinking. Results from multiple regression analyses indicated that both personality and perceived environment variables significantly predicted a large amount of the variance in problem behavior. Although both systems were found to significantly account for variance in problem behavior, variables in the proximal environment system, such as FMPB, were found to account for the majority of the variance in problem behavior.

Although Jessor and Jessor‘s work served as a methodological milestone for examining multiple problem behaviors and using a longitudinal design, the issue of generalizability must be discussed. Jessor and Jessor clearly noted that their results were not generalizable to the larger society in as much as the samples they utilized did not reflect the socioeconomic and ethnic heterogeneity of American society as a whole. Additionally, the measurement of sexual risk-taking was one dimensional and did not assess multiple sexual risk-taking behaviors. Since Jessor and Jessor’s initial examination of PBT, the concept of multiple problem behaviors forming one underlying problem behavior syndrome has been further examined and replicated. A review of this research will follow.

Donovan and Jessor (1985) attempted to address concerns regarding the Jessor and Jessor (1977) study. One of their objectives was to reanalyze Jessor and Jessor's (1977) high school and college data using factor analytic methods to further determine whether a single-factor model would be found. The reanalysis of the high school and college sample data revealed that only a single common factor was needed to account for the correlations among problem behaviors. No statistically significant differences between the observed correlation matrices and the matrices of correlations derived from the one-factor model were found. Additionally, the variance on the observed variables explained by the single-factor was larger for young men than young women in the high school sample, but this discrepancy was less in the college sample.

A second objective was to determine the generalizability of a single-factor model to a more heterogeneous sample of adolescents. Donovan and Jessor (1985) utilized data from a sample of adolescents who took part in the 1978 National Study of Adolescent Drinking (Rachal et al., 1980). Participants in the tenth through twelfth grades in 48 states and the District of Columbia were drawn using a multistage stratified random sampling design. The sample was mainly Caucasian (72%) and forty-six percent of the sample was young men. It was found that one common factor accounted for the correlations among problem behaviors in this sample as well. It should be noted that an assessment of sexual behavior was not included in this study, and therefore the single-factor model for this sample does not include sexual behavior.

Donovan, Jessor, and Costa (1988) later provided further evidence that a single common factor could account for the positive correlations among adolescent problem behaviors. Data collection for this project occurred 13 years after the completion of Jessor and Jessor's 1977 original data collection. Participants were 11th and 12th graders, including 162 young men and 226 young women, from 11 secondary schools in a single school district in northeastern Colorado. Over eighty percent of the participants were Caucasian.

Problem behaviors assessed by self-report were problem drinking, marijuana use, delinquent behavior, and sexual intercourse. Bivariate correlations revealed that all four problem behavior measures correlated significantly and in a positive direction for both genders. Maximum-likelihood factor analyses were conducted separately for each gender and the results revealed that a one factor model held for both genders. Variance accounted for by the single, underlying factor was 47% for young men and 37% for young women.

Data from a longitudinal study of problem behavior and health-related behavior was utilized to investigate PBT in relation to specific risk and protective factors (Jessor, et al., 1995). Four waves of data were collected beginning in 1989 on 1,486 participants. In this study, specific middle and high schools were targeted to maximize the representation of Hispanic and African-American students. The resulting sample was 36% Caucasian, 36% Hispanic, 22% African-American, 4% Asian, and 2% Native American. Additionally, 43% of the samples were young men.

Four problem behaviors were measured in this study: delinquency; problem-drinking; marijuana use; and sexual intercourse. Measures of the four problem behaviors were transformed into T scores and summed to create a Multiple Problem Behavior Index (MPBI). Bivariate correlations between the four problem behaviors were all significant and results revealed an internal consistency coefficient of α = .75 for the MPBI. Young men were found to have a higher mean MPBI than young women. Additionally, Hispanics had the highest MPBI, followed by African-Americans and then Caucasians (Jessor et al., 1995).

The results of this study revealed that FMPB had the strongest relationship with the MPBI. FMPB was measured with a four item scale that assessed perceived peer cigarette smoking, alcohol use, marijuana use, and sexual intercourse. This finding was also found in further multiple regression analyses, with FMPB having the largest beta coefficient. When multiple regression analyses were conducted to examine the four problem behaviors separately, FMPB consistently had the largest significant beta weight. The results from

Jessor et al. (1995) provide further evidence that problem behaviors, such as delinquency, marijuana use, and sexual risk taking, form a single factor and are consistently associated with FMPB. Thus, FMPB, or what could be termed peer delinquency, is a significant predictor of problem behavior.

Although Jessor and colleagues (1995) are to be commended for utilizing a heterogeneous sample, it must be noted that the assessment of each problem behavior was limited. Specifically, marijuana use was assessed with only four items that measured whether the adolescent had ever used, the frequency of use, availability of marijuana, and the number of times the adolescent had been high. Additionally, sexual risk-taking was measured only by the respondents' report of whether they had ever had sexual intercourse.

Osgood, Johnston, O'Malley, and Bachman (1988) utilized data collected as part of the Monitoring the Future study (Osgood et al., 1985) to further test Jessor and Jessor's (1977) findings of a single-factor problem behavior construct. Osgood and colleagues have referred to problem behavior as general deviance. Participants, who were between the ages of 18 and 22 years of age and all Caucasian, completed self-report measures assessing criminal behavior, heavy alcohol use, marijuana use, use of other illicit drugs, and dangerous driving annually for three years. Notably, sexual risk-taking was not assessed, and heavy alcohol use and marijuana use were both assessed with one item each.

Based on cross-sectional and longitudinal analyses, Osgood and colleagues (1988) concluded that a single latent variable, that of problem behavior, could account for the positive correlations between different deviant behaviors. Although their investigation provided support for PBT, Osgood and colleagues (1988) stated the following:

> Nevertheless, a latent variable of general deviance falls short of explaining all the reliable and stable variance of the separate behaviors. Therefore, a theory that addresses only the general construct can never fully account for the separate behaviors, though it might account for much of each of them. Each behavior is, in part, a manifestation of a more general tendency and, in part, a unique phenomenon. (p. 91)

Tildesley, Hops, Ary, and Andrews (1995) further sought to extend the work of Osgood et al. (1988) and build on the finding that a single or common factor model did not explain all the variance in individual behaviors. Tildesley and colleagues cited two potential problems with past research on PBT. First, they noted that many of the early studies examining PBT relied on single indicator measures for each problem behavior and were limited to testing only a first-order factor. Indeed, studies that have utilized multiple indicators of various problem behaviors (McGee & Newcomb, 1992; Vingilis & Adlaf, 1990) have found a single second-order factor to be a better fit, which accounts for more of the variance than previous work (Donovan & Jessor, 1985). Second, Tildesley and colleagues cited the reliance on self-report measures as a second potential problem. Thus, such a single factor may in part be due to common method variance.

Subsequently, Tildesley, Hops, Ary, and Andrews (1995) utilized Structural Equation Modeling (SEM) in a Multitrait-Multimethod (MTMM) design to investigate the interrelations between substance use, general deviance, academic motivation, and precocious sexual behavior. A sample of 155 young men and 194 young women adolescents between the ages of 14 and 18 years of age, their parent(s), and a same-sex peer was recruited as part of a longitudinal study, entitled Family Predictors of Adolescent Substance Use (Andrews, Hops, Ary, Lichtenstein, & Tildesley, 1991). Ethnicity of the sample was 85% Caucasian, 8% African-American, 2% Hispanic, 1% Asian, and 4% Native American. Substance use was measured by adolescent self-report, peer report, and parent report for alcohol, cigarettes, marijuana, and illicit drugs. Delinquency was measured by two self-report measures and one parent report measure. Precocious sexual behavior was measured with four dichotomous items: virgin/nonvirgin status, have been or made someone pregnant, had a sexually transmitted disease, and had a homosexual experience.

Results revealed a correlated two-factor model of problem behavior. The first factor, “Other Problem Behavior,” was represented by delinquency, precocious sexual behavior,

and low academic motivation. The second factor, "General Drug Use," was represented by alcohol, cigarettes, marijuana, and illicit drugs. Additionally, these two factors were strongly correlated (.63). Therefore, the results of Tildesley et al. (1995) do not support Jessor and Jessor's (1977) theory of a single underlying problem behavior syndrome. The finding of a two-factor structure indicates that although problem behaviors are significantly associated, they may not represent one syndrome. Alternatively, differences in problem behavior factor structure may represent different types of at-risk youth or populations. Thus, the interrelations between problem behaviors may be related to different developmental periods or other factors such as demographics.

Importantly, Williams and Ayers (1996) cited a gap in previous PBT research with regard to ethnicity. They indicated that previous research focused on examining potential gender differences, but that this research has not adequately investigated differences across ethnic groups. Additionally, they pointed out that the majority of research on PBT has utilized predominantly Caucasian samples. Cross-sectional data collected from the Seattle Social Development Project, an ongoing longitudinal study, was utilized to determine the generalizability of problem behavior theory as a manifestation of a single underlying factor when comparing African American and Caucasian adolescents.

Williams and Ayers (1996) sample consisted of 171 African Americans and 336 Caucasians, with young men constituting 49.5% of the participants. African Americans and Caucasians differed on several demographic measures; 71% of African Americans were eligible for a free-lunch program, compared with 25% of Caucasians; and, 36% of African Americans were from two-parent families, compared to 72% of Caucasians. For this study, self-reported delinquency, substance use, and juvenile justice system involvement constituted problem behaviors. Sexual risk-taking was not assessed. Confirmatory factor analyses (CFA) were used to test the generalizability of problem behavior theory as a manifestation of a single factor or multiple factors. Data was initially analyzed separately for

African Americans and Caucasians, and then multigroup CFAs were used to estimate the models.

Results suggested that for this sample, a two factor model (substance use and delinquency) better represented problem behavior for Caucasians, and a three factor model (substance use, delinquency, and juvenile justice system involvement) better represented problem behavior for African Americans. Therefore, it appears that the ethnic makeup of the sample may indeed influence the generalizability of the problem behavior factor structure.

Gillmore, Spencer, Larson, Tran, and Gilchrist (1998) sought to extend the research on PBT to a specific high-risk group, that of childbearing adolescent mothers. Gillmore and colleagues noted that the majority of the research on PBT has focused on school-based general populations, and that little is known about youth not well represented in school-based samples. Indeed, childbearing adolescent mothers are known to attend school sporadically and have high drop-out rates (Dryfoos, 1990). Therefore, three measurement models were compared: a single factor model, a four factor model, and a second order factor model in which a single higher order factor was posited to account for the variance among the four factors.

Data utilized for this project were from an ongoing longitudinal study of pregnant and parenting teenagers. This community sample consisted of 349 unmarried pregnant adolescents, aged 17 and younger, recruited from health and social service agencies. Ethnicity of the sample was 51% Caucasian, 32% African American, and 17% other. Participants had completed an average of 9.5 years of formal education. Four behaviors thought to represent problem behavior were assessed by self-report: substance use, delinquency, lack of educational commitment, and sexual involvement. The substance use measure consisted of four items assessing lifetime alcohol use, marijuana use, other illicit drug use, and tobacco use. Lifetime delinquency was measured with three items which assessed minor delinquency, serious delinquency, and legal involvement. Sexual

involvement was measured with three items that assessed lifetime number of sexual partners, if the respondent had ever engaged in risky sex (casual sex, exchanged sex for money, had sex with an I.V. drug using partner, or had sex with someone who was bisexual), and number of years sexually active.

Utilizing CFAs, Gillmore et al. (1998) found that a four factor model provided a better fit to the data than a single factor model. Furthermore, a second-order single factor model in which a single factor accounted for the correlations among the four first-order factors was found to provide an equally good fit to the data as the four-factor model. These results indicate that the four-factor model and the second-order factor model are empirically indistinguishable, but that the second-order factor model is preferable since it can account for the correlations among the first-order factors. Therefore, the second-order factor model suggests that a common problem behavior factor does exist, but at a higher level of extraction than found in previous research. Thus, these results support Jessor and Jessor's (1977) original findings that behaviors, such as substance use, delinquency, and sexual risk-taking form a single factor, problem behavior.

Ary et al. (1999) also tested a general model of the development of problem behavior using longitudinal data from three time points. Participants were 608 adolescent members of the Kaiser Permanente health maintenance organization who were recruited to participate in a clinical trial to evaluate the efficacy of an adolescent smoking cessation program. The sample ranged in age from 14 to 17 years of age. The majority of the sample was Caucasian (91%) and young women (65%). Adolescents and one parent, typically the mother, completed baseline questionnaires and additional assessments at 12 and 18 months.

Constructs assessed in this study included family conflict, family involvement, parental monitoring, peer deviancy, and four problem behaviors: delinquency; risky sexual behavior; academic failure; and substance use. Delinquency was measured with ten items

that assessed the frequency of delinquent behavior over the past six months. Risky sexual behavior was measured with five items from the Scale of Sexual Risk Taking (Metzler, Noell, & Biglan, 1992). The frequency of alcohol, cigarette, and marijuana use was measured and constituted the youths' substance use. Participants' academic failure was assessed via grade point average in school and time spent on homework each night (Ary et al., 1999).

Utilizing SEM, Ary et al. (1999) tested a structural model which included family conflict and family involvement at Time 1, inadequate monitoring and association with deviant peers at Time 2, and problem behavior (delinquency, risky sexual behavior, academic failure, and substance use) at Time 3. Results revealed that the overall model yielded an adequate fit, and that the model accounted for 45.5% of the variance in problem behavior. Associating with deviant peers was found to have a strong significant direct effect on problem behavior. Additionally, the same model fit equally well for both young men and young women. Therefore, these results support the validity of a single construct of adolescent problem behavior. Specifically, delinquency, risky sexual behavior, academic failure, and substance use are interrelated to the extent that they justify a single problem behavior construct, and that peer delinquency is a strong and consistent predictor of problem behavior.

Taken together, two conclusions can be drawn from previous research on PBT. First, adolescent/young adult behaviors including marijuana use, delinquency, and sexual risk-taking have been found to be significantly correlated, and there is evidence that these three behaviors may represent a single factor, that of problem behavior. These findings have significant implications with regard to both intervention and prevention services. Service providers who identify one type of problem behavior (e.g., delinquency, marijuana use, or sexual risk-taking) should be alerted to the possibility that other problem behaviors may exist. Thus, identification of one problem behavior indicates the need for further

assessment in these areas. Additionally, prevention efforts should be sufficiently broad and target clusters of associated problem behaviors.

Second, the most consistent and powerful predictor of problem behavior is "friends' models of problem behavior," which can be viewed generally as peer delinquency. In other words, peer delinquency would appear to be the most proximal factor for an adolescent engaging in problematic behavior. To further illustrate the relationship between peer delinquency and problem behaviors, a review of Oetting and Donnermyer's (1998) primary socialization theory will follow.

Primary Socialization Theory

Primary socialization theory (PST) proposes to explain the cause of deviant behavior and drug use in adolescence (Oetting & Donnermyer, 1998). This theory is an offshoot of Oetting and Beauvias's (1986) Peer Cluster Theory. A fundamental basis for PST is that all human social behaviors are learned or have components that are learned. Socialization is described as the process by which social norms and behaviors are learned through interactions between the youth and certain socialization sources. During adolescence, the family, school, and peer clusters are considered to be the main sources for socialization.

Based on this theoretical model, adolescent deviant behavior and drug use would have at its center the individual, with connections to three primary socialization sources: school, family, and peers. Such connections between the adolescent and the primary socialization sources hypothetically serve as channels for the communication of norms and behavior. A second element of PST involves mediation. Specifically, all other factors or secondary socialization sources which influence the adolescent's behavior, do so through the three primary socialization sources. That is, secondary sources only affect the adolescent because they influence the primary source or the process of primary socialization (Oetting & Donnermyer, 1998).

Based on Oetting and Donnermyer's theory, school, family, and peer clusters can transmit either prosocial or deviant norms; however, family and school are typically the primary sources for prosocial norms. PST proposes that when family/child and school/child socialization "connections" are strong, youth will develop prosocial norms. The term "connection" is used to refer to the bond between the adolescent and his/her socialization sources (Oetting & Donnermyer, 1998, p. 999). The strength of the bond between the adolescent and one source will affect the strength of the bond between the adolescent and other sources. Thus, when family and school socialization connections are weak, adolescents are more likely to choose deviant peers. Therefore, in such cases PST states that peer clusters serve as the primary socialization source, thus having a direct and immediate influence on deviance and drug use.

Empirical support for PST is considerable (Oetting & Donnermyer, 1998) with studies demonstrating a relationship between family and school bonding and deviant peers (Elliot & Voss, 1974; Kandel, 1978). Additionally, several researchers have investigated the relationship between different areas of family functioning, academic success, peer delinquency, and adolescent delinquent behavior (Ary et al., 1999; Dishion et al., 1991; Synder & Dishion, 1986; Patterson & Dishion, 1985). These studies have provided evidence that supported a mediational model of delinquency, such as primary socialization theory. In general, these longitudinal studies have found peer delinquency to be a consistent proximal factor associated with delinquency, with family factors and school factors frequently affecting delinquency indirectly by affecting association with delinquent peers. Thus, PST can be viewed as a theory which points to the significance of peer influence, and illustrates how other variables (i.e., family functioning and academic failure) affect delinquent behavior through such peer clusters.

Peer clusters are presumed to consist of best friend dyads, small groups of close friends, or couples. PST states that the formation and communication of deviant norms

occurs in peer clusters. Therefore, these peer clusters are smaller subsets of the youth's larger peer group. Oetting and Donnermyer (1998) propose that peer clusters are small, cohesive, and are strongly bonded to each other. The transformation of norms occurs through discussion and shared experiences, as well as through the direct monitoring and reinforcing of attitudes and behavior of the members.

To date, research has demonstrated that these influential peer clusters are not necessarily as cohesive and strongly bonded as primary socialization theory has proposed. Dishion, Spracklen, Andrews, & Patterson (1996) found that antisocial youth were able to form peer clusters, but had trouble maintaining friendships. Although these peer clusters were not found to be as closely bonded as primary socialization theory suggests, they were associated with longitudinal increases in substance use and major delinquent offenses. Therefore, having delinquent peers who were not strongly bonded to each other was associated with increases in future delinquent behavior.

Although PST concludes that peer clusters are the strongest proximal predictors of adolescent delinquency, it fails to provide theoretical or empirical support for its assumption regarding the nature of the interpersonal relationships between adolescents and peer clusters. PST proposes that these peer clusters are cohesive and strongly bonded, but research in this area has resulted in an unclear picture of the interpersonal relationships between adolescents and delinquent peers. One theory that may directly address the nature of interpersonal relationships between adolescents and peer clusters is attachment theory (Bowlby, 1969).

Attachment Theory

Attachment theory can be viewed as the sum of the theoretical and empirical work of John Bowlby (1969) and Mary Salter Ainsworth (1969), which centered on childrens' need for a close and continuous care giving relationship. Bowlby's contribution evolved from his

interest in the effects of maternal loss, deprivation, and personality development. Ainsworth's contribution stemmed from her interest in security theory (Bretherton, 1992).

The initial theoretical and empirical work regarding attachment focused on the relationship between an infant and mother (Bowlby, 1969). Thus, Bowlby described attachment as an affectional bond between an infant and caregiver, usually the mother. This bond is enduring and independent of situational circumstances or environmental contingencies. Additionally, the attachment relationship has been proposed to function as a base from which the external environment can be explored (Bowlby, 1969; Mahler, Pine, & Bergman, 1975). Based on Bowlby and Ainsworth's attachment theory, a child with secure attachment has an unconscious assurance of access to help from others and positive sense of worth. This child will develop a sense of self-reliance, and yet be willing to seek out help when needed (Bowlby, 1973).

Attachment security is based on the child's perception of availability of the attachment figure. A secure attachment relationship exists when the child perceives open lines of communication with the attachment figure, physical accessibility to the attachment figure, and that the attachment figure will respond if needed for help (Ainsworth, 1990). As the child's cognitive abilities develop there is less reliance on actual physical accessibility, and there is an internalizing of the attachment figure. The internal representation of the attachment figure overlaps with the self and has a subsequent influence on everyday behavior and life (Cohen, 1974). This internalizing of the attachment figure results in an internal working model, which helps guide the emotional and cognitive development of the child, as well as his/her involvement in other relationships during his/her life (Bowlby, 1969).

The concept of an internal working model has been described as serving as a context for organizing emotional experiences and affect regulation (Koback & Sceery, 1988). Main and colleagues (Main, Kaplan, & Cassidy, 1985) stated that working models provide "rules and rule systems for the direction of behavior and the felt appraisal of experience" (p.

77). These rules are thought to function as strategies for regulating distress in the absence of the attachment figure. Research examining attachment security in adults has found an association between attachment security and the ability to regulate emotions (Block, 1982; Kobak & Sceery, 1988). In lieu of these findings, researchers such as Kobak have proposed attachment theory as a theory of affect regulation.

Although the majority of the theoretical and empirical work in the realm of attachment theory has focused on the relationship between child and mother, attachment relationships are not restricted to just the mother figure or primary caregiver (Ainsworth, 1969; 1972; and 1989). Bowlby (1969) proposed that having confidence in the accessibility and responsiveness of trusted others is important for individuals at all ages. Thus, individuals have a behavioral predisposition to seek proximity to and /or contact with particular individuals under conditions of vulnerability. Because of these views, the concept of attachment across the life span has become increasingly popular. For example, research examining attachment to peers in adulthood found that peer attachment was associated with seeking out of peers when under stress, feeling anxiety when peers were not accessible, and experiencing comfort while in their company (Weiss, 1982).

More recently, attention has turned towards examining peer attachment during adolescence. Based on Bowlby's and Ainsworth's conceptualization of attachment Greenberg, Siegal, & Leitch (1984) developed the Inventory of Adolescent Attachment (IAA) to measure parental and peer attachment during adolescence. Greenberg and colleagues constructed the IAA according to Parkes and Stevenson-Hinde's (Parkes & Stevenson-Hinde, 1982) proposed multidimensional nature of attachment theory. Parkes and Stevenson-Hinde stated that attachment has both a behavioral and affective/cognitive component. Furthermore, proximity and support seeking are viewed as behavioral components and the internal working model as an affective/cognitive component. Therefore, the IAA was constructed to measure aspects of proximity and support-seeking

and the adolescents' internal working model. The IAA was later modified and revised, resulting in the Inventory of Parental and Peer Attachment (IPPA) (Armsden & Greenberg, 1987).

The focus of research examining peer attachment in adolescence has revolved primarily on global constructs such as psychological well-being and life satisfaction. For example, the relationship between adolescents' attachment security to peers and adolescents' self-esteem and life satisfaction has been investigated (Greenberg et al., 1984). Greenberg and colleagues found peer attachment to be positively correlated with self-esteem and life satisfaction. Thus, adolescents with greater attachment security to their peers reported greater self-esteem and life satisfaction. This finding was interpreted as support of attachment theorists' assumption that attachment relationships are significant to psychological well-being. Additionally, this relationship between peer attachment, psychological well-being and life satisfaction has been replicated across a number of studies (Armsden & Greenberg, 1987; Raja, McGee, & Stanton, 1992).

Delinquency and Peer Attachment

Social Control Theory (Hirschi, 1969) has been one of the most influential theories of adolescent delinquent behavior. Hirschi's classic sociological theory hinges on the assumption that all people have deviant impulses and that these impulses are held in check by bonds to conventional society. When adolescents have weak conventional bonds, it is assumed that there is a lack of control over these impulses, which results in the adolescent not wanting or needing to adhere to conventional standards of behavior. When weak bonds exist, the adolescent is then free to engage in deviant behavior.

Based on social control theory, bonds to conventional society are thought to exist through the adolescents' relationship with family members, schools, and religion. The term bond has been used to refer to four constructs: attachment, commitment, involvement, and

beliefs. Attachment is proposed to represent the affection and respect that the adolescent holds toward significant individuals, such as parents and teachers. The construct of commitment is proposed to represent the adolescent's actual or anticipated investment in conventional activities. Adolescent involvement represents the amount of time spent engaged in conventional activities. Lastly, beliefs are stated to represent the adolescent's commitment to the central value system of the society.

Social Control theory does not specifically include the influence of delinquent peers in its model of delinquency (Friedman & Rosenbaum, 1988). Instead, this model of delinquent behavior focuses on the relation between a lack of bonding and delinquent behavior. Furthermore, Hirschi does not differentiate between bonding to delinquent and nondelinquent peers. One "bonding" construct that represents interpersonal relations is that of attachment. Hirschi proposed that attachment to anyone, (e. g., teachers, parents, or peers) would potentially serve as a strong bond and foster conformity. In his study of adolescent delinquency, he directly examined the relationship between the self-reported peer attachment and the self-reported delinquent behavior of over 4,000 high school boys. In this study, the construct of peer attachment was operationally defined as the adolescents' sensitivity to the opinion of others (Hirschi, 1969). Hirschi found a moderately strong inverse association between attachment to friends and delinquency. Delinquent youth were both less likely to identify with their friends and were less likely to respect their opinions than nondelinquent youth. It was also found that those youth with weaker peer attachments were more likely to commit delinquent acts (Hirschi, 1969).

Based on Hirschi's results, social control theorists have subsequently described peer relationships of delinquent youth as following the social disability model (Gordon, 1967). These delinquent peer relationships are proposed to be superficial and lacking affectionate bonds. Delinquent youth are also thought to lack the social skills necessary to form close and personal friendships with other peers. Thus, the social disability model hypothesizes

that peer relationships among delinquent youth are transient and intrinsically unrewarding. This model is in contrast to the social ability model adopted by social learning theorists (Hansell & Wiatrowski, 1981). The social ability model states that delinquent and nondelinquent youth posses the same social skills and have similar peer relationships. Based on this model, delinquent youth are proposed to have or be capable of having stable and rewarding peer relations.

The nature of the relationship between adolescents and delinquent peers has remained an area of much debate. Despite Hirschi's findings and the theoretical assumption made by control theorists regarding attachment to delinquent peers, several studies have found a positive correlation between attachment to peers and delinquent behavior (Erickson & Empey, 1965; Linden & Hackler, 1973; Hindelang, 1973; Elliot & Voss, 1974; Massey & Krohn, 1986). Specifically, greater peer attachment was associated with greater delinquent behavior. In addition, Giordano, Cernkovich, and Pugh (1986) found similar patterns of peer relationships and friendship between delinquent and nondelinquent peers. However, the findings of Giordano and colleagues have been criticized because the items employed in measuring friendship overlapped with items measuring peers' involvement in delinquent acts (Brownfield & Thompson, 1991). Additionally, a higher rate of self-disclosure about problems associated with sex and feelings of guilt about past behaviors was found among delinquent peers. This finding was interpreted to suggest that delinquent youth have closer relationships because of a higher rate of self-disclosure. This interpretation has been further criticized because the nature of the self-disclosure was related to disclosure about delinquent acts that the youth had committed. Thus, the nature of peer relations between delinquent youth remains an area of debate.

Utilizing data from the Seattle Youth Study (Hindelang, Hirschi, & Weis, 1991), Brownfield and Thompson (1991) investigated the relationship between adolescents' self-reported delinquency and the nature of his/her relationships with his/her best friend and

friends in general. Since the aims of Brownfield and Thompson closely resemble the aims of the current project, a detailed review of their methodology is warranted. Data were reported on 847 Caucasian young men, stratified to obtain a sufficient sample of youth with police records and youth court records. Based on Hirschi's social control theory, the construct of attachment was the primary source for examining the nature of peer relations. Unlike some studies investigating the relationship between delinquency and peer relations, adolescents' measure of attachment to peers was matched to their report of peer delinquency. This matching ensured that the adolescent used the same peer reference group for measures of peer attachment and peer delinquency. Attachment was assessed through the use of four questions. Two questions assessed attachment to best friend: 1) Would you like to be the kind of person your best friend is; 2) Do you share your thoughts and feelings with your best friend? Additionally, two questions addressed attachment to friends in general: 1) My friends can be trusted to tell the truth; 2) I have lots of respect for my friends.

Brownfield and Thompson found that having delinquent best friends and/or having delinquent friends were both positively correlated with adolescent self-reported delinquency. In regard to the relationship between attachment to peers and self-reported delinquent behavior, no significant relationship was found for either of the questions pertaining to attachment to best friends. However, there was a significant relationship found between attachments to friends in general and self-reported delinquent behavior. Those that agreed with the statement "My friend can be trusted to tell the truth" (72%) were less likely to self-report two or more delinquent acts than those who expressed disagreement (82%). Eighty five percent of those that disagreed with "I have lots of respect for my friends" reported two or more delinquent acts compared to 76% of those adolescents that agreed. When involvement with delinquent peers was controlled, attachment to friends was not significantly associated with self-reported delinquency. Adolescents' involvement with delinquent peers

was found to be the strongest factor associated with self-reported delinquency. These results suggest that adolescents with delinquent friends are less likely to trust their friends or to respect their friends. Such findings, in support of control theory, suggested that attachment had a modest inhibitory effect on delinquent behavior.

Pabon, Rodriguez, and Gurin (1992) have suggested that peer relationships among delinquent peers provide a sense of group belongingness, but do not contain attributes that have been directly linked to supportive friendships. They based their hypothesis on Furman and Robbins' (1985) theory of social provisions, which posits that close friendships provide affection, intimacy, and reliable alliance. Furthermore, both close friendships and general peer relations provide such attributes as companionship, nurturance, and enhancement of worth. This distinction suggests that close friendships provide the adolescent with certain attributes not contained in general peer relations. Pabon et al. provided tentative support for this argument, noting that 75% of adjudicated juveniles commit offenses with other juveniles, but that only 30% of those juveniles indicated that they were involved with a group of friends who were involved in committing criminal acts, cited in Juvenile Justice Bulletin (National Institute of Justice 1990). These data suggest that the majority of adolescents who commit delinquent acts with peers do not consider their deviant partners to be close friends.

Pabon et al. (1992) further explored the nature of peer relationships with delinquent peers based on Furman and Robbins' (1985) distinction between close friendships and general peer relations. Since the aims of Pabon et al. closely resemble the aims of the current project, a detailed review of their methodology is warranted. The authors utilized a two-wave panel dataset containing a sample of 1,077 Puerto Rican adolescent young men residing in the South Bronx. Through individual interviews, the amount of time adolescents spent with their friends was assessed. Five questions were constructed to directly assess whether the interpersonal relationships among delinquent peers were based on close intimate friendships or greater group belongingness: 1) "I feel close to my friends;" 2) "My

friends do not take much interest in my problems;" 3) "Sometimes I feel lonely when I am with my friends;" 4) "I don't feel that I fit in very well with my friends;" and 5) "My friends are willing to listen if I have a problem." The adolescents' delinquent behavior, based on 27 offenses, was measured for the past year. Peer delinquency was measured with 14 questions addressing friends' delinquent behavior in the past year, with responses ranging from "all of them" "to none of them."

Pabon et al. (1992) found no significant relationship between associating with delinquent peers and the items assessing closeness to friends, friends caring about the adolescent's problems, or feeling that they do not fit in well with peers. Associating with delinquent peers was associated with loneliness, estrangement, and spending evenings together with peers. Two factors, emotional distance and time association, emerged from a factor analysis of the peer relation variables. Using regression analysis, emotional distance between peers and time associating with peers were found to be significantly associated with adolescents' involvement with delinquent peers. To summarize, the results of the regression analysis suggest that delinquent youth spend much time with delinquent peers, but that their interactions with delinquent peers lack emotional intimacy or bonding.

Thus far, research involving peer attachment and delinquency has been equivocal, with some studies finding a positive relationship between peer attachment and delinquency and some studies finding a negative relationship (Colvin & Pauly, 1983; Conger, 1976; Elliot et al., 1985; Elliot & Voss, 1974; Erickson & Empey, 1965; Hindelang, 1973; Johnson, 1979; Linden & Hackler, 1973; Massey & Krohn, 1986). Researchers have hypothesized that these contradictory findings are the result of an interactive effect between peer attachment and peer delinquency (Conger, 1976; Johnson, 1979; Linden & Hackler, 1973). Additionally, Agnew (1991) stated that research on delinquent peers has been too simplistic, with researchers only examining the number of delinquent friends or the frequency with which friends commit delinquent acts.

Based on these inconsistent findings, Agnew suggested that an interactive effect between peer attachment and peer delinquency may indeed exist. Agnew proposed three factors that might interact with peer delinquency: attachment with peers, amount of contact with peers, and peers' approval of delinquent behavior. Specifically, he hypothesized that delinquent peers are more likely to be positively associated with adolescent delinquency when attachment between peers is high, when there is greater contact, and when peers approved of delinquent patterns of behaviors.

Agnew (1991) used the first wave of the National Youth Survey data to examine these potential interactive effects. The first wave data contained a sample of both young men and young women between the ages of 11 and 17. Attachment to peers was measured with five items: 1) "Don't fit in well with friends;" 2) "Friends don't take an interest in my problems;" 3) "Feel close to my friends;" 4) "Friends listen to my problems;" and 5) "Feel lonely with my friends." Delinquent peer behavior was separated into two categories, minor and serious. Minor delinquent behaviors included property destruction, stealing something worth less than $5, and hitting or threatening to hit someone. Serious delinquent behaviors included selling hard drugs, stealing something worth more than $50, and breaking into a vehicle or building to steal something.

The results from this investigation illustrated that there was great variability across the peer dimensions. Forty percent of adolescents who indicated that "some" or "many" of their friends committed delinquent acts categorized as serious offenses were weakly attached to their friends, 51% moderately attached, and 9% strongly attached. Variation was also found in the amount of reported time spent with their friends. Additionally, 11% of adolescents reported that their friends would strongly disapprove of their delinquency, 22% would disapprove, as well as 49% would neither disapprove nor approve, and only 18% endorsed that their friends would approve of their delinquency. Such variability in peer dimensions demonstrates the complexity of the relationships among delinquent peers, and

contradicts simplistic assumptions that peer relations among delinquent youth are uniform. Multiple regression analyses found significant interactive effects for the investigated peer variables. When adolescents' peer attachment, contact, and approval were at their respective mean or lower, the association with peers who engaged in serious delinquent behaviors was not related to delinquency. When adolescents' levels of peer attachment, contact, and approval were above their respective means, the presence of delinquent peers (serious) was positively associated with delinquency. No interactive effects were found when the presence of friends that committed minor delinquent acts was examined. These results illustrate that strong peer attachment interacts with peer delinquency. More specifically, strong peer attachment increases the association with peer delinquency for serious offenses on delinquent behavior. These results contradict those proposed by social control theorists such as Hirschi, who contend that attachment to peers, even if deviant, should dampen the effect of delinquent peers.

Later work by Wong (1998) challenged Agnew's conclusion that peer attachment intensified the criminogenic effect of delinquent peers on adolescent delinquent behavior. Agnew's original argument stemmed from the assumption that if an adolescent had strong attachment to peers and had delinquent friends, the adolescent must have had strong attachments to delinquent friends. However, Agnew did not directly link his measure of attachment with peer delinquency. Since it is not known if the same reference group was used for both assessments of peer attachment and peer delinquency, Agnew's conclusions are disputable. Based on social control theory, Wong proposed that deviant peer association would be associated with deviance because of a low level of attachment among peers. He hypothesized that attachment to peers would reduce the criminogenic effect of delinquent friends. Specifically, delinquent peers would have less of an effect on delinquent behavior when there is strong attachment to peers.

Wong utilized a sample of 315 young men and women, between the ages of 10 and 20, of Chinese descent, living in a Western Canadian metropolis. Peer delinquency was measured as the proportion of friends involved in 11 delinquent activities ranging from running away from home to assault and vandalism. Peer attachment was measured with four items addressing adolescents' sensitivity to peer opinions, support from peers, and identification with peers: 1) "They say nice things about me;" 2) "I would like to be the kind of person my friends are;" 3) "My friends encourage me to do well in school;" and 4) "I care a lot about what my friends think of me." Delinquent behavior was measured by 19 items assessing the number of times the adolescent had committed delinquent acts, ranging from skipping class to robbery in the last twelve months. Notably, although Wong criticized Agnew's conclusions concerning the interactive effect of delinquent peers and peer attachment, he did not ensure that adolescents in his study used the same peer reference group when completing the peer delinquency and peer attachment measure.

Regression analyses revealed significant main effects for the association with delinquent peers and attachment to peers, with the association with delinquent peers being the strongest factor associated with delinquency. Those youth with more delinquent friends were more involved in delinquent behaviors. Attachment to peers was negatively associated with delinquency, such that adolescents with stronger peer attachment were involved in fewer delinquent behaviors. Additionally, a significant negative interactive effect between peer delinquency and peer attachment was found. Specifically, this negative interactive effect was interpreted to mean that peer delinquency has less of an impact on delinquent behavior when adolescents have strong peer attachment. Although the generalizability of these results may be limited because of the culture of the sample, the findings directly contradict Agnew's findings of a positive interactive effect between peer delinquency and peer attachment.

Agnew and Wong have both made suggestions for reducing the effects of peer delinquency based on their findings. Agnew proposed that interventions targeted at reducing the emotional closeness to delinquent peers might reduce the effect of delinquent peers. Specifically, decreased emotional closeness with delinquent peers would result in decreased influence of delinquent peers, and therefore less delinquent behavior. Wong suggested that since peer attachment serves as a restraining factor, affective ties to conventional peers should be strengthened and ties to delinquent peers should be reduced or severed. However, both researchers failed to insure that the same peer reference group was used for peer delinquency and peer attachment, therefore negating the ability to draw conclusions about the nature of the relationship between peer attachment and peer delinquency. Taken together, research on the interpersonal relationships between delinquent adolescents has yielded unclear results as to the nature and quality of these interpersonal relationships.

To date, only two studies have examined the relationship between antisocial or delinquent behavior and peer attachment with an empirically constructed, validated, and published measure of attachment. Marcus and Betzer (1996) hypothesized that parental and peer attachment would be negatively associated with adolescent antisocial behavior, such that those adolescents with greater attachment security would report fewer antisocial acts. Additionally, it was hypothesized that parental and peer attachment would be positively correlated. Both parental and "Best Friend" attachment were measured with the IPPA. Antisocial behavior during the past year was assessed with a 23-item delinquency report. The sample used in this study consisted of 72 young men and 91 young women from private middle schools with a mean age of 12.7. Ninety six percent of adolescents reported living with their birth mothers and 78% reported living with their birth fathers. Eighty percent of the sample was Caucasian, 88% reported living in a two-parent household, and 78% of the parents were college graduates.

Marcus and Betzer found that attachment to mother, father, and best friend were negatively correlated with antisocial behavior. Greater security in all three attachment relationships was associated with less antisocial behavior. When these relationships were examined separately for young men and young women, attachment to best friend was not significantly related to antisocial behavior. Utilizing multiple regression analysis, grade, gender, paternal attachment, maternal attachment, and attachment to best friend were entered into a model. The model accounted for 32% of the variance in antisocial behavior. Grade and gender, as well as paternal and maternal attachment, contributed significantly to the amount of explained variance, but attachment to best friend did not contribute significantly to explained variance. To test for entry effects, attachment to best friend was entered before paternal and maternal attachment and contributed 1.8%, versus 17% of the variance for paternal and maternal attachment. When separate regression analyses were performed for each gender, attachment to best friend did not significantly contribute to the explained variance beyond the contribution of paternal and maternal attachment. These results indicate an inverse relationship between attachment and antisocial behavior, which supports control theory. Additionally, the amount of variance in antisocial behavior that best friends' attachment accounted for was substantially less than paternal and maternal attachment.

The second study that examined the relationship between antisocial or delinquent behavior and peer attachment with an empirically constructed, validated, and published measure of attachment was completed by Gillaspy (2002). Because the Gillaspy (2002) methodology and sample closely represents the current study, it will now be reviewed in greater detail.

Based on the theoretical frameworks of primary socialization theory (Oetting & Donnermyer, 1998), control theory (Hirschi, 1969), and attachment theory (Bowlby, 1969), Gillaspy (2002) examined the effects of peer delinquency and peer attachment on

adolescent delinquent behavior. The first hypothesis was that peer delinquency would be associated with adolescent delinquent behavior. Specifically, it was predicted that having a greater proportion of delinquent peers would be associated with committing a greater number of delinquent behaviors. The second hypothesis was that the level of peer attachment would moderate the relationship between peer delinquency and adolescent delinquent behavior. Gillaspy hypothesized that secure attachment to deviant peers would diminish the relationship between peer delinquency and adolescent delinquent behavior. Specifically, the association between a greater proportion of delinquent peers and committing a greater number of delinquent behaviors would be reduced by more secure peer attachment (Gillaspy, 2002).

Participants were 202 young men and 141 young women Job Corps trainees between the ages of 16 and 24. Participants self-identified as African-American (45.9%), Caucasian (36%), Hispanic (7.6%), Native American (6.7%), Asian (0.9%), and other (2.9%), and the highest level of education ranged from 7th grade to 12th grade or GED (Gillaspy, 2002). Adolescents' level of peer delinquency was measured by the National Youth Survey-Peer Delinquency Scale (Elliott, Huizinga, & Young, Menard, 1989). Delinquent behavior was measured by the National Youth Survey-Delinquency Scale (Elliott et al., 1989). Adolescents' attachment to their parents and peers was assessed with the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987). Social desirability was assessed with the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964).

An examination of the number of delinquent behaviors adolescents reported revealed that 54% of young men and 41% of young women engaged in twelve or more delinquent behaviors during the past year (Gillaspy, 2002). Additionally, only 17% of both young men and young women reported not engaging in any delinquent behaviors during the

past year. These results indicated that both young men and young women represented a highly delinquent sample.

Preliminary analyses revealed significant zero-order correlations between delinquent behavior and gender, social desirability, peer involvement, maternal attachment, and between peer attachment and gender, social desirability, peer involvement, maternal attachment, and paternal attachment. Additionally, no significant differences were identified for delinquent behavior or peer attachment as a function of ethnicity. Separate regression analyses were subsequently conducted for young men and young women, rather than controlling for gender in the primary analyses.

Evaluation of hypothesis one indicated that peer delinquency was significantly related to both young men and young women adolescents' delinquent behavior after controlling for age, peer involvement, social desirability, maternal attachment and paternal attachment. Regression equations predicted a total of 40% of the variance in young men's delinquent behavior and 45% of the variance in young women's delinquent behavior. Two hierarchical regression equations (young men and young women) were constructed to test the moderator relationship. Analyses revealed that lower levels of social desirability and higher levels of peer delinquency and peer attachment were associated with greater delinquent behavior for young women. For young men, lower levels of social desirability and higher levels of peer involvement and peer delinquency were associated with greater delinquent behavior. Moderation analyses revealed that the centered interaction term was not significant for either young men or young women. Therefore, peer attachment was not found to statistically moderate the relationship between peer delinquency and delinquent behavior for young men or young women.

Primary analyses identified a significant peer involvement main effect for young men's delinquent behavior and a significant peer attachment main effect for young women's delinquent behavior. Therefore, exploratory analyses were conducted to examine whether

the relationships between peer involvement and delinquent behavior for young men and peer attachment and delinquent behavior for young women were mediated by peer delinquency.

For young men, regression analyses indicated that peer involvement was significantly related to delinquent behavior, with 5% of the variance in delinquent behavior uniquely accounted for by peer involvement, and that peer involvement was significantly related to peer delinquency, with 5% of the variance in peer delinquency uniquely accounted for by peer involvement. When peer involvement and peer delinquency were entered simultaneously, 27% of the variance in delinquent behavior was accounted for with peer delinquency as a significant predictor and peer involvement was not a significant predictor. Therefore, peer delinquency was found to mediate the association between peer involvement and delinquent behavior for young men. Additional post-hoc probing of the mediation effect (Holmbeck, 2002) further confirmed a significant mediational effect.

For young women, regression analyses indicated that peer attachment was significantly related to delinquent behavior, with 4% of the variance in delinquent behavior uniquely accounted for by peer attachment however, peer attachment was not significantly related to peer delinquency. Thus, further mediation analyses were not performed. Therefore, peer delinquency was not found to mediate the association between peer attachment and delinquent behavior for young women.

The Gillaspy (2002) study revealed several important findings. First, peer delinquency was found to be a strong predictor of adolescent delinquent behavior for both young men and young women adolescents. Second, support was not found for peer attachment moderating the positive association between peer delinquency and adolescent delinquent behavior. Third, significant gender differences were found with regard to the influence of peer involvement and peer attachment on adolescent delinquent behavior. Peer attachment was found to be a significant and independent predictor of adolescent

delinquent behavior for young women, with greater peer attachment associated with increased delinquent behavior. Peer delinquency was found to mediate the positive association between peer involvement and adolescent delinquent behavior for young men. These findings indicate that although peer delinquency is a significant predictor of delinquent behavior for both genders, gender differences do exist with regard to the nature of the adolescents' relationships with delinquent peers.

Marijuana Use and Peer Relations

Previous reviews of the literature (Hawkins, Lishner, Catalano, & Howard, 1986; Swain, 1991; & Hawkins, Catalano, & Miller, 1992) have clearly demonstrated that peer delinquency and peer drug use are strong and consistent predictors of adolescent drug use, and marijuana use in particular. Recent research focusing specifically on marijuana use (Brook, Brook, Arencibia-Mireles, Richter, & Whiteman, 2001) found that peer deviance was an important and significant predictor of adolescent marijuana use. Additionally, the strong association between peer delinquency and marijuana use is consistent with Oetting and Donnermyer's (1998) Primary socialization theory. Thus, there is ample evidence and theory that demonstrates a strong and consistent association between peer delinquency and marijuana use.

Although peer delinquency and marijuana use have been repeatedly investigated, a review of the literature indicates that the relationship between peer attachment and adolescent marijuana has only been investigated on two occasions (Bailey & Hubbard, 1990; Engels & ter Bogt, 2001). Results from both studies indicated that greater peer attachment was positively associated with greater marijuana use, but that this relationship significantly decreased when other peer variables, such as peer involvement and peer delinquency were examined. Therefore, these results suggest that peer attachment is

indirectly associated with marijuana use, and that its effect is mediated by peer delinquency or peer involvement.

The results of Bailey and Hubbard (1990) and Engels and ter Bogt (2001) should be interpreted with caution. Bailey and Hubbard (1990) utilized a school sample that was predominantly Caucasian. Additionally, the measure of peer attachment that was used consisted of only four items, and did not represent an empirically and theoretically established measure of peer attachment. Although Engels and ter Bogt (2001) utilized the Inventory of Parent and Peer Attachment, an empirically and theoretically established measure to assess peer attachment, the generalizability of their results must be questioned. Participants were young men and young women between the ages of 12 and 18 years of age from the Netherlands. Because of these noted limitations, results from Bailey and Hubbard (1990) and Engels and ter Bogt (2001) are tentative, and illustrate the need for further investigation and replication.

Sexual Risk-Taking and Peer Relations

In a review of adolescent sexual behavior, Kotchick, Shaffer, Forehand, and Miller (2001) stated that research has consistently found that association with a deviant peer group, i.e., one that engages in alcohol and drug use or delinquency, has been found to be related to adolescents' participation in high-risk sexual behavior. This finding of a positive association between peer delinquency and sexual risk-taking has been established in both cross-sectional and longitudinal investigations (Brewster, 1994; Metzler et al., 1994; Miller, Forehand, & Kotichick, 2000; & Ary et al., 1999). In a prospective study, Scaramella, Conger, Simons, & Whitbeck (1998) found that deviant peer affiliations comprised a significant strong pathway to sexual risk-taking in an overall model of adolescent sexual risk-taking behavior. Additionally, the previously reviewed research on PBT demonstrated a significant relationship between peer delinquency and sexual risk-taking.

Although a positive relationship between sexual risk-taking and peer delinquency has been established, a review of the literature indicates that the nature of these interpersonal relationships has not been investigated. Specifically, no studies to date have examined the construct of peer attachment in the context of peer delinquency and adolescent sexual risk-taking. Therefore, this area warrants further scientific investigation.

Limitations of Existing Work

Peer delinquency has been identified as the most consistent factor associated with adolescent and young adult problem behavior in both cross-sectional and longitudinal investigations. For the purpose of developing intervention strategies, it would be expected that the interpersonal relationships between adolescents/young adults and their delinquent peers would be an area of considerable exploration. On the contrary, this area has not been adequately investigated. Although many theoretical assumptions have been made concerning the interpersonal relations of adolescents/young adults and their delinquent peers, few studies have directly assessed them. When research has investigated the interpersonal relationships between delinquent peers and adolescent delinquency, the results have been inconsistent. Additionally, among the studies that have directly assessed interpersonal relationships among delinquent peers, most include critical methodological limitations. Furthermore, in the area of marijuana use and sexual risk-taking, little research has explored the interpersonal relationship between delinquent peers and these two forms of problem behavior.

One methodological flaw has been the inconsistent and vague measurement of attachment (Marcus & Betzer, 1996). In addition, assessment tools have varied in length from one item to five items. These measurements of attachment have lacked adequate psychometric properties and theoretical support. Replication of prior studies has faltered because of the inconsistent manner in which researchers have chosen to assess

attachment. Additionally, past research examining problem behavior theory has used brief measures of marijuana use and sexual risk-taking. Assessment of marijuana use has been limited to measurement of quantity and frequency and has not focused on "severity" of use such as abuse or dependence. The assessment of sexual risk-taking has predominantly been limited to only a few individual items measuring frequency of sexual intercourse, number of sexual partners, and condom use.

Another methodological limitation among these studies involves the problematic sampling strategies researchers have used. For example, many of the studies investigating delinquency have only included young men (Brownfield & Thompson, 1991; Pabon et al., 1992), and the majority have focused on Caucasians (Brownfield & Thompson, 1991; Marcus & Betzer, 1996). Additionally, some studies have examined delinquent behaviors in the general population (Agnew, 1991; Marcus & Betzer, 1996; Pabon et al., 1992; Wong, 1998) while others have focused solely on adjudicated youth (Brownfield & Thompson, 1991). With respect to prior research examining problem behavior theory, samples have been predominantly Caucasian and have consisted of youth within public school and college settings. Because of the use of these rather narrow subject samples, the generalizability of findings to youth, such as those reported in the Uniform Crime Reports, Centers for Disease Control reports, and National Institute of Drug Abuse reports, has been limited. In order for generalizations and useful conclusions to be made, research must focus on samples that are more representative of youth that engage in a high frequency of delinquent acts, marijuana use, and sexual risk-taking and become involved in state and federally funded intervention projects.

The inconsistent findings in studies examining the interpersonal relationships between peers and adolescent delinquency could be the result of poor construct measurement or differences in sampling, but the possibility of potential "third" variable interaction, has also not been thoroughly examined. Additionally, when interactive effects

have been explored, results have remained inconsistent. Related to possible interactive effects, one limitation of past research revolves around the subjects' peer reference group (Wong, 1998). Studies have assessed peer delinquency and assessed interpersonal peer relations, but have not insured that subjects used the same peer reference group for these assessments. Several researchers have made conclusions about peer relations among delinquent adolescents based on this methodology. For example, researchers find that adolescents report feeling close to their peers and report high levels of peer delinquency (Agnew, 1991). Therefore, they assume the adolescents feel close to their delinquent peers. This conclusion is premature, since it is possible that the adolescents reported feeling close to one friend or group of friends, but completed the peer delinquency measure on a separate group. Unless studies are methodologically designed to insure that the same peer reference group is used for both the assessment of peer delinquency and peer relations, no conclusions can be drawn regarding the relationship between the two.

The Present Study

Given the results of research concerning problem behavior theory and from the theoretical frameworks of primary socialization theory, control theory, and attachment theory, the current study had three aims. First, this study attempted to replicate and extend the findings of past research focusing on problem behavior, specifically if delinquent behavior, symptoms of marijuana abuse, and sexual risk-taking formed a single-factor representing problem behavior. Second, the study examined the effects of peer delinquency on problem behavior, specifically if peer delinquency was positively associated with adolescent and young adult problem behavior. Third, this study attempted to replicate and extend the findings of Gillaspy (2002), concerning gender differences with regard to the influence of peer delinquency, peer involvement, and peer attachment on adolescent delinquent behavior. It was expected that the results of this study would provide information

on the nature of peer relations among adolescents and young adults engaging in problem behaviors, and provide preliminary data on how interventions designed to reduce adolescent and young adult problem behavior should address peer relations.

Furthermore, this study attempted to address the methodological limitations discussed previously in the following fashion. First, the measurement of peer attachment utilized in the current study, the Inventory of Parental and Peer Attachment (Armsden & Greenberg, 1987), is a valid and reliable measure of attachment, and was used to assess peer attachment. Because the IPPA is based on Bowlby's attachment theory, it provided a more sound theoretical approach to the measurement of attachment. The measurement of drug use used in the current study, the Simple Screening Instrument (Center for Substance Abuse Treatment, 1994), is a valid and reliable screening measure for assessing symptoms of marijuana dependency, and was used to specifically assess marijuana abuse symptoms. Lastly, the measurement of sexual risk-taking was utilized in the current study, the Scale of Sexual Risk Taking (Metzler et al., 1992), is a valid and reliable measure that assesses multiple behaviors that can place an individual at risk for unwanted pregnancy, sexually transmitted diseases, and HIV.

Second, the sample used in the current study consisted of "high risk" adolescents of both genders, and included a substantial number of adolescents and young adults from multiple ethnic backgrounds. It was proposed that this sample would be more representative of those adolescents and young adults who were reported on by the FBI and the Office of Juvenile Justice and Delinquency Prevention, the National Institute of Drug Abuse, and the Centers for Disease Control, versus samples used in previous studies.

Third, this study examined the effects of peer attachment, peer delinquency, and peer involvement while insuring use of the same peer reference group. Therefore, subjects' report of peer delinquency, peer involvement, and peer attachment were for the same group of peers. Subjects were instructed to use the same peer reference group while reporting

peer delinquency, peer involvement, and peer attachment. Thus, stronger conclusions can be drawn regarding the relationships between peer delinquency, peer involvement, and peer attachment.

In summary, the current study was the first to examine the effects of peer delinquency, peer involvement, and peer attachment on adolescent/young adult problem behavior by: 1) utilizing theoretically and empirically sound measures of peer attachment, marijuana abuse symptoms, and sexual risk-taking; 2) using an adolescent/young adult sample more representative of youth reported by the FBI, the Office of Juvenile Justice and Delinquency Prevention, Centers for Disease Control, and National Institute of Drug Abuse; and 3) insuring that the same peer reference group was used when completing all peer measures. Thus, the current study attempted to replicate and extend the findings of Gillaspy (2002) by extending the criterion variable focus from general delinquency to problem behavior, and by examining whether previously found gender differences existed with regard to peer delinquency, peer attachment, and peer involvement.

Hypotheses

Four main hypotheses were proposed in the current study. The first hypothesis was that adolescent/young adult delinquent behavior, marijuana abuse symptoms, and sexual risk-taking behavior form a single factor of problem behavior. Specifically, a positive relationship between these three constructs was expected. Youth engaging in a high frequency of delinquent behaviors were expected to also engage in more problematic marijuana use, and in greater sexual risk-taking. This hypothesis was based on Jessor and Jessor's (1977) problem behavior theory.

The second hypothesis was that peer delinquency would be associated with adolescent/young adult problem behavior. This hypothesis was based on Jessor and Jessor's problem behavior theory (1977), Oetting and Donnermyer's primary socialization

theory (1998), and previous research conducted by Gillaspy (2002). A positive relationship between these two variables was expected. Specifically, having a greater proportion of delinquent peers would be associated with higher levels of problem behavior.

The third hypothesis was that higher levels of peer attachment and peer delinquency would be associated with adolescent/young adult problem behavior for young women. Specifically, having a greater proportion of delinquent peers and a greater peer attachment would be associated with a larger magnitude of problem behavior for young women. The fourth hypothesis was that the level of peer involvement would moderate the relationship between peer delinquency and problem behavior for young men. Specifically, the association between a greater proportion of delinquent peers and engaging in problem behavior would be enhanced under conditions of greater involvement with delinquent peers. Hypotheses three and four were based on the integration of Hirschi's control theory, Oetting and Donnermyer's primary socialization theory, and previous findings of Gillaspy (2002).

CHAPTER III

METHOD

Participants

One hundred and twenty-seven adolescents participated in this study. Due to confidentiality concerns, data were not available to statistically examine potential differences between participants and those students who did not participate. Sixty-three percent of the respondents were young women (N = 80) and 37% of the respondents were young men (N = 47). Highest level of education completed by the participants ranged from 8th grade to 11th grade. Participants identified themselves as African-American (60%), Hispanic (20%), Caucasian (10%), Native American (5%), and other (5%). See Table I for descriptive statistics of demographic variables. Family household make-up was obtained via self-report and is presented in Table II. The marital status of participants was as follows: 92.1% were single, 6.3% were married, 0.8% were divorced, and 0.8% were widowed. Thirty-six percent of the respondents reported that they had children (n = 46). Additionally, 20% of young women (n = 16) reported that they were pregnant at the time of their participation.

Description of Participant Sites

Participants were recruited from two alternative high schools in the Oklahoma City Public Schools System. Students were placed in the alternative school system due to behavioral problems and/or a pattern of attendance problems in the typical public school system classroom setting. Alternative schools provide smaller classroom sizes, increased

structure, and more one on one involvement with school staff. First, adolescents were recruited from Emerson Alternative High School in Oklahoma City, OK. At this alternative school, participants were recruited from both a program specialized for teen mothers (group 1) and a regular alternative school program (group 2). The program for teen mothers consisted of both young women with children and women who were currently pregnant. Second, adolescents were recruited from See Worth Academy (group 3), also an alternative high school in Oklahoma City, OK area.

One hundred percent of students attending Emerson's specialized teen mother program and 96% of the students attending Emerson's regular alternative school program received free or reduced meals during the 2002-2003 school year (Oklahoma City Public Schools, 2004). Similarly, for the 2002-2003 school year ninety seven percent of the students attending See Worth Academy received free or reduced meals (Oklahoma City Public Schools, 2004). The percent of students receiving free or reduced meals indicates that the majority of students attending both schools have a low socioeconomic status.

Measures

Demographics. Participants completed a questionnaire assessing a variety of demographic variables. The questionnaire assessed participant age, gender, highest level of education obtained, ethnicity, marital status, and the number of dependent children. Additionally, the questionnaire assessed the family make-up of the participants' home.

National Youth Survey-Delinquency Scale (NYS-DEL). Adolescents' frequency of engaging in delinquent acts was measured by the NYS-DEL. The NYS-Delinquency Scale was developed for the National Youth Survey (NYS). The NYS-PD was developed for the National Youth Survey (NYS; Elliott, et al., 1989). The NYS was a prospective longitudinal study that followed a national probability sample of 1,725 youth, ages 11-17, beginning in

1976. This project was designed to assess self-reported delinquency, delinquency of friends, involvement with friends, and other variables relevant to the study of adolescent delinquent behavior. The NYS was funded by the U.S. Department of Health and Human Services, through the National Institute of Mental Health with supplemental funding from the U.S. Department of Justice through the Office of Juvenile Justice and Delinquency Prevention and National Institute of Justice.

Item content of the NYS-Delinquency Scale was chosen to be representative of the full range of official acts for which juveniles could be arrested (Dunford & Elliott, 1984). The NYS-DEL (Elliott et al., 1989) is a 25-item self-report scale which assesses the adolescent's frequency of engaging in a variety of delinquent acts during the past year. Each item utilizes an open-ended format with the respondent indicating how many times he/she has engaged in the delinquent act during the past year. For example, adolescents are asked to indicate the number of times in the past year they have engaged in behaviors such as, "purposely damaged or destroyed property that belonged to your parents or other family members" and "broken into a building or vehicle (or tried to break in) to steal something or just look around." The NYS-DEL consists of a general delinquency scale (22 items) and three additional items, which compose a property damage subscale. The general delinquency scale contains seven subscales: felony assault (3 items), minor assault (3 items), robbery (3 items), felony theft (3 items), minor theft (3 items), illegal services (3 items), and index offenses (9 items) (Dunford & Elliott, 1984).

Huizinga and Elliott (1986) stated that there was no reason to assume that since one individual engaged in a particular type of delinquent act that he/she would likely engage in other types of delinquent behaviors. Based on this assumption, Huizinga and Elliott have suggested that split-half and other internal consistency measures of reliability are inappropriate for self-report delinquency scales. Therefore, test-retest reliability has been proposed to be the best method for measuring reliability for delinquency scales. Test-retest

data on 177 adolescents over a four-week period resulted in a correlation of .75 for the general delinquency scale (Huizinga & Elliott, 1986).

The NYS-DEL has adequate face validity since the items are based on offenses reported in the Uniform Crime Report. The criterion validity of the NYS-DEL has been established in prior studies utilizing the NYS sample. A records check of police records of the towns, cities, and jurisdictions in a 10 mile radius of each adolescents' home was performed to validate their self-report responses. Record checks were conducted on 1452 adolescents, resulting in 126 youth that had been arrested a total of 276 times. Utilizing a broad match criteria, 216 (78%) of all arrests were matched with endorsed self-report items (Huizinga & Elliott, 1986).

For the current study, the NYS-DEL was modified to assess delinquent behavior in the past six months. Items that originally asked respondents about behaviors during the past year where changed to ask about behaviors during the past six months. This modification was made so that all peer and problem behavior variables assessed behavior over the same time frame. Since this change decreased the respondents' time frame for recall, it was thought that the reliability of the NYS-DEL was not reduced.

National Youth Survey-Peer Delinquency Scale (NYS-PD). Adolescents' level of peer delinquency was measured by the NYS-PD. The NYS-PD (Elliott, Huizinga, Menard, 1989) consists of a 10-item, self-report scale which assesses the proportion of friends who have committed a variety of delinquent acts during the past year. Each item is based on a five-point Likert scale with the respondent indicating what proportion of friends have engaged in the delinquent act, (i.e., "all of them, most of them, some of them, very few of them, or none of them"). For example, adolescents were asked to rate how many of their friends in the past six months have engaged in behaviors such as, "purposely damaged or destroyed property that did not belong to them" and "hit or threatened to hit someone

without any reason." Additionally, the NYS-PD consists of a 3-item peer involvement scale. These three items assess "on average" the number of weekday afternoons and evenings per week, the adolescent has spent with his/her friends the past year, and how much time the adolescent spent with his/her friends during the weekends the past year.

Item content of the NYS-PD was based on the development of the NYS-DEL. Although there are fewer items on the NYS-PD than the NYS-DEL, items on the NYS-PD are parallel to specific items on the NYS-DEL. Research on the NYS sample found Cronbach's alpha of .79 for the peer delinquency subscale and .76 for the peer involvement subscale, indicating sufficient reliability (Elliott, 1999). Previous research with a large Job Corps sample (Gillaspy, 2002) utilizing the NYS-PD found an internal consistency coefficient of α = .89 for the peer delinquency subscale and α = .88 for the peer involvement subscale.

For the current study, the NYS-PD was modified to assess the adolescent's level of peer delinquency in the past six months. Items that originally asked respondents the proportion of friends who have committed a variety of delinquent acts during the past year where changed to ask about behaviors during the past six months. This modification was made so that all peer and problem behavior variables assessed behavior over the same timeframe. Reliability analyses for the current study revealed an internal consistency coefficient of α = .92 for the peer delinquency scale and α = .82 for the peer involvement scale.

Inventory of Parent and Peer Attachment (IPPA). Adolescents' attachment to their peers was assessed with the peer section of the IPPA. The peer section of the IPPA (Armsden & Greenberg, 1987) is a 25-item, self-report measure that assesses the quality of peer attachment in adolescents. Adolescents are asked to rate questions, such as "Talking over problems with friends makes me feel ashamed," "When we discuss things, my friends care about my point of view," and "If my friends know something is bothering me, they ask

me about it." The adolescent responds to each item by choosing a response category of, "never or almost never, seldom, sometimes, often, almost always, or always." The IPPA was constructed based on the theory that trust, accessibility, and responsiveness of the attachment figure represent internalized attachment (Armsden & Greenberg, 1987). The IPPA peer section provides these three peer attachment subscale scores. The overall attachment scale is derived by summing response values across subscales (trust, alienation, and communication). For the current study, the total peer attachment score was examined.

Armsden and Greenberg (1987) found the IPPA to have good test-retest reliability over a three-week time frame for adolescents between the ages of 18 and 20 years of age. Peer attachment test-retest reliability was .86 and internal consistency was also strong (Cronbach's alpha of .92). Previous research with a Job Corps sample utilizing the IPPA revealed an internal consistency coefficient of α = .91 for peer attachment (Gillaspy, 2002). The validity of the IPPA has been demonstrated across several domains. Peer attachment scores were found to be moderately to highly correlated to scores on the Tennessee Self Concept Scale and to subscales on the Family Environment Scale in a sample of adolescents (Armsden & Greenberg, 1987). Additionally, Marcus and Betzer (1996) demonstrated that attachment to best friend was negatively correlated with antisocial behavior.

To insure that adolescents used the same peer reference group while completing the NYS-PD and IPPA, the instructions were modified. The following sentence was added, "You have already answered some questions about your friends' behavior, please think of those same friends when you answer the following questions." Reliability analyses for the current study revealed an internal consistency coefficient of α = .88 for the peer attachment scale.

Scale of Sexual Risk-Taking (SSRT). Adolescent/young adults' level of sexual risk-taking was assessed with the SSRT. The SSRT (Metzler et al., 1992) is a 13-item, self-report measure that assesses overall sexual behavior that puts one at risk for sexually transmitted diseases and unintended pregnancy. The development of the SSRT involved three stages. Based on the research literature on HIV, items were first developed that placed youth at high and moderate risk. Second, two principal components analyses were performed to determine factors that represented high and moderate risk behaviors. Lastly, the 13 variables with loadings of at least .40 on the two principal component analyses were averaged into a composite sexual risk-taking score, with high-risk items receiving twice the weight as low-risk items (Metzler et al., 1992). The normative sample consisted of 240 adolescent volunteers from a community sample and 640 adolescents recruited through an HMO organization to participate in a smoking cessation program. The construct validity of the SSRT was supported with significant positive correlations found between total SSRT score and other problem behavior scales: alcohol use, marijuana use, cigarette use, antisocial behavior, and academic failure. Additionally, Cronbach's alpha was .68 for the total SSRT score in the initial validation study (Metzler et al., 1992).

In the initial version of the SSRT, three items were administered in a yes/no format, three items were administered in an open-ended format with the respondent indicating the number of times he/she had engaged in a certain behavior, two items were administered in a 4-point Likert scale format, and five items were administered in a 5-point Likert scale format. Eight SSRT items are identified as posing a "high risk" and the remaining five items are identified as posing "medium risk." The SSRT is scored in four steps. First, SSRT items are standardized by computing z-scores and then weighted, unit-weighting for "medium risk" items and double weighting for "high risk" items. Lastly, SSRT item z-scores are then summed and averaged, resulting in a total SSRT mean score.

For the current study, the SSRT was modified to assess sexual risk-taking during the past six months. Items that originally asked respondents about behaviors during the past year where changed to ask about behaviors during the past six months. This modification was made so that all peer and problem behavior variables assessed behavior over the same time frame. Additionally, item response formats have been revised based on recent research with the SSRT (Metzler, Biglan, Noell, Ary, & Ochs, 2000). This revision resulted in a change of formatting for the open-ended questions. Specifically, those items are now administered with a Likert scale format. Reliability analyses for the current study revealed an internal consistency coefficient of α = .79 for the SSRT.

Simple Screening Instrument (SSI). Marijuana abuse symptoms were assessed with the SSI. The SSI (Center for Substance Abuse Treatment, 1994) is a 16-item, self-report measure that assesses symptoms of alcohol and drug dependency over the past six months. The SSI was developed based on five content areas, and items to assess these areas were chosen from existing published instruments. These content areas include consumption, preoccupation and loss of control, adverse consequences, problem recognition, and tolerance and withdrawal. Fourteen of the SSI items are used in calculating a total SSI score. Each item that is positively endorsed is scored as a one and then items are summed, resulting in a total SSI score (Center for Substance Abuse Treatment, 1994).

In an evaluation of screening instruments to detect substance use disorders among prisoners, the SSI was shown to be effective in identifying substance abuse and dependence disorders (Peteres et al., 2000). Four hundred young men inmates were administered eight different substance abuse screening instruments and the Structured Clinical Interview for DSM-IV (SCID-IV), Version 2.0, Substance Abuse Disorder module. Results of this investigation revealed a test-retest reliability of .97 for the SSI. Additionally,

the SSI was determined to have effective sensitivity and specificity for identifying substance abuse and dependence disorders (Peteres et al., 2000).

For the current study, the SSI was modified to assess only marijuana use. Items that originally asked respondents about alcohol or other drugs were changed to ask about marijuana only. Although no internal reliability data has been published with the SSI, reliability analyses for the current study revealed an internal consistency coefficient of α = .83.

Marlowe-Crowne Social Desirability Scale (MCSDS-SF). Adolescents' level of social desirability was assessed with the MCSDS-SF. The MCSDS-SF (Reynolds, 1982) is a 13-item, self-report measure that assesses the level of social-desirability bias or the inclination to seek approval or avoid disapproval. Adolescents were asked to respond to statements, such as "I sometimes feel resentful when I don't get my way," "I am always courteous, even to people who are disagreeable," and "I'm always willing to admit it when I make a mistake," in a true/false format.

Items for the MCSDS-SF were chosen from the original MCSDS, with items chosen from existing personality inventories (Crowne & Marlowe, 1964). Item content was based on three criteria. Each item had to meet cultural approval, be untrue of virtually all people, and have minimal pathological indications. Based on the Kuder-Richardson formula 20, the internal consistency coefficient was found to be .88 for the original MCSDS and .76 for the MCSDS-SF. The MCSDS-SF was found to be positively correlated with the MCSDS, r = .93. Additionally, a significant positive correlation between the MCSDS-SF and the Edwards Social Desirability Scale has been demonstrated (Reynolds, 1982). Previous research with a large Job Corps sample utilizing the MCSDS revealed an internal consistency coefficient of K-R 20 = .76 for social desirability (Gillaspy, 2002). Reliability analyses for the current study revealed an internal consistency coefficient of K-R 20 = .30 for MCSDS-SF.

Procedure

Eligible participants for the current project included all adolescents in the ninth, tenth, eleventh, and twelfth grades attending two alternative high schools in the Oklahoma City Public School System. Data collection was performed in a group setting in the cafeteria of each school. The primary investigator went to each of the individual classrooms and explained the purpose of the data collection, informed students that participation was voluntary, explained the incentive for participating, and reviewed the information covered in the assent and consent forms. For participating, each student received a Wal-Mart gift card worth $5. A cover letter and consent form was distributed to each student to be taken home for their parent or legal guardian to review and sign. Students were told that the primary investigator would return in one week to administer the questionnaires to students who wished to participate and had their parents sign the consent form. A week later, all students who had completed consent forms were called to the schools' cafeterias where they signed assent forms and completed the questionnaire. The primary investigator remained in the cafeteria to answer any questions. After completion of the questionnaires, adolescents' consent and assent forms were collected and they received their gift card for participating.

The questionnaires were then entered into an Access database. To ensure data quality and accuracy, the database had built-in range checks and default values. Additionally, double data entry was performed on all data, and subsequently the two datasets were compared using the Statistical Analyses Software (SAS). Discrepancies between the two datasets were examined and corrections were made to the two datasets, further minimizing data errors and ensuring data quality.

Overview of Data Analysis

Exploratory Factor Analysis (EFA). The first hypothesis was that delinquent behavior, marijuana abuse symptoms, and sexual risk-taking would form a single-factor, that of problem behavior. An exploratory factor analysis was first conducted to determine if the constructs of delinquent behavior, marijuana abuse symptoms, and sexual risk-taking form a single-factor. A principal axis factor analysis (PAF) was conducted utilizing the total scores from the NYS-DEL, SSI, and SSRT. Total scores for the NYS-DEL, SSI, and SSRT were used instead of individual items due to the differing response formats and scoring procedures for the three measures and because of the present study's sample size.

Preliminary Analyses. Preliminary analyses were first conducted to assess for potential control variables prior to conducting the primary regression analyses. Several demographic variables constitute potential control variables, including site, age, gender, level of education, and ethnicity. Additionally, social desirability constitutes a potential control variable for two reasons. First, social desirability bias has been found to influence relationships among self-report variables, and more specifically, variables assessing socially sensitive constructs (Ballard, Crino, & Ruben, 1988; Crino, Srobada, Rubenfeld, & White, 1983; Dicken, 1963; Ganster, Hennessey, & Luthans, 1983). Second, a significant relationship between social desirability and adolescent delinquent behavior has been established by previous research (Gillaspy, 2002).

Multiple Regression Analyses. Primary analyses were then conducted after control variables were identified through preliminary analyses. The second hypothesis was that the level of peer delinquency would be associated with adolescent/young adult problem behavior (criterion variables), measured by the SSRT, SSI, and NYS-DEL. Hierarchical multiple regression analyses were conducted in order to examine whether peer delinquency is associated with adolescent/young adult problem behavior, above and beyond the influence of demographic and control variables. The third hypothesis was that the level of

peer attachment and peer delinquency would be associated with adolescent/young adult problem behaviors for young women. Hierarchical multiple regression analyses were conducted in order to determine if peer attachment (moderator variable), moderated the relationship between peer delinquency (predictor variable) and adolescent problem behavior. The fourth hypothesis was that peer involvement would moderate the relationship between peer delinquency and problem behavior for young men. Hierarchical multiple regression analyses were conducted in order to determine if peer involvement (moderator variable), moderated the relationship between peer delinquency (predictor variable) and adolescent problem behavior. Moderation analyses were conducted based on Baron and Kenny's (1986) procedures.

Sample Size

To assess for sufficient statistical power for the regression analyses, a sample size calculation was performed based on Cohen's (1988) methodology. To calculate sample size, three parameters are needed, including significance criterion (α), power (β), and expected effect size. For estimating sample size for the current study, α was set at .05, β at .80, and the expected effect size was medium. Based on these parameters for a multiple regression analysis with three independent variables, and three control variables, a sample of 97 subjects was needed for sufficient statistical power. Due to the relatively small sample size separate hierarchical regression analyses were not conducted for men and women.

CHAPTER IV

RESULTS

An average item response by site group was imputed for participants missing 10% or less of their responses on the questionnaires (N = 34). Additionally, an average item response by site group was imputed for participants missing one of the three items constituting the Peer Involvement questionnaire (N = 5). One benefit of utilizing mean imputations was to reduce any loss of sample size, thus increasing the power to detect an effect of the independent variables on the dependent variables. Secondly, by utilizing mean imputations the external validity of the sample was increased, since participants who would have been excluded due to their missing data were included in the analyses. If age was missing, participants were assigned the mean age for their grade level (N = 8). Six participants were excluded from the analyses due to large amounts of missing data (more than 10% of their responses) from one or more of their questionnaires, except for the Peer Involvement scale. Based on these adjustments, the final N for the present study was 121.

An examination of the number of reported delinquent behaviors revealed that 61% of young men and 23% of young women engaged in twelve or more delinquent behaviors during the past six months. Additionally, only 29% of the total sample reported not engaging in any delinquent behaviors during the past six months. In contrast, Gillaspy (2002) found that in the previous year, 54% of young men and 41% of young women engaged in twelve or more delinquent behaviors, and that 17% of the total sample reported not engaging in any delinquent behaviors. Analysis of participants' age of first sexual intercourse revealed a mean age of 14 for young men and 13 for young women. Only fifteen percent of the total

sample reported that they had never had sexual intercourse. An examination of participants' reported marijuana use indicated that, on average, young men first used marijuana at the age of 12, and young women at the age of 13. Additionally, only 29% of the total sample reported that they had never tried marijuana. As a whole, these results indicated that the young men and women who participated in the current study represented a highly delinquent sample and began engaging in sexual activity and drug experimentation at an early age.

An examination of dependent variable z scores revealed that delinquent behavior (NYS-DEL), marijuana abuse symptoms (SSI), and sexual risk-taking (SSRT) were significantly skewed (NYS-DEL z score = 20.72, SSI = 7.67, and SSRT = 10.85) and their distributions were reverse J-shaped (Tabachnick & Fidell, 2001). Rummel (1970) recommends the log 10 transformation for distributions demonstrating the reverse J-shape. Rummel suggests that transforming such data serves two purposes. First, it maximizes the fit of the data to the mathematical assumptions underlying the analytic technique. Second, it minimizes distorted interpretation based on chance, unique or unrepresentative variance in a data matrix. Therefore, a log 10 transformation was computed and the transformed variables (NYS-DEL z score = .97, SSI = 2.22, and SSRT = 2.62) were used for all analyses. All continuous peer variables (peer delinquency, attachment, and involvement) were centered (i.e., the mean was subtracted from each score) for ease of interpreting the regression outcomes and to reduce multicollinearity in the moderational hypothesis tests (Aiken & West, 1991).

Exploratory Factor Analysis (EFA)

Hypothesis One. *Adolescent*/young adult delinquent behavior, marijuana abuse symptoms, and sexual risk-taking behavior form a single factor of problem behavior. First, zero-order correlations were computed to initially examine the relationships between marijuana use, delinquent behavior, and sexual-risk-taking. As shown in Table III, zero-order correlations revealed statistically significant relationships between marijuana abuse symptoms and delinquent behavior (r = .358, p < .001) and sexual risk-taking (r = .201, p < .05). A statistically significant correlation was not found between delinquent behavior and sexual risk-taking (r = .090, p = .328). To determine if delinquent behavior, marijuana abuse symptoms, and sexual-risk-taking represented a single problem behavior factor, exploratory factor analysis was conducted using principal axis factoring (PAF) to factor the total scores of the three measures, the NYS-DEL , SSI, and SSRT. Three factors were initially extracted with the following eigenvalues: factor 1 = 1.45, factor 2 = .924, and factor 3 = .623. Although only one factor had an eigenvalue greater than 1, examination of the scree plot (see Figure 1) and factor pattern coefficients (NYS-DEL = .44, SSI = .80, and SSRT = .241) indicated that a one factor solution did not adequately represent the data. Additionally, when the three factors were forced into the model a one factor solution was not revealed. Since delinquent behavior, marijuana abuse symptoms, and sexual-risk-taking were not found to represent a single factor, these constructs were analyzed separately in all further analyses.

Preliminary Analyses for Subsequent Analyses

Preliminary analyses were first conducted to identify the relationship of potential control variables to the primary variables of interest. See Table IV for means and standard deviations of study variables. Four MANOVAS were conducted to examine the mean differences in marijuana abuse symptoms, delinquent behavior, sexual risk-taking behavior, peer delinquency, peer involvement, and peer attachment by site group, gender, level of

education, and ethnicity. Statistically significant differences were identified for marijuana abuse symptoms, (F (2,120) = 7.736, p < .001), delinquent behavior, (F (2,120) = 12.942, p < .001), peer delinquency, (F (2,120) = 3.882, p < .05), and peer involvement, (F (2,120) = 16.480, p < .001), as a function of site group. Bonferroni's post-hoc analyses revealed statistically significant site group differences between groups one and two for marijuana abuse symptoms, delinquent behavior, and peer involvement, and statistically significant site group differences between groups one and three for marijuana abuse symptoms, delinquent behavior, peer delinquency, and peer involvement. No statistically significant site group differences were found between groups two and three. These results demonstrated that participants from group one endorsed fewer marijuana abuse symptoms and less delinquent behavior, and lower levels of peer delinquency and peer involvement when compared to groups two and three. Based on the results of the post-hoc analyses, groups two and three were collapsed for all further analyses.

Statistically significant differences were identified for marijuana abuse symptoms, (F (1,120) = 11.367, p < .001), delinquent behavior, (F (1,120) = 10.451, p < .01), sexual risk-taking behavior, (F (1,120) = 14.827, p < .001), peer delinquency, (F (1,120) = 20.070, p < .001), peer involvement, (F (1,120) = 9.530, p < .01), and peer attachment, (F (1,120) = 5.288, p < .05), as a function of participants gender. These results demonstrated that young women endorsed fewer marijuana abuse symptoms, less delinquent behavior, less sexual risk-taking behavior, lower levels of peer delinquency and peer involvement, and higher levels of peer attachment when compared to young men.

No statistically significant differences were identified for marijuana abuse symptoms, delinquent behavior, sexual risk-taking behavior, peer delinquency, peer involvement, and peer attachment, as a function of participants' reported ethnicity. A statistically significant difference was identified for peer involvement, (F (3,120) = 3.867, p < .05), as a function of participants' level of achieved education. Bonferroni's post-hoc analyses revealed

statistically significant differences between participants who had only completed the eight grade and participants who had completed the ninth, tenth, and eleventh grades. No statistically significant differences were found between participants who had completed the ninth, tenth, and eleventh grades.

Zero-order correlations were computed to determine the relationships of age, social desirability, peer delinquency, peer involvement, and peer attachment to marijuana abuse symptoms, delinquent behavior, and sexual-risk-taking behavior. Zero-order correlations revealed statistically significant relationships between marijuana abuse symptoms and peer involvement (r = .439, p < .001), peer delinquency (r = .439, p < .001), and peer attachment (r = -.209, p < .05). Zero-order correlations revealed statistically significant relationships between delinquent behavior and peer involvement (r = .428, p < .001), peer delinquency (r = .360, p < .001), and social desirability (r = -.229, p < .05). Zero-order correlations revealed statistically significant relationships between sexual risk-taking behavior and peer delinquency (r = .406, p < .001) and peer attachment (r = -.215, p < .05). Additionally, statistically significant zero-order correlations were found between peer delinquency and peer involvement(r = .366, p < .001), peer attachment (r = -.298, p < .001), and social desirability (r = -.208, p < .05). Zero-order correlations did not reveal a statistically significant relationship between participants' age and any of the study variables. Based on the preliminary analyses, participants' site group, gender, and social desirability were controlled for in the hierarchical regression analyses.

Multiple Regression Analyses

Hypothesis Two. Adolescent/young adults' level of peer delinquency would be associated with adolescent/young adult problem behavior, as measured by the NYS-DEL,

SSI, and SSRT. Hierarchical regression equations were constructed to test the independent contribution of peer delinquency to the observed variance of each of the problem behaviors, after controlling for participants' group, gender, and social desirability. A hierarchical regression equation was calculated for each of the problem behavior variables (delinquent behavior, marijuana abuse symptoms, and sexual risk-taking). For all three regression equations, participants' group, gender, and social desirability were entered on block 1 and peer delinquency was entered on block 2. For regression 1, results indicated that peer delinquency was a significant predictor of delinquent behavior (β = .241, p < .01) after controlling for participants' group, gender, and social desirability (see Table V). The regression equation predicted a total of 26% of the variance in delinquent behavior. For regression 1, participants' group (β = -.321, p < .001), social desirability (β = -.209, p < .01), and peer delinquency (β = .241, p < .01) were statistically significant predictors of delinquent behavior. Thus, lower levels of social desirability, being from site 2 or 3, and having higher levels of peer delinquency were independently associated with greater delinquent behavior.

The regression equation predicting marijuana abuse symptoms indicated that peer delinquency was a significant predictor of marijuana abuse symptoms (β = .352, p < .001) after controlling for participants' group, gender, and social desirability (see Table VI). The regression equation predicted a total of 26% of the variance in marijuana abuse symptoms. Participants' group (β = -.263, p < .01) was also a significant predictor of marijuana abuse symptoms. Thus, being from site 2 or 3 and having higher levels of peer delinquency were associated with greater marijuana abuse symptoms.

Results indicated that for the regression equation predicting sexual risk taking behavior, peer delinquency was a significantly predictor (β = .339, p < .001) after controlling for participants' group, gender, and social desirability (see Table VII). The regression equation predicted a total of 28% of the variance in sexual risk-taking behavior; participants' group (β = .288, p < .001) and gender (β = .448, p < .01) were also significant independent

predictors of sexual risk-taking behavior. Thus, participants being a young man, being from site 2 or 3, and having higher levels of peer delinquency were associated with greater sexual risk-taking behavior.

Hypothesis Three. Higher levels of peer attachment and peer delinquency would be associated with adolescent/young adult problem behavior, as measured by the NYS-DEL, SSI, and SSRT. Hierarchical multiple regression analyses were conducted in order to determine if there was a main effect for peer attachment and peer delinquency for adolescent problem behaviors. Separate hierarchical regression equations were calculated for each of the problem behavior variables (delinquent behavior, marijuana abuse symptoms, and sexual risk-taking). Participants' group, gender, and social desirability were entered on block 1, peer delinquency and peer attachment were entered on block 2, and the interaction term (peer delinquency x peer attachment) was entered on block 3. Based on Barron and Kenny's (1986) methodology, statistically significant moderation exists if the centered interaction term (peer delinquency x peer attachment) is statistically significant.

For delinquent behavior, a total of 27% of the variance was predicted for the entire model (see Table VIII). Moderation analyses revealed that the centered interaction term was not statistically significant, (β = .113, p = .175). Additionally, peer attachment (β = .058, p = .512) did not function as a statistically significant predictor of delinquent behavior. Thus, peer attachment was not found to statistically moderate the relationship between peer delinquency and delinquent behavior, nor was it found to function as a predictor of delinquent behavior.

For marijuana abuse symptoms, a total of 27% of the variance was predicted for the entire model (see Table IX). Main effect analyses revealed that peer attachment (β = -.091, p = .298) did not function as a predictor of marijuana abuse symptoms. Additionally, results revealed that the centered interaction term was not statistically significant, (β = -.014, p =

.866). Again, peer attachment was not found to statistically moderate the relationship between peer delinquency and marijuana abuse symptoms and was not an predictor of marijuana abuse symptoms.

For sexual risk-taking behavior, a total of 28% of the variance was predicted for the entire model (see Table I0). Main effect analyses revealed that peer attachment (β = -.038, p = .664) did not function as a predictor of sexual risk-taking. Additionally, the centered interaction term was not statistically significant, (β = .015, p = .854). As with delinquent behavior and marijuana abuse symptoms, peer attachment was not found to statistically moderate the relationship between peer delinquency and sexual risk-taking and was not a predictor of sexual risk-taking.

Hypothesis Four. Adolescents/young adults' level of peer involvement would moderate the relationship between peer delinquency and problem behavior, as measured by the NYS-DEL, SSI, and SSRT. Hierarchical multiple regression analyses were conducted in order to determine if peer involvement moderated the relationship between peer delinquency and adolescent problem behaviors. Separate hierarchical regression equations were calculated for each of the problem behavior variables (delinquent behavior, marijuana abuse symptoms, and sexual risk-taking). Participants' group, gender, and social desirability were entered on block 1, peer delinquency and peer involvement were entered on block 2, and the interaction term (peer delinquency x peer involvement) was entered on block 3. Based on Barron and Kenny's (1986) methodology, statistically significant moderation exists if the centered interaction (peer delinquency x peer involvement) term is statistically significant.

For delinquent behavior, a total of 31% of the variance was predicted for the entire model (see Table I1). Moderation analyses revealed that the centered interaction term was not significant, (β = .098, p = .234). Peer involvement (β = .248, p < .01) was a significant

predictor of delinquent behavior, but peer delinquency (β = .170, p = .06) was not a significant predictor. Thus, peer involvement was not found to moderate the relationship between peer delinquency and delinquent behavior, however peer involvement was a statistically significant predictor of delinquent behavior. Specifically, the introduction of peer involvement into the regression equation reduced the association between peer delinquency and delinquent behavior. Thus, having greater peer involvement was associated with higher levels of delinquent behavior.

For marijuana abuse symptoms, a total of 32% of the variance was predicted for the entire model (see Table I2). Moderation analyses revealed that the centered interaction term was not statistically significant, (β = .092, p = .259). For this equation, peer delinquency (β = .279, p < .005) and peer involvement (β = .255, p < .01) were both significant predictors. Although, peer involvement was not found to moderate the relationship between peer delinquency and marijuana abuse symptoms, both peer delinquency and peer involvement were significant predictors of marijuana abuse symptoms. Thus, having higher levels of peer delinquency and greater peer involvement were independently associated with greater marijuana abuse symptoms.

For sexual risk-taking behavior, a total of 31% of the variance was predicted for the entire model (see Table I3). Moderation analyses revealed that the centered interaction term was statistically significant, (β = .164, p < .05). Additionally, peer delinquency (β = .326, p < .001) was also a statistically significant predictor. Thus, peer involvement moderated the relationship between peer delinquency and sexual risk-taking, and a statistically significant peer delinquency main effect was revealed. A graphical examination of peer involvement at the mean, one standard deviation above the mean, and one standard deviation below the mean revealed that increased peer involvement serves to strengthen the positive relationship between peer delinquency and sexual risk-taking (see Figure 2). Thus, higher levels of peer delinquency and peer involvement were associated with greater

sexual risk-taking, and for youth with higher levels of peer involvement, the relationship between levels of peer delinquency and sexual risk-taking was strongly associated.

CHAPTER V

DISCUSSION

The present study first sought to replicate and extend the findings of past research focusing on problem behavior. The first hypothesis was that adolescent/young adult delinquent behavior, marijuana abuse symptoms, and sexual risk-taking behavior would form a single factor of problem behavior. Specifically, a positive relationship between these three constructs was expected. Youth engaging in a high frequency of delinquent behaviors were expected to also engage in problematic marijuana use, and in greater sexual risk-taking behavior. This hypothesis was based on Jessor and Jessor's (1977) problem behavior theory.

The second aim of the present study was to examine the effects of peer delinquency, peer attachment, and peer involvement on problem behavior. The study's second hypothesis was that peer delinquency would be associated with adolescent/young adult problem behavior. This hypothesis was based on Jessor and Jessor's problem behavior theory (1977), Oetting and Donnermyer's primary socialization theory (1998), and previous research conducted by Gillaspy (2002). A positive relationship between these two variables was expected. Specifically, having a greater proportion of delinquent peers would be associated with a larger magnitude of problem behavior.

The third hypothesis was that the level of peer attachment and peer delinquency would be associated with adolescent/young adult problem behavior. Specifically, having a greater proportion of delinquent peers and a greater peer attachment would be associated with higher levels of problem behavior. The fourth hypothesis was that the level of peer

involvement would moderate the relationship between peer delinquency and problem behavior. Specifically, the association between having delinquent peers and engaging in problem behavior would be increased by greater involvement with delinquent peers. Hypotheses three and four were based on the integration of Hirschi's control theory, Oetting and Donnermyer's primary socialization theory, and previous findings of Gillaspy (2002). Due to the study's relatively small sample size separate analyses for young men and women were not conducted for hypotheses three and four.

Notably, results did not support the predicted relationship stated in hypothesis one. Although marijuana abuse symptoms were significantly correlated with both delinquent behavior and sexual risk-taking behavior, sexual risk-taking behavior was not significantly correlated with delinquent behavior. Results revealed that adolescent/young adult delinquent behavior, marijuana abuse symptoms, and sexual risk-taking behavior did not form a single factor of problem behavior. The current results are inconsistent with Jessor and Jessor's (1977) theory of problem behavior, and the majority of the empirical research in this area (Ary et al., 1999; Donovan, Jessor, & Costa, 1988; Gilmore et al., 1998; Jessor et al., 1995). Although such results are incongruent with the extant literature, the finding that problem behaviors did not form a single factor has indeed been documented in two other empirical studies (Osgood et al., 1988; Williams & Ayers, 1996). The results of these two studies and the current project suggest that although problem behaviors may be significantly associated, they may not necessarily represent one syndrome. Although speculative, such differences in problem behavior factor structure may be the result of the type of at-risk youth sampled in this study compared to previous studies.

To elaborate, the current study differed from past research investigating problem behavior theory in two ways. First, past research in this area has largely sampled Caucasian adolescents (Donovan & Jessor, 1985; Donovan, Jessor, & Costa, 1988; Jessor & Jessor, 1977; Tildesley, Hops, Ary, & Andrews, 1995), mostly young men (Osgood,

Johnston, O'Malley, & Bachman, 1988), and individuals actively involved in mainstream public school settings (Donovan & Jessor, 1985; Donovan, Jessor, & Costa, 1988; Jessor & Jessor, 1977; Williams & Ayers, 1996). The fact that those participants were involved in mainstream public school settings potentially represents a significant protective factor with regard to delinquency and substance use. Additionally, the results of past research did not involve "high risk" adolescents (e.g., Donovan & Jessor, 1985; Donovan, Jessor, & Costa, 1988; Jessor & Jessor, 1977; Osgood et. al., 1988; Williams & Ayers, 1996). Thus, the sample used in the current study consisted of "high risk" adolescents of both genders, with low economic status, and included a substantial number of adolescents and young adults from multiple ethnic backgrounds. The current sample appears to be more representative of those adolescents and young adults subject to study by the FBI and the Office of Juvenile Justice and Delinquency Prevention, the National Institute of Drug Abuse, and the Centers for Disease Control, versus samples used in previous studies.

Second, past research has focused on assessment of problem behaviors with relatively few items used to measure each construct. The current study attempted to move beyond assessing the mere existence of certain problematic behaviors and assessed the severity of the behaviors. Specifically, the current study assessed marijuana abuse symptoms versus simple endorsement of marijuana use, and assessed multiple sexual risk-taking behaviors versus number of sexual partners or frequency of sexual intercourse. Thus, the outcome measures in the current study assessed the problem behaviors with more specificity than previous research. This difference in measure specificity could have resulted in the assessment of behaviors at a different developmental stage. If engagement in problem behaviors is viewed developmentally, first youth would simply engage in the behaviors and then a smaller proportion of these youth would be expected to then engage in these behaviors at a problematic level. Thus, a youth that engages in a delinquent act or uses marijuana may not develop into a delinquent youth or abuse marijuana. Based on

problem behavior theory, if an individual engages in delinquent behavior, that individual is more likely to engage in a broader spectrum of behaviors such as drug use and sexual activity. However, based on the current results, if an individual engages in one of these behaviors at a problematic level, it may not be prudent to expect that individual to engage in other behaviors at problematic levels.

The second hypothesis, which predicted that the level of peer delinquency would be associated with problem behavior, was supported. Peer delinquency was significantly associated with delinquent behavior, marijuana abuse symptoms, and sexual risk-taking behavior after controlling for site group, gender, and social desirability. Specifically, greater peer delinquency was associated with a greater number of self-reported delinquent behaviors, marijuana abuse symptoms, and sexual risk-taking behavior. These results are consistent with Oetting and Donnermyer's primary socialization theory and Jessor and Jessor's problem behavior theory, as well as past empirical research in the area of delinquent behavior (Agnew, 1991; Ary et al., 1999; Dishion et al., 1991; Elliot et al.,1985; Elliot & Menard, 1996; Patterson & Dishion, 1985; Synder et al., 1986; Warr, 1993), marijuana use (Brook et al., 2001; Hawkins et al., 1986; Swain, 1991; & Hawkins et al., 1992), and sexual risk-taking (Ary et al., 1999; Brewster, 1994; Metzler et al., 1994; Miller et al., 2000; Scaramella et al., 1998). Thus, peer delinquency appears to indeed be a strong and consistent predictor of delinquent behavior, marijuana abuse symptoms, and sexual risk-taking behavior. Taken together, the results add to the large body of literature that clearly identifies that associating with delinquent peers is a significant risk factor for engaging in multiple problem behaviors.

The third hypothesis, which predicted that higher levels of peer delinquency and peer attachment would be associated with adolescent/young adult problem behavior, was not supported. Higher levels of peer attachment were not found to be associated with greater delinquent behavior, marijuana abuse symptoms, or sexual risk-taking behavior. Also, peer

attachment was not found to moderate the relationship between peer delinquency and the three problem behaviors. Specifically, a peer attachment main effect was not found, and peer attachment did not act to significantly increase or decrease the association between peer delinquency and the problem behaviors.

Such findings are in contrast with Hirschi's control theory and the findings of Gillaspy (2002) and Agnew (1991). However, when researchers have investigated the interpersonal relationships between delinquent peers and adolescent delinquency, the results have been inconsistent (Colvin & Pauly, 1983; Conger, 1976; Elliot et al., 1985; Elliot & Voss, 1974; Erickson & Empey, 1965; Hindelang, 1973; Johnson, 1979; Linden & Hackler, 1973; Massey & Krohn, 1986). Additionally, previous research investigating peer attachment and marijuana use (Bailey & Hubbard, 1990; Engels & ter Bogt, 2001) found that the significant relationship between peer attachment and marijuana use significantly decreased when peer delinquency was examined. Therefore, the results again suggest that peer delinquency is not only a significant predictor of problem behaviors, but may be a more powerful predictor when compared with peer attachment.

It should also be noted that due to the sample size, analyses could not be conducted for each gender in the current study. Gillaspy's (2002) finding of a peer attachment main effect was consistent with Agnew's (1991) findings of a positive association between peer attachment and delinquent behavior. However, Gillaspy's peer attachment main effect was only found for young women. Therefore, it should be taken into account that the current study did not provide an opportunity to specifically replicate Gillaspy's analyses.

Results from the current study did reveal that on average, young women had significantly higher peer attachment scores than young men. This finding is consistent with Gillaspy (2002) and previous peer attachment research (Armsden & Greenberg, 1987; Raja et al., 1992). Researchers have attempted to explain this finding, citing gender differences in moral/psychosocial development. Raja et al. (1992) specifically cited Gilligan's (1982)

assumptions that “women are oriented toward attachment and “connectedness” to others, whereas men are oriented toward individuation and “separatedness” from others” (Colby & Damon, 1983, p. 474). This would suggest that interpersonal peer relationships do differ in regard to gender and may lead to differential gender effects. Thus, from the perspective of future attachment research, investigators should continue to explore possible gender differences.

The fourth hypothesis, which predicted that the level of peer involvement would moderate the relationship between peer delinquency and adolescent/young adult problem behavior, was partially supported. Specifically, peer involvement was found to moderate the relationship between peer delinquency and sexual risk-taking behavior. Notably, peer involvement influenced the relationship between peer delinquency and sexual risk-taking behavior after controlling for site group, gender, and social desirability. Specifically, higher levels of peer involvement served to significantly increase the strength of the association between greater peer delinquency and greater sexual risk-taking. Additionally, a significant peer delinquency main effect was observed. Greater peer delinquency was associated with greater sexual risk-taking directly as a main effect and indirectly by interacting with peer involvement. Taken together, the results indicate that both peer delinquency and peer involvement contribute to sexual risk-taking behavior. For adolescent/young adults, having delinquent peers places one at risk for engaging in sexual risk-taking behaviors, and having a greater level of involvement with delinquent peers serves to increase the risk of engaging in sexual risk-taking behaviors.

Peer involvement did not significantly influence the relationship between peer delinquency and delinquent behavior or marijuana abuse symptoms. Specifically, peer involvement did not act to significantly increase or decrease the strength of the association between peer delinquency and delinquent behavior or marijuana abuse symptoms. Although a moderation effect for peer involvement was not supported for delinquent

behavior and marijuana abuse symptoms, a significant peer involvement main effect was revealed. Results indicated that peer involvement was significantly associated with delinquent behavior. Specifically, greater peer involvement was associated with greater delinquent behavior. This finding is consistent with previous research (Brownfield & Thompson, 1991; Pabon et al., 1992; Gillaspy, 2002). Interestingly, when peer involvement and peer delinquency were entered together as predictors, peer delinquency no longer functioned as a significant predictor of delinquent behavior. For marijuana abuse symptoms, results revealed significant main effects for both peer delinquency and peer involvement. Specifically, having higher levels of peer delinquency and greater peer involvement were associated with greater marijuana abuse symptoms.

The results suggest that greater peer involvement, no matter what the level of peer delinquency, serves as a significant risk factor for youth engaging in delinquent behavior and marijuana abuse. Since peer involvement operates independently of peer delinquency, how does peer involvement exert this influence? It is hypothesized that greater peer involvement can be equated with greater opportunity or freedom to engage in problem behaviors, which may result from a lack of parental supervision or adult monitoring. Adolescents' lack of parental supervision or adult monitoring has repeatedly been identified as a risk factor for problem behaviors such as delinquency (Oetting & Donnermyer, 1998) and drug use (Petraitis, Flay, & Miller, 1995). Therefore, peer involvement may mediate the relationship between parental supervision and problem behaviors.

Although peer involvement did not function as a moderator with regard to delinquent behavior and marijuana abuse symptoms, it does appear to be an important predictor of these two problem behaviors. Additionally, peer involvement appears to be a stronger predictor of delinquent behavior than peer delinquency. Taken together, the results suggest that peer involvement plays an important role in directly predicting delinquent behavior and marijuana abuse symptoms, and indirectly predicting sexual risk-taking through peer

involvement. If peer involvement does represent diminished parental supervision/adult monitoring, increasing adolescent/young adults amount of structured and supervised time with peers would appear to be a logical way to reduce engagement in problem behaviors.

The current study had a number of strengths and sought to address prior limitations of past problem behavior research. First, this study measured the independent and dependent variables with instruments which have established, sound psychometric properties. This is particularly relevant in regard to the assessment of peer attachment, marijuana abuse symptoms, and sexual risk-taking. This study also sought to go beyond assessing the presence of problem behaviors and attempted to assess the severity of the behaviors. Second, this study was conducted with a sample of true high-risk youth. This sample consisted of low socio economic status youth from an alternative high school setting. This sample was also representative of both genders and was diverse in regards to ethnicity. Third, this study was the first to examine the interactive effects of peer attachment, peer delinquency, and peer involvement, while insuring use of the same peer reference group.

Although the present findings are notable, a number of limitations do exist. First, all of the independent and dependent variables were measured via self-report. This not only raises the potential problem of method variance, but also the validity of participants' responses. Unfortunately, independent verification of participants' problem behavior and association with delinquent peers was not possible. Second, although the number of participants was adequate to perform a factor analysis of the three criterion variables total score, a much larger sample size would have allowed for a factor analysis of each of the three criterion variables individual items. Third, although the total number of participants was adequate to detect changes in the dependent variable as a function of the independent variable, a larger sample size would have allowed for increased power and the ability to conduct separate analyses for each gender. Fourth, this study was cross-sectional in nature

and only represents a single measure of the variables in question. Therefore, the results can only reveal the current relationship between the study variables and cannot speak to the possible developmental relationship between peer attachment, peer delinquency, and peer involvement and problem behaviors.

In conclusion, the present study revealed several important findings. First, with this sample of high risk youth, delinquent behavior, marijuana abuse symptoms, and sexual risk-taking did not form a single problem behavior factor. This finding contradicts much of the literature on problem behavior theory and serves to strengthen a small but consistent body of research. This body of research suggests that although problem behaviors may be significantly associated, they may not always represent one syndrome, and that differences in problem behavior factor structure may be the result of different types of at-risk youth samples. Second, peer delinquency was found to be a strong predictor of delinquent behavior, marijuana abuse symptoms, and sexual risk-taking for adolescent/young adults. This finding is consistent with previous cross-sectional and longitudinal research investigating the effects of peer delinquency. Third, support was not found for an association between peer attachment and adolescent/young adult delinquent behavior, marijuana abuse symptoms, and sexual risk-taking. Fourth, peer involvement was found to moderate the relationship between peer delinquency and sexual risk-taking. Lastly, peer involvement was not found to moderate the relationship between peer delinquency and delinquent behavior or marijuana abuse symptoms, but was found to be a significant predictor of delinquent behavior and marijuana abuse symptoms.

The findings of the present research have several potential implications for the development of adolescent/young adult intervention and prevention strategies. First, although delinquent behavior, marijuana abuse symptoms, and sexual risk-taking did not form a single factor, marijuana abuse symptoms was significantly correlated with delinquent behavior and sexual risk-taking. Therefore, when working with adolescent/young adults, it

still seems appropriate to view the identification of one problem behavior as a sign that the individual may be a risk for engaging in other problem behaviors. Second, the results of the present study serve to underscore the important role peers play in problem behaviors, and to reinforce the fact that adolescent/young adult peer associations must be factored into any intervention or prevention equation. Third, it appears that appropriate first step strategies should be to focus on decreasing the amount of involvement with delinquent peers, increasing the amount of parental supervision or adult monitoring, and increasing involvement with nondelinquent peers.

Given the results of past research and the current study's findings, more research is needed that directly examines the association between interpersonal peer constructs such as peer delinquency, attachment and involvement and their relationship to problem behaviors. A replication of the present study with a larger sample size is needed. Replication would strengthen the results and suggest that a different problem behavior factor structure exists for this type of high risk sample. Also, a larger sample size would allow for separate analyses for each gender, and allow for further comparison with the results of Gillaspy (2002). Additional research should investigate whether differences exist in problem behavior factor structure due to the specificity of the assessment and the severity of the behaviors. As well, more problem behavior research is needed with high risk and ethnically diverse samples. Also, it is a common assumption that having an adolescent who engages in delinquent behaviors and has delinquent peers strengthen his/her association with non-delinquent peers will decrease his/her engagement in delinquent behaviors. Research should therefore specifically investigate the influence of peer attachment and involvement with non-delinquent peers versus peer attachment and involvement with delinquent peers on adolescent/young adult problem behaviors. Lastly, longitudinal examination of the development of delinquent interpersonal peer relations and the

association between these peer relations and problem behavior severity would also increase our current understanding of adolescent/young adult problem behavior.

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APPENDIXES

APPENDIX A: TABLES

TABLE I

DESCRIPTIVE STATISTICS

Demographic Parameters	Group 1 (n = 29)	Group 2 (n = 29)	Group 3 (n = 63)
Gender			
Men	0	13 (45%)	31 (49%)
Women	29 (100%)	16 (55%)	32 (51%)
Ethnicity			
African-American	8 (27%)	12 (41%)	54 (86%)
Caucasian	7 (24%)	1 (3%)	4 (6%)
Hispanic	13 (25%)	8 (27%)	3 (5%)
Native American	1 (3%)	4 (14%)	0
Other	0	4 (14%)	2 (3%)
Education Completed			
8^{th}	3 (10%)	0	2 (3%)
9^{th}	6 (21%)	8 (28%)	14 (22%)
10^{th}	13 (45%)	9 (31%)	18 (29%)
11^{th}	7 (24%)	12 (41%)	29 (46%)

TABLE II

FAMILY STATISTICS

	Group 1 (n = 29)	Group 2 (n = 29)	Group 3 (n = 63)
Family Make-Up			
Single Parent	11 (38%)	10 (35%)	31 (49%)
Single Father	0	1 (3%)	1 (1.6%)
Both Parents	8 (28%)	6 (21%)	9 (14%)
Mother & Stepfather	3 (10%)	7 (24%)	6 (10%)
Father & Stepmother	0	2 (7%)	2 (3%)
Parents & Grandparents	0	0	2 (3%)
Parents, Grandparents, & Others	0	1 (3%)	2 (3%)
Other	7 (24%)	2 (7%)	10 (16%)
Caucasian	7 (24%)	1 (3%)	4 (6%)

TABLE III

ZERO-ORDER CORRELATIONS FOR
STUDY VARIABLES

	1	2	3	4	5	6	7
1. SSI	-						
2. NYS-DEL	.358**	-					
3. SSRT	.201*	.090	-				
4. PR-INV	.439**	.428**	.106	-			
5. PR-DEL	.439**	.360**	.406**	.366**	-		
6. PR-ATT	.209*	-.075	-.215*	.079	-.298**	-	
7. SOCDES	-.157	-.229*	-.122	-.051	-.208*	.277**	-
8. AGE	.124	-.023	.098	-.010	.051	-.056	.116

Note: SSI = Simple Screening Inventory Total Score; NYS-DEL = Delinquent Behavior Total Score; SSRT = Scale of Sexual Risk-Taking Total Score; PR-INV = Peer Involvement Scale Score; PR-DEL = Peer Delinquency Scale Score; PR-ATT = Peer Attachment Scale Score; SOCDES = Social Desirability Scale Score; Age = Age in years; *p <.05; **p <.01.

TABLE IV

DESCRIPTIVE STATISTICS FOR
STUDY VARIABLES

	Women		Men	
	M	*SD*	*M*	*SD*
Control Variables				
Social Desirability	6.83	2.17	6.48	1.86
Peer Variables				
Peer Delinquency	18.82	8.90	27.17	11.36
Peer Involvement	7.43	3.99	9.76	3.98
Peer Attachment	94.82	15.22	88.00	16.45
Problem Behavior Variables				
NYS-DEL	40.93	137.59	73.52	152.80
Transformed NYS-DEL	0.73	0.77	1.22	0.81
SSI	1.56	2.68	2.83	2.58
Transformed SSI	0.26	0.32	0.47	0.33
SSRT	-0.26	0.58	0.37	1.14
Transformed SSRT	0.24	0.13	0.35	0.18

Note: NYS-DEL = Delinquent Behavior Total Score; SSI = Simple Screening Inventory Total Score; SSRT = Scale of Sexual Risk-Taking Total Score.

TABLE V

HYPOTHESIS TWO: INFLUENCE OF PEER DELINQUENCY ON DELINQUENT BEHAVIOR
(*N* = 121)

Variables	B	*SE* B	β	R^2	R^2 Change
Block 1				.208	.208**
Site	-.618	.175	-.321**		
Gender	.223	.156	.131		
SOCDES	-.080	.033	-.209**		
Block 2				.256	.048**
PR-DEL	.019	.007	.241**		

Note: Age = SOCDES = Social Desirability Scale; PR-INV = Peer Involvement Scale; PR-ATT = Peer Attachment Scale; PR-DEL = Peer Delinquency Scale; *$p < .05$; **$p < .01$.

TABLE VI

HYPOTHESIS TWO: INFLUENCE OF PEER DELINQUENCY ON MARIJUANA ABUSE
(*N* = 121)

Variables	B	*SE* B	β	R^2	R^2 Change
Block 1				.161	.161**
Site	-.211	.075	-.263**		
Gender	.123	.067	.173		
SOCDES	-.020	.014	-.135		
Block 2				.263	.101**
PR-DEL	.011	.003	.352**		

Note: Age = SOCDES = Social Desirability Scale; PR-INV = Peer Involvement Scale; PR-ATT = Peer Attachment Scale; PR-DEL = Peer Delinquency Scale; *$p < .05$; **$p < .01$.

TABLE VII

HYPOTHESIS TWO: INFLUENCE OF PEER DELINQUENCY ON SEXUAL RISK-TAKING
(*N* = 121)

Variables	B	*SE* B	β	R^2	R^2 Change
Block 1				.188	.188**
Site	.110	.035	-.288**		
Gender	.152	.031	.448**		
SOCDES	-.007	.007	-.094		
Block 2				.282	.094**
PR-DEL	.005	.001	.339**		

Note: Age = SOCDES = Social Desirability Scale; PR-INV = Peer Involvement Scale; PR-ATT = Peer Attachment Scale; PR-DEL = Peer Delinquency Scale; *$p < .05$; **$p < .01$.

TABLE VIII

HYPOTHESIS THREE: MAIN EFFECT ANALYSIS, INFLUENCE OF PEER DELINQUENCY AND PEER ATTACHMENT ON DELINQUENT BEHAVIOR (*N* = 121)

Variables	B	*SE* B	β	R^2	R^2 Change
Block 1				.208	.208**
Site	-.618	.175	-.321**		
Gender	.223	.156	.131		
SOCDES	-.083	.033	-.209*		
Block 2				.258	.050*
PR-DEL	.019	.007	.253**		
PR-ATT	.002	.005	.058		
Block 3				.270	.012
DEL*ATT	.000	.000	.113		

Note: Age = SOCDES = Social Desirability Scale; PR-INV = Peer Involvement Scale; PR-ATT = Peer Attachment Scale; PR-DEL = Peer Delinquency Scale; DEL*ATT = Peer Delinquency * Peer Attachment Interaction Term ; *p < .05; **p < .01.

TABLE IX

HYPOTHESIS THREE: MAIN EFFECT ANALYSIS, INFLUENCE OF PEER DELINQUENCY AND PEER ATTACHMENT ON MARIJUANA ABUSE SYMPTOMS (*N* = 121)

Variables	B	*SE* B	β	R^2	R^2 Change
Block 1				.161	.161**
Site	-.211	.075	-.263**		
Gender	.123	.067	.173		
SOCDES	-.022	.014	-.135		
Block 2				.270	.108**
PR-DEL	.010	.003	.332**		
PR-ATT	-.001	.002	-.091		
Block 3				.270	.000
DEL*ATT	.000	.000	-.014		

Note: Age = SOCDES = Social Desirability Scale; PR-INV = Peer Involvement Scale; PR-ATT = Peer Attachment Scale; PR-DEL = Peer Delinquency Scale; DEL*ATT = Peer Delinquency * Peer Attachment Interaction Term ; *$p < .05$; **$p <. 01$.

TABLE X

HYPOTHESIS THREE: MAIN EFFECT ANALYSIS, INFLUENCE OF PEER DELINQUENCY AND PEER ATTACHMENT ON SEXUAL RISK-TAKING (*N* = 121)

Variables	B	*SE* B	β	R^2	R^2 Change
Block 1				.188	.188**
Site	.110	.035	.288**		
Gender	.152	.031	.448		
SOCDES	-.007	.007	-.094**		
Block 2				.284	.096**
PR-DEL	.005	.001	.331**		
PR-ATT	-.000	.001	-.038		
Block 3				.284	.000
DEL*ATT	.000	.000	.015		

Note: Age = SOCDES = Social Desirability Scale; PR-INV = Peer Involvement Scale; PR-ATT = Peer Attachment Scale; PR-DEL = Peer Delinquency Scale; DEL*ATT = Peer Delinquency * Peer Attachment Interaction Term ; *p <. 05; **p < .01.

TABLE XI

HYPOTHESIS FOUR: MODERATIONAL ANALYSIS, INFLUENCE OF PEER DELINQUENCY AND PEER INVOLVEMENT ON DELINQUENT BEHAVIOR (*N* = 121)

Variables	B	*SE* B	β	R^2	R^2 Change
Block 1				.208	.208**
Site	-.618	.175	-.321**		
Gender	.223	.156	.131		
SOCDES	-.083	.033	-.209*		
Block 2				.299	.091**
PR-DEL	.010	.007	.170		
PR-INV	.049	.018	.248**		
Block 3				.308	.009
DEL*INV	.001	.001	.098		

Note: Age = SOCDES = Social Desirability Scale; PR-INV = Peer Involvement Scale; PR-ATT = Peer Attachment Scale; PR-DEL = Peer Delinquency Scale; DEL*INV = Peer Delinquency * Peer Involvement Interaction Term ; *$p < .05$; **$p < .01$.

TABLE XII

HYPOTHESIS FOUR: MODERATIONAL ANALYSIS, INFLUENCE OF PEER DELINQUENCY AND PEER INVOLVEMENT ON MARIJUANA ABUSE SYMPTOMS
(*N* = 121)

Variables	B	*SE* B	β	R^2	R^2 Change
Block 1				.161	.161**
Site	-.211	.075	-.263**		
Gender	.123	.067	.173		
SOCDES	-.022	.014	-.135		
Block 2				.309	.148**
PR-DEL	.009	.003	.279**		
PR-INV	.021	.008	.255**		
Block 3				.317	.008
DEL*INV	.000	.001	.092		

Note: Age = SOCDES = Social Desirability Scale; PR-INV = Peer Involvement Scale; PR-ATT = Peer Attachment Scale; PR-DEL = Peer Delinquency Scale; DEL*INV = Peer Delinquency * Peer Involvement Interaction Term ; *$p < .05$; **$p < .01$.

TABLE XIII

HYPOTHESIS FOUR: MODERATIONAL ANALYSIS, INFLUENCE OF PEER DELINQUENCY AND PEER INVOLVEMENT ON SEXUAL RISK-TAKING (*N* = 121)

Variables	B	*SE* B	β	R^2	R^2 Change
Block 1				.188	.188**
Site	.110	.035	-.288**		
Gender	.152	.031	.448**		
SOCDES	-.007	.007	-.094		
Block 2				.284	.096**
PR-DEL	.005	.001	.326**		
PR-INV	.001	.004	.046		
Block 3				.308	.024*
DEL*INV	.000	.000	.164*		

Note : Age = SOCDES = Social Desirability Scale ; PR-INV = Peer Involvement Scale ; PR-ATT = Peer Attachment Scale ; PR-DEL = Peer Delinquency Scale ; DEL*INV = Peer Delinquency * Peer Involvement Interaction Term ; *$p < .05$; **$p < .01$.

APPENDIX B : FIGURES

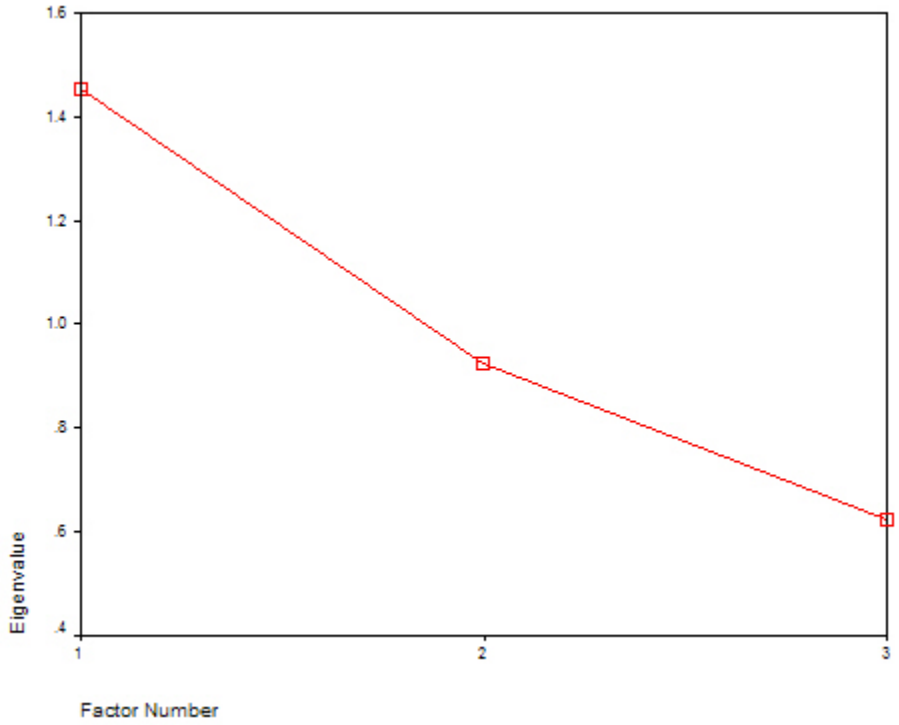

Figure 1. Three Factor Scree Plot That Resulted from Principle Axis Factoring of the Total Scores of the NYS-DEL , SSI, and SSRT.

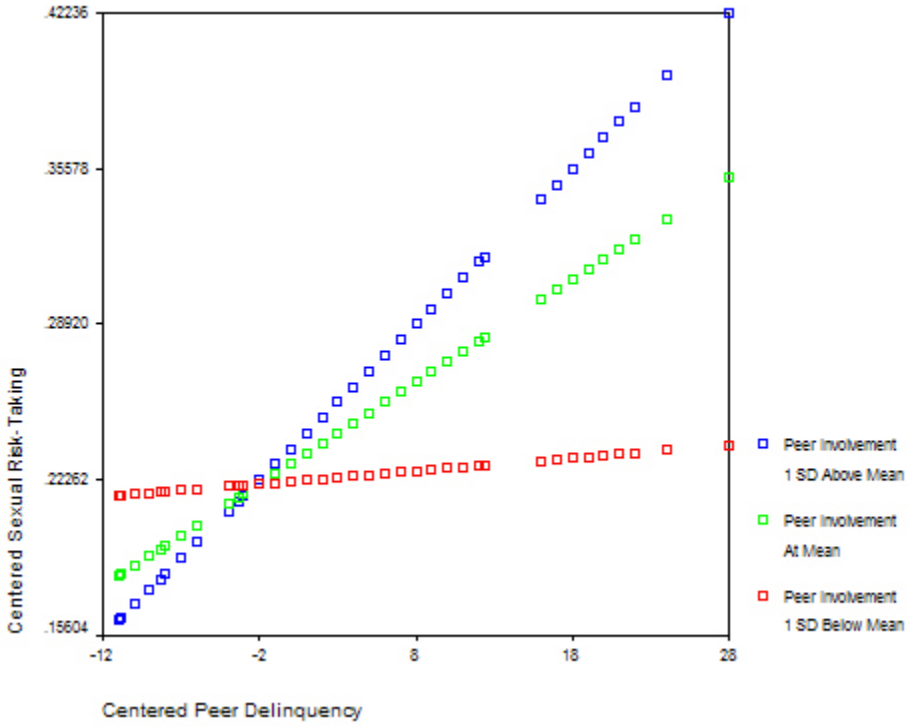

Figure 2. Moderation Plot of Peer Involvement at the Mean, One Standard Deviation Above the Mean, and One Standard Deviation Below the Mean.

APPENDIX C: MEASURES

Oklahoma State University

Form: Demographics Code #:

Today's Date: ____/____/____ Date of Birth: ____/____/____

Circle the number that best fits you and your family for the following statements and questions.

1. Your gender is : (1) Young men (0) Young women

2. Highest grade completed: 8^{th} 9^{th} 10^{th} 11^{th}

3. Ethnicity
   1) African American 3) Hispanic 5) Asian/Asian American
   2) Caucasian 4) Native American 6) Other:
   _____

4. Marital Status:
   1) Single 3) Divorced 5) Widowed
   2) Married 4) Separated

5. Do you have any children? Yes No

6. If you have kids, how many do you have? _____

7. Are you currently pregnant? Yes No

8. What is the make-up of your family household ?
   (1) single mother (2) single father
   (3) both parents (4) mother and stepfather
   (5) father and stepmother (6) parents and grandparents
   (7) parents, grandparents, and relatives (8) Other _____

9. How many children under age 18 are living in your home? _____

10. How many adults are living in your home? _____

Oklahoma State University

Form: NYS-PD Code #:

A) During the past six months, was there a particular group of friends that you ran around with or spent most of your time? **Yes** or **No**
If you answered **No,** did you have any close friends**?** **Yes** or **No**

B) During the past six months, on the average, how many weekday afternoons, Monday through Friday, from 5:00 p.m. or the end of work to dinner, have you spent with your friends?
(please circle one number) **0 1 2 3 4 5**

C) During the past six months, on the average, how many weekday evenings, Monday through Friday, from dinnertime to bedtime, have you spent with your friends?
(please circle one number) **0 1 2 3 4 5**

D) During the past six months, on the weekends, how much time have you generally spent with your friends? (please circle one)
A Great Deal **Quite A Bit** **Some** **Not Too Much** **Very Little**

E) During the past six months, did you consider yourself a member of a gang? **Yes** or **No**

Think of your friends. During the past six months, how many of them have:	**All of Them**	**Most of Them**	**Some of Them**	**Very Few Them**	**None of Them**
1) cheated at school or on their income tax?	A	B	C	D	E
2) purposely damaged or destroyed property that did not belong to them?	A	B	C	D	E
3) used marijuana or weed?	A	B	C	D	E
4) stolen something worth less than $5?	A	B	C	D	E
5) hit or threatened to hit someone without any reason?	A	B	C	D	E
6) used alcohol?	A	B	C	D	E
7) broken into a vehicle or building to steal something?	A	B	C	D	E
8) sold hard drugs such as heroin, cocaine, and LSD?	A	B	C	D	E
9) stolen something worth more than $50?	A	B	C	D	E
10) suggested you do something that is against the law?	A	B	C	D	E

Oklahoma State University

Form: IPPA-P	Code #:

This part asks about your feelings about your relationships with your friends. Please read each statement and circle the ONE number that tells how **true the statement is for you now**. You have already answered some questions about your friends' behavior. Please think about those same friends when you answer the following questions.

	Never	Seldom	Sometimes	Often	Always
1. I like to get my friend's point of view on things I'm concerned about.	1	2	3	4	5
2. My friends can tell when I'm upset about something.	1	2	3	4	5
3. When we discuss things, my friends consider my point of view.	1	2	3	4	5
4. Talking over my problems with my friends makes me feel ashamed or foolish.	1	2	3	4	5
5. I wish I had different friends.	1	2	3	4	5
6. My friends understand me.	1	2	3	4	5
7. My friends encourage me to talk about my difficulties.	1	2	3	4	5
8. My friends accept me as I am.	1	2	3	4	5
9. I feel the need to be in touch with my friends more often.	1	2	3	4	5
10. My friends don't understand what I'm going through these days.	1	2	3	4	5
11. I feel alone or apart when I am with my friends.	1	2	3	4	5
12. My friends listen to what I have to say.	1	2	3	4	5

(continued)

		Never	Seldom	Sometimes	Often	Always
13.	I feel my friends are good friends.	1	2	3	4	5
14.	My friends are fairly easy to talk to.	1	2	3	4	5
15.	When I am angry about something, my friends try to be understanding.	1	2	3	4	5
16.	My friends help me to understand myself better.	1	2	3	4	5
17.	My friends care about how I am.	1	2	3	4	5
18.	I feel angry with my friends.	1	2	3	4	5
19.	I can count on my friends when I need to get something off my chest.	1	2	3	4	5
20.	I trust my friends.	1	2	3	4	5
21.	My friends respect my feelings.	1	2	3	4	5
22.	I get upset a lot more than my friends know about.	1	2	3	4	5
23.	It seems as if my friends are irritated with me for no reason.	1	2	3	4	5
24.	I tell my friends about my problems and troubles.	1	2	3	4	5
25.	If my friends know something is bothering me, then they ask me about it.	1	2	3	4	5

Oklahoma State University

Form: MCSDS-SF Code #:

Instructions:
Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you personally.

		True	**False**
1.	It is sometimes hard for me to go on with my work if I am not encouraged.	T	F
3.	I sometimes feel resentful when I don't get my way.	T	F
4.	On a few occasions, I have given up doing something because I thought too little of my ability.	T	F
5.	There have been times when I felt like rebelling against people in authority even though I knew they were right.	T	F
5.	No matter who I'm talking to, I'm always a good listener.	T	F
6.	There have been occasions when I took advantage of someone.	T	F
7.	I'm always willing to admit it when I make a mistake.	T	F
8.	I sometimes try to get even, rather than forgive and forget.	T	F
9.	I am always courteous, even to people who are disagreeable.	T	F
10.	I have never been irked when people expressed ideas very different from my own.	T	F
11.	There have been times when I was quite jealous of the good fortune of others.	T	F
12.	I am sometimes irritated by people who ask favors of me.	T	F
13.	I have never deliberately said something that hurt someone's feelings.	T	F

Oklahoma State University

Form: NYS-DEL Code #:

Directions: Please respond to all of the following questions with an answer that best represents your own behavior. Please be sure to record an actual number for each item. Remember that your responses will be **kept completely private.**

How many times in the past six months have you:

1. purposely damaged or destroyed property belonging to your parents or other family members? _____
2. purposely damaged or destroyed property belonging to a school? _____
3. purposely damaged or destroyed other property that did not belong to you (not counting family or school property)? _____
4. stolen (or tried to steal) a motor vehicle, such as a car or a motorcycle? _____
5. stolen (or tried to steal) something worth more than $50? _____
6. knowingly bought, sold, or held stolen goods (or tried to do any of these)? _____
7. carried a hidden weapon other than a plain pocket knife? ____
8. stolen (or tried to steal) things worth $5 or less? _____
9. attacked someone with the idea of seriously hurting or killing him/her? _____
10. been paid for having sexual relations with someone? _____
11. been involved in gang fights? _____
12. sold marijuana ("pot," "grass," "hash)? _____
13. hit (or threatened to hit) a teacher or other adults? _____
14. hit (or threatened to hit) one of your parents or family members? _____
15. hit (or threatened to hit) other students or your peers? _____
16. been loud, rowdy, or unruly in a public place (disorderly conduct)? _____

(continued)

17. sold hard drugs, such as heroin, cocaine, and LSD? _____

18. taken a vehicle for a ride (drive) without the owner's permission? _____

19. had (or tried to have) sexual relations with someone against their will? _____

20. used force (strong-arm methods) to get money or things from other students or your peers? _____

21. used force (strong-arm methods) to get money or things from a teacher or other adults at school? _____

22. used force (strong-arm methods) to get money or things from other people (not students, teachers, or peers)? _____

23. stolen (or tried to steal) things worth between $5 and $50? _____

24. broken into a building or vehicle (or tried to break in) to steal something or just look around? _____

25. begged for money or things from strangers? _____

Oklahoma State University

Form: SSRT Code #:

Directions: Please respond to all of the following questions with an answer that best represents your own behavior. Remember that your responses will be **kept completely private.**

1. Have you ever had sexual intercourse with someone of the opposite sex?
   ❑ Yes ❑ No

   If your answer is NO, please go to the next section.
   If your answer is YES, please continue.

2. How old were you the first time you had sexual intercourse with someone of the opposite sex? _____years old.

3. How many times in the past 6 months did you have sex with someone of the opposite sex?

❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
0	1	2	3	4	5	6	7	8	9	10	11-20	21-40	41+

4. During the past 6 months, how many different people of the opposite sex have you had sex with?

❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
0	1	2	3	4	5	6	7	8	9	10	11-20	21-40	41+

6. In the past 6 months, how many times have you had sex with someone of the opposite sex whom you did not know very well?

❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
0	1	2	3	4	5	6	7	8	9	10	11-20	21-40	41+

6. How many opposite sex partners have you had sex with in the past 6 months who were also having sex with other people?

❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
0	1	2	3	4	5	6	7	8	9	10	11-20	21-40	41+

7. Generally, in the past 6 months, how often have you or your partner drunk alcohol immediately before or during sexual activities?
   ❑ never ❑ sometimes ❑ about half ❑ most times ❑ every time ❑ I was not sexually active

8. Generally, in the past 6 months, how often have you or your partner used marijuana or drugs (other than alcohol) immediately before or during sexual activities?
   ❑ never ❑ sometimes ❑ about half ❑ most times ❑ every time ❑ I was not sexually active

(continued)

9. How many times in the past 6 months, have you had sex with someone of the opposite sex who has ever shot (injected) IV drugs??

❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑

0 1 2 3 4 5 6 7 8 9 10 11-20 21-40 41+

10. In the past 6 months, when you had sex, how often did you use some kind of birth control?
❑ never ❑ sometimes ❑ about half ❑ most times ❑ every time ❑ I was not sexually active

11. In the past 6 months, when you had sex, how often did you or your partner(s) wear a condom (rubber)?
❑ never ❑ sometimes ❑ about half ❑ most times ❑ every time ❑ I was not sexually active

12. How many different times have you had a sexually transmitted disease such as gonorrhea (clap), syphilis, or chlamydia?
❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑
0 1 2 3 4 5 6 7 8 9 10 11-20 21-40 41+

13. How many times have you become pregnant or gotten a girl pregnant?
❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑
0 1 2 3 4 5 6 7 8 9 10 11-20 21-40 41+

Form: SSI	Code #:

Directions: The questions that follow are about your possible use of marijuana.
Your answers will be kept private. Mark the response that best fits for you. Answer the questions in terms of your experiences in the past 6 months.
Please remember that your answers will only be used for research purposes.

During the past 6 months.....

1. Have you used marijuana? ❑ Yes ❑ No

2. Have you felt that you used too much marijuana? ❑ Yes ❑ No

3. Have you tried to cut down or quit using marijuana? ❑ Yes ❑ No

4. Have you gone to anyone for help because of your marijuana use? (Such as counselors, or a treatment program.) ❑ Yes ❑ No

5. Have you had any health problems? For example, have you: (check all that apply to you)
   - ❑ Had blackouts or other periods of memory loss?
   - ❑ Injured your head after using marijuana?
   - ❑ Had convulsions or delirium tremens ("DT's")?
   - ❑ Had hepatitis or other liver problems?
   - ❑ Felt sick, shaky, or depressed when you stopped using marijuana?
   - ❑ Felt "coke bugs" or a crawling feeling under your skin after you stopped using marijuana?
   - ❑ Been injured after using marijuana?
   - ❑ Used needles to shoot drugs?

6. Has marijuana use caused problems between you and your family or friends? ❑ Yes ❑ No

7. Has your marijuana use caused problems at school or work? ❑ Yes ❑ No

8. Have you been arrested or had other legal problems? (Such as bouncing bad checks, DUI, theft, or drug possession) ❑ Yes ❑ No

9. Have you lost your temper or gotten into arguments or fights while using marijuana? ❑ Yes ❑ No

(continued)

10. Are you needing to use marijuana more and more to get the effect you want? ❑ Yes ❑ No

11. Do you spend a lot of time thinking about or trying to get marijuana? ❑ Yes ❑ No

12. When using marijuana, are you more likely to do something you wouldn't normally do, such as break rules, break the law, sell things that are important to you, or have unprotected sex with someone? ❑ Yes ❑ No

13. Do you feel bad or guilty about your marijuana use? ❑ Yes ❑ No

The next questions are about your lifetime experiences.

14. Have you <u>ever</u> had a marijuana problem? ❑ Yes ❑ No

15. Have any of your family members ever had a drinking or drug problem? ❑ Yes ❑ No

16. Do you feel that you have a marijuana problem <u>now</u>? ❑ Yes ❑ No

Oklahoma State University

Form: NYS-DU Code #:

Directions: Please respond to all of the following questions with an answer that best represents your own behavior. Remember that your responses will be **kept completely private**.

1. Have you EVER had a drink of alcohol? ❑ YES ❑ NO

2. Do you think your best friend drinks alcohol sometimes? ❑ YES ❑ NO

3. On how many DAYS have you used any alcohol in the PAST MONTH (30 days)?

   ❑ None ❑1 or 2 days ❑ 3 to 5 days ❑6 to 9 days ❑10 to 19 days ❑20 to 31 days

4. On the days you drank alcohol in the PAST MONTH, about how many drinks did you have? (By a drink, we mean a can of beer, a glass of wine, a wine cooler, or a shot of hard liquor.)

   ❑1-2 drinks ❑3-4 drinks ❑5-6 drinks ❑7-8 drinks ❑9 or more ❑ I didn't drink in that month

5. How old were you when you first tried alcohol? _____

7. How old were you when you started regularly drinking alcohol? _____

The next few questions are about MARIJUANA. (Sometimes called dope, grass, weed, pot, etc.)

8. Have you EVER TRIED marijuana? ❑ YES ❑ NO

6. Do you think your best friend uses marijuana sometimes? ❑ YES ❑ NO

9. On how many DAYS have you used any marijuana in the PAST MONTH (30 days)?

   ❑ None ❑1 or 2 days ❑ 3 to 5 days ❑6 to 9 days ❑10 to 19 days ❑20 to 31 days

10. On the days you used marijuana in the PAST MONTH, how many times did you use marijuana?

    ❑Once a day ❑Twice a day ❑ 3 or more times a day ❑ I didn't use marijuana in that month

11. How old were you when you first tried marijuana? _____ years old

12. How old were you when you started regularly using marijuana? _____ years old.

Thank You!

VITA

Stephen Ross Gillaspy

Candidate for the Degree of

Doctor of Philosophy

Dissertation: A TEST OF PROBLEM BEHAVIOR THEORY WITH HIGH-RISK ADOLESCENTS AND YOUNG ADULTS: EFFECTS OF PEER DELINQUENCY, PEER ATTACHMENT, AND PEER INVOLVEMENT

Major Field: Psychology

Biographical:

Education: Graduated from Russellville High School, Russellville, Arkansas in May, 1989; received Bachelor of Arts Degree in Psychology with Distinction from Hendrix College, Conway, Arkansas in June, 1993. Completed the requirements for Master of Science Degree at Oklahoma State University in August, 2002. Completed the requirements for Doctor of Philosophy Degree at Oklahoma State University in December, 2004.

Professional Memberships: American Psychological Association, Association for the Advancement of Behavior Therapy, Oklahoma Psychological Association.

Name: Stephen Ross Gillaspy Date of Degree: December, 2004

Institution: Oklahoma State University Location: Stillwater, Oklahoma

Title of Study: A TEST OF PROBLEM BEHAVIOR THEORY WITH HIGH-RISK ADOLESCENTS AND YOUNG ADULTS: EFFECTS OF PEER DELINQUENCY, PEER ATTACHMENT, AND PEER INVOLVEMENT

Pages in Study: 122 Candidate for the Degree Doctor of Philosophy

Major Field: Psychology

Scope and Method of Study: Utilizing the results garnered from theoretical frameworks of problem behavior theory, primary socialization theory, control theory, and attachment theory, the current study had three aims. First, the study sought to replicate the findings of past research focusing on problem behavior, specifically that delinquent behavior, marijuana use, and sexual risk-taking behavior form a single factor representing problem behavior. Second, the study examined the effects of peer delinquency on problem behavior. Third, this study examined gender differences with regard to the influence of peer delinquency, peer involvement, and peer attachment on adolescent problem behavior. One hundred twenty-one adolescents participated by completing a demographics questionnaire, the National Youth Survey-Peer Delinquency Scale (NYS-PD), the National Youth Survey-Delinquency Scale (NYS-DEL), The Inventory of Parent and Peer Attachment (IPPA), the Scale of Sexual Risk-Taking (SSRT), the Simple Screening Instrument (SSI), and the Marlow-Crowne Social Desirability Scale (MCSDS-SF). A series of Hierarchical multiple regression analyzes was used to examine the hypotheses of this study.

Findings and Conclusions: The present study revealed several important findings. First, with a sample of high risk youth, delinquent behavior, marijuana abuse symptoms, and sexual risk-taking did not form a single problem behavior factor. This finding contradicts much of the literature on problem behavior theory and serves to strengthen a small but consistent body of research. Second, peer delinquency was found to be a strong predictor of delinquent behavior, marijuana abuse symptoms, and sexual risk-taking for adolescent/young adults. Third, support was not found for an association between peer attachment and adolescent/young adult delinquent behavior, marijuana abuse symptoms, and sexual risk-taking. Fourth, peer involvement was found to moderate the relationship between peer delinquency and sexual risk-taking. Lastly, peer involvement was not found to moderate the relationship between peer delinquency and delinquent behavior or marijuana abuse symptoms, but was found to be a significant and predictor of delinquent behavior and marijuana abuse symptoms.

ADVISER'S SIGNATURE:_____Larry L. Mullins, Ph.D._____