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Attention Deficit Hyperactivity Disorder in Adolescents and Risk for Human Immunodeficiency Virus Infection

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ATTENTION DEFICIT HYPERACTIVITY DISORDER IN ADOLESCENTS AND RISK FOR HUMAN IMMUNODEFICIENCY VIRUS INFECTION

by

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The adolescent population has been identified as the age group most quickly increasing in HIV transmission. Specific subpopulations of adolescents may be more at risk than others due to their unique situations. Characteristics commonly discussed in the literature describing individuals with attention deficits and hyperactivity disorders (ADHD) are similar to those that put individuals at risk for HIV infection (i.e., impulsivity, overactivity, drug use). This anonymous survey study investigated several hypotheses suggesting that ADHD adolescents may be more at risk than controls for HIV infection. Undergraduates at a midwestern university completed the sexual behavior survey. Eight male subjects reported a past or current diagnosis of an ADHD. A random sample (n = 8) from 113 subjects composed a comparison group of male subjects. Response information for the remainder sample is provided. Visual and nonparametric analyses indicated a trend for the ADHD group to endorse (a) more Diagnostic and Statistical Manual (4th edition; APA, 1994) symptoms for ADHD, (b) more DSM IV Hyperactivity/Impulsivity items, and (c) more overall symptoms based on DSM IV, DSM III-R, and DSM III combined criteria for ADHD, than the control subjects. Visual analyses indicated that the ADHD subjects generally had less sexual experiences than the control sample.

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CHAPTER I

INTRODUCTION

Adolescents are a population at increasing risk for HIV infection. Combinations of the adolescent 'invulnerability fable,' risk taking, and experimentation with behaviors including sexual contacts and drug use, place the adolescent population in prime position for a very rapid transmission of HIV. A growing group of adolescents have been identified with attention deficits and hyperactivity disorders. Iatrogenic effects of this labeling may inadvertently change a labeled adolescents' locus of control with respect to sexual behaviors along with classroom and regular adolescent behaviors. Inattention and impulsivity specifically may have direct relations to risk situations in which ADHD adolescents may find themselves involved. More specifically, with respect to HIV infection, ADHD identified adolescents may be more at risk for contraction based on their lack of impulse control in situations of instant gratification. Adolescents in the ADHD identified sub-populations may not be aware of the sexual risk they place on themselves and others.

Adolescent Behaviors

Adolescent Sexual Behaviors

Adolescence has been defined by two different age brackets. According to Bowler, Sheon, D'Angelo, and Vermund (1992), the Centers for Disease Control (CDC) define adolescence as teenagers between the ages of 13 and 19. According to

Hein (1987) this represented 10% of the United States' population, or 25 million people. The American Academy of Pediatrics and Society for Adolescent Medicine defines adolescence as the time between ages 13 and 21 (Bowler, Sheon, D'Angelo, & Vermund, 1992). These definitions of adolescence leave researchers with a broad span of ages in which to identify and research adolescent issues. Roscoe and Kruger (1990) identified middle adolescents as those in high school, and late adolescents as those in college (inclusive of those above age 21).

Individuals comprising the adolescent age range tend to be more impulsive with respect to their sexual activities according to Hirschorn in Roscoe and Kruger (1990). Strunin and Hingson (1987) reported that in a sample of 829 adolescents, 70% said they were sexually active. Other studies consistently reported that a little over half of the teenage population in the United States has had sexual intercourse by age 19 and that between 27% and 76% of adolescents report having had sexual intercourse (Hein, 1987; and Kann, Anderson, Holtzman, Ross, Truman, Collins, & Kolbe, 1991). Also, Hein (1991) reported that from 1986 to 1988 the increase in adolescent coitus was of greater magnitude since 1970. This increase occurred despite the known HIV risk associated with sexual encounters.

Roscoe and Kruger (1990) identified the mean age of first sexual intercourse in their sample of college juniors and seniors (adolescents). They found a mean age of first experiences to be 16.4 years for females, and 17.4 for. Hein (1987) reported that many urban females have sexual intercourse with many partners of whom little to nothing is known regarding their partner's past sexual or drug experiences. According to Sorenson (Hein, 1987), sexual adventurers can be identified in the teenage population. Sexual adventurers are those who by age 19 have had 17 partners and in the previous month prior to the survey (Sorenson in

Hein, 1987), had had 3.2 sexual partners. Hein (1987) reports that sexual adventurer describes 41% of sexually experienced males, and 13% of sexually experienced females. According to the Secondary School Student Health Risk Survey conducted by Kann, Anderson, Holtzman, Ross, Truman, Collins, and Kolbe (1991), 59% of 9th through 12th graders reported ever having sexual intercourse, and 54% reported having sex in the past year. In the same sample, 40.4% reported having four or more sexual partners. Interestingly, in this sample males were significantly more likely to report more than four sexual partners compared to females. Kann, et al. (1991) reported that this 40.4% of their sample represented 5,113,200 9th through 12th graders nationwide.

Nangle and Hansen (1993) proposed a framework to identify the possible interactions of social skills and sexual behavior in the adolescent population. They proposed that sexual behavior in adolescence may be maintained and influenced by the "social context" (p. 116). For example, social status and social expectations of a sexual interaction may influence an adolescents engagement in such behaviors. Nangle and Hansen (1993) argued that sexual social skills deficits may account for engaging in risky behaviors and are the hardest skills to model and shape as generally these skills are used only during private interactions where immediate consequences may be more reinforcing than the subsequent analog negative consequences. Accordingly, developing "safe" social skills in the area of sexual behaviors is required for safe sexual practices (Nangle & Hansen, 1993).

Adolescent Risk Perception

Research has been conducted on adolescent risk perception by identifying areas of risk behavior and asking for verbal reports from adolescents on how much

risk they perceive to be associated with a specified activity (Benthin, Slovic, & Severson, 1993). Typically these studies assess drug use, sexual behavior, driving behaviors, and alcohol use, among others (Jonah, 1986; Severson, et. al., 1989; Levinson, Jaccard, & Beamer, 1995; Smith & Rosenthal, 1995). Benthin, Slovic and Severson (1993) report that of their sample, the adolescents who reported engaging in an activity also reported the risk to be lower, "better known, and more controllable" (p. 153) than those who did not report engaging in the same activities. This sample also reported more positive associated with the "relative risks", more pressure from peers to participate, as well as reporting a "higher rate of participation by others" in the activity. Severson, et. al., (1989) also reported discrepant verbal reports between adolescents reporting engaging in risk activity compared to those not reporting engaging in risk activity. Smith and Rosenthal (1995) suggested a model of risk perception. This sample was asked to compare "perceived risk to the self, perceived risk to peers, pleasure or benefit derived, ability to control risks, peer approval, and degree of parental upset" (p. 229). Smith and Rosenthal (1995) indicate adolescent reports suggest clear differences between high and low risk activities based on factors of "inherent danger, pleasure vs. peer approval, and locus of control" (p. 229).

Lavery, Siegel, Cousins, and Rubovits (1993) report a study which found that both "Benefit and Risk Perception significantly correlated with with Involvement" (p. 277), supporting a model of decision-making. This study also supported a "problem-behavior perspective" or theory of risk percpetion, with the finding that "social maladjustment personality correlates in conjunction with a Conduct Disorder diagnosis showed a strong, positive correlation with Involvement" (p. 277). Research specifically investigating adolescent risk perception of sexual

behavior and HIV/AIDS indicates that a range of psychosocial motivators may be involved compared to disease oriented factors (Levinson, Jaccard, & Beamer, 1995). Strunin (1991) suggests that adolescent risk perception for HIV requires the understanding of "life options as they do in the larger context of their aspirations" (p. 221).

These findings suggest that many factors may be involved with an adolescents determination and report of perceived risk. Specifically, factors surrounding the activity, and social and peer factors. Cognitive abilities and maturity level may also contribute to adolescent risk perception.

Adolescent Risk Behaviors

Many studies have examined adolescents' reports of participation in a variety of risk-taking behaviors. These studies have identified behaviors such as financial/investment risks (Halliday, 1988), health risks such as car accidents and cancers (Moore & Rosenthal, 1992), and sexual risk behaviors (Horvath & Zuckerman, 1993). Unique characteristics of adolescents have been attributed to their report of engaging in risky behaviors (Moore & Rosenthal, 1991; Roscoe & Kruger, 1990; and Rosenthal, Hall, & Moore, 1992).

Sensation seeking was defined by Zuckerman in White and Johnson (1988) as "the need for varied, novel, and complex sensations and experiences and willingness to take physical and social risks for the sake of such experiences" (p. 318). Individuals exhibiting high sensation seeking natures have been described as more body sensate oriented, extroverted, thrill seeking, active impulsive, antisocial, and nonconforming. Sensation seekers have more sexually permissive attitudes and report more sexual partners according to White and Johnson (1988).

Horvath and Zuckerman (1993) have suggested as well that there are several types of impulsivity. Specifically, narrow impulsivity reflects a tendency to act quickly and without thinking. The broader trait reflects 'liveliness' and 'venturesomeness.' Risky behaviors have been examined in the literature including specific health related risks to financial gambling. Moore and Rosenthal (1992) reported a study which identified health related risks other than AIDS contraction. The results again supported the 'invulnerable adolescent fable.' Thus sexual risk taking and general health risk behaviors may fall under the same judgment by adolescents.

Adolescent Sexual Risk Behaviors

Many researchers have addressed the issue of condom use among sexually active adolescents (DiClemente, 1993; Moore & Rosenthal, 1991; Pendergrast, DuRant, & Gaillard, 1992; Kegeles, Adler, & Irwin, 1988; and Brown, DiClemente, & Park, 1992). Moore and Rosenthal (1991) reported that their adolescent sample indicated always using condoms in 38% of their casual sexual contacts, and 18% of their sexual contacts with a regular partner. According to Curran in DiClemente (1993) the CDC Youth Behavior Survey indicated that of the sexually active adolescents surveyed (aged 13-19), 45% reported using a condom the last time they had sexual relations. Bowler, Sheon, D'Angelo, & Vermund (1992) suggest that the current epidemic of sexually transmitted diseases (STDs) in the adolescent population indicates increased unprotected sexual encounters suggestive of lack of condom use. This is also indicative of an increased propensity for HIV transmission.

Rosenthal, Hall, and Moore (1992) reported that the respondents in their study indicated mostly positive attitudes towards condoms. DiClemente (1993)

suggests that condom use is a complex behavior which is dependent on four variables related to interpersonal, social, and behavioral interactions. According to DiClemente (1993) these variables include: (a) perceived peer norms; (b) communication with their sex partner; (c) perceived efficacy of condoms to prevent HIV infection; (d) adolescent's perceived costs associated with using condoms (p.160). As Hein (1987) points out, the urge for safe sexual practices in adolescents requires a "lifestyle" intervention against HIV transmission. A glance at research across the last eight years indicates that adolescents are making changes in their sexual behaviors. However, increases in sexual activities have not necessarily been equivocated with increases in safe sex practices.

Johnston (1991) has suggested that there are several correlates of sexual risk behavior. Impulsivity, risk taking, disinhibition, substance use, incidence of oral and anal intercourse, and HIV positive homosexual males were found to be correlates of high risk sexual behavior. White and Johnson (1988) reported that various risk-taking behaviors could be "predicted by a high risk-taking profile consisting of sensation seeking needs and high levels of impulsivity" (p. 318). White and Johnson (1988) identified premarital intercourse without using contraception as a risk-taking behavior. Their results did not confirm a relationship between sensation seeking and frequent sexual behavior. A study by Rosenthal, Hall, and Moore (1992) indicates that adolescents will report engaging in more risky behaviors with long term partners than with casual partners. A survey by Pendergrast, DuRant, and Gaillard (1992) indicated that adolescent males are participating in high risk sexual behaviors. As well, despite their knowledge of STDs and transmission of such, their self-report of behavior does not reflect changes to behavior which would reduce their risk for STDs.

Adolescent HIV/AIDS Demographics

According to the Center for Disease Control and Prevention (CDC: 1994), 62,443 new HIV cases were reported within 1993 in the United States. Due to the onset with respect to development of HIV infection, the CDC reports case break downs based on adult/adolescent contraction. Specifically in the adolescent, early adult age ranges, in 1993, 11,546 new male cases were reported (p. 22) and 3,971 new female cases were reported (p. 23). HIV infection has been reported in 12,649 individuals under the age of 25 (males = 8,815; females = 3,834). 1993, 85,260 new AIDS cases were reported (p. 8).

To date, CDC reports 27,280 cases of AIDS from heterosexual contact (males = 9,063; females = 18,217). In 1993, 8,295 AIDS cases from heterosexual exposure were reported (males = 2,838; females = 4,457). CDC reported 15,204 new AIDS cases in adults and adolescents (under the age of 25) in 1993 (p. 12). Two age groups are identified: 13-19 year olds and 20-24 year olds. AIDS cases reported based on heterosexual exposure in ages 13-19 indicates a total of 89 new cases in 1993 (males = 9; females = 80). In the 20-24 age group, 525 new cases were reported over 1993 (males = 96; females = 429). HIV infection is more prevalent in the major urban areas (i.e., New York, Chicago, Miami, Detroit, Los Angeles). This is also true for the adolescent population as well.

HIV/AIDS in Adolescents

The adolescent population is at growing risk for contraction of the Human Immunodeficiency Virus (HIV) (Hein, 1987; Hein, 1991; Kann, Anderson, Holtzman, Ross, Truman, Collins, & Kolbe, 1991; Moore & Rosenthal, 1991; and

Strunin & Hingson, 1987). This literature evidences the lack of relationship between increased knowledge and behavioral changes related to safe sexual practices in the adolescent population. Studies have indicated that although adolescents are educated with respect to Acquired Immunodeficiency Syndrome (AIDS) and HIV transmission and infection, their use of condoms and engaging in safer sexual encounters is relatively low (Hein, 1991; Kann, Anderson, Holtzman, Ross, Truman, Collins, & Kolbe, 1991; Moore & Rosenthal, 1991; and Roscoe & Kruger, 1990).

DiClemente (1993) reports that HIV infection is not uncommon for those aged 13 to 19. National surveys are reporting a significant number of adolescents engaging in sexually risky behaviors which could lead to HIV contraction (DiClemente, 1993). Several factors are involved in the notion that adolescents are a particularly high risk for HIV/AIDS.

Studies are indicating that as adolescent sexual behaviors are on the rise, as is their participation in increasing risky situations, especially those that lead to risky sexual behaviors (Hein, 1991). Rosenthal, Hall, and Moore (1992) suggest that adolescents are engaging in behaviors that are putting them at increased risk for HIV. Most researchers agree that adolescent risks for HIV infection stem from: number one, unprotected sexual intercourses, and number two, the sharing of contaminated drug equipment (Hein, 1991; Bowler, Sheon, D'Angelo, & Vermund, 1992; Hein, 1987; Kann, Anderson, Holtzman, Ross, Truman, Collins, & Kolbe, 1991; Pendergrast, DuRant, & Gaillard, 1992; and Kegeles, Adler, & Irwin, 1988). Bowler, Sheon, D'Angelo, and Vermund (1992) reported that several factors place adolescents at high risk for HIV/AIDS. Among these factors were unprotected sexual intercourses, multiple sexual partners, sharing drug equipment, and having sexual

relations with a high-risk person. Bowler, et al. (1992) also reported that those age 15 through 19 have the highest rates of sexually transmitted disease (i.e., gonorrhea, syphilis, chlamydial cervicitis, and pelvic inflammatory disease), indicating a predominant lack of condom use. Bowler, et al. (1992) also reported that those who are sexually abused may be at high risk for contracting HIV. This may be due to infection from the abuser, but more likely due to a high promiscuity and recidivism rate among those who were sexually abused (Bowler, et al., 1992).

Researchers indicate that the invulnerability fable may play a large role in sexual behavior during adolescence (Moore & Rosenthal, 1991; Roscoe & Kruger, 1990; and Rosenthal, Hall, & Moore, 1992). Roscoe and Kruger (1990) discussed the adolescent view of themselves as indestructible and suggested that this leads to adolescents' perceiving themselves as being invulnerable to AIDS. Moore and Rosenthal (1991) took this notion even farther, incorporating Elkind's notion of the "personal fable." This study looked at 17 to 20 year olds who engaged in high-risk sexual activities, comparing their perceived risks with their actual (self-reported) risky behaviors. The results indicate that 75% of those sampled saw themselves as having less than the average risk for AIDS as compared to their peers, 20% saw themselves as average risk as compared to their peers, and 5% perceived themselves as having above average risk for AIDS compared to their peers. This study (Moore & Rosenthal, 1991) suggests that despite fairly good knowledge of AIDS and HIV transmission, adolescents tend to view themselves as invulnerable to AIDS. Moore and Rosenthal (1991) suggest that this is perhaps due to adolescent ideals of monogamy, stereotypes of those with AIDS, and beliefs and abilities to control HIV transmission, all accompanied by unsafe sexual practices. Moore and Rosenthal (1991) suggest that their findings are concurrent with those of Kelly, St. Lawrence,

Hood, and Brasfield, (1989). Rosenthal, Hall, and Moore (1992) state that the research clearly indicates that adolescents are "not personalizing their risk of AIDS" (p. 166).

Attention Deficit Hyperactivity Disorder (ADHD) in Adolescents

Concurrent problems of inattention, impulsivity, and hyperactivity have been discussed in the literature under several labels: Attention-Deficit/Hyperactivity Disorder (ADHD), Attention Deficit Disorder (ADD), Hyperkinetic Syndrome, and Minimal Brain Dysfunction (MBD) (Barkley, 1990; Lie, 1992; American Psychiatric Association (APA), 1985; 1987; 1994). These labels all attempt to identify a heterogeneous syndrome of inattention, impulsivity and perhaps hyperactivity. According to the Diagnostic and Statistical Manual of Mental Disorders fourth edition, (DSM IV; APA, 1994) the symptoms of inattention and hyperactivity/impulsivity must be present before the age of seven, must be present in two or more settings, and clinical evidence must exist of impact on social, academic, or occupational areas. Thus, ADHD is a pervasive disorder which affects many aspects of a child's functioning.

There is a growing epidemiological data base concerning ADHD. The DSM IV (APA, 1994) estimates prevalence to be 3% - 5% in the school-aged population. Other studies report prevalence rates between 1% - 20 %. Frick, Strauss, Lahey, and Christ (1993) explain these disparate wide rates as being due to differing assessment and diagnostic procedures between the studies. Barkley (1990) suggests a prevalence of about 3% in school-aged children. Barkley (1990) also discusses the 'labeling' of a disorder and notes that some studies have identified the same behavior problems (i.e., overactivity) in 57% of boys and 42% of girls identified as

normal. Prevalence rates of older children and adolescents are limited according to the DSM IV. Frick, Strauss, Lahey, and Christ (1993) report that ADHD is responsible for about 50% of referrals to outpatient treatment centers in the United States. Gender biases are also evident in the prevalence of ADHD (Frick, et al., 1993). Ratios between 2 to 10 males per 1 female have been reported in the literature for the prevalence of ADHD based on gender (Barkley, 1990). Barkley (1990) reports that 6:1 is the most often cited ratio for clinical samples. This gender bias is perhaps related to a difference in presenting behaviors between males and females. Boys are more likely to be aggressive and antisocial, while girls are more likely to display social withdrawal and internalizing symptoms (Barkley, 1990).

Presenting problems of inappropriate levels of attention, impulsivity and overactivity can be accompanied by other adjustment problems (i.e., poor academics, poor peer relations, and aggression problems). Two other behavioral disorders serve to complicate the diagnosis of ADHD. Conduct Disorder (CD) and Oppositional Defiant Disorder (ODD) are both difficult to differentiate from ADHD, and in fact both may be concomitant with ADHD (Barkley, 1990; Lie, 1992; Biederman, Newcorn, & Sprich, 1991; and Frick, Strauss, Lahey, & Christ, 1993). Frick, et al. (1993) report estimates of dual diagnoses of ADHD and CD from between 41% and 75% of cases. Learning Disabilities are often concomitant with ADHD as well (Biederman, Newcorn, & Sprich, 1991; and Frick, Strauss, Lahey, & Christ, 1993).

A diagnosis of ADHD should be made only after interviews and evaluations with parents, teachers, and the identified child. Many methods, measures, and criteria have been used to arrive at an ADHD diagnosis. As discussed above,

concomitant diagnoses and co-occurring disorders complicate this process and suggest that ADHD is not necessarily as discrete a diagnosis as the DSM IV (APA, 1994) diagnostic criteria would imply.

Barkley (1990) suggests that the adolescent years of ADHD may be especially difficult "because of the increasing demands for independent, responsible conduct, as well as the emerging social and physical changes inherent in puberty" (p. 114). Demands and distress from various new aspects of a maturing life begin (i.e., identity issues, peer group acceptance, dating, physical development) (Barkley, 1990). Barkley (1990) notes that hyperactivity levels may decrease, but for 70% to 80% of children with ADHD, symptoms will continue into their adolescence.

Lambert (1988) suggested that ADHD was not a disorder that individuals grow out of during adolescence, noting that behavioral and academic difficulties continue. Specifically, problems of low self-esteem, delinquency, and low school achievement is common among adolescents with ADHD. Lambert reported (Lambert, Sassone, Fartsough, & Sandoval, 1987) that for a sample of hyperactive children, 20% had no symptoms in early adolescence, 37% still had problems but were no longer hyperactive, and 43% continued to have all their childhood symptoms, and remained in treatment (i.e., Ritalin). Barkley (1990) reported that adolescent outcome studies of hyperactive children indicate that there is substantial risk for negative outcomes in adolescence, specifically in the areas of social, legal, academic and family functioning, compared to that of control children. Lambert (1988) reported outcome data indicating of a sample of ADHD children, 7% smoked a pack or more of cigarettes a day, 22% used hard liquor 40 or more times in the past, and 34% used marijuana 40 or more times - all significantly higher than that of their control counterparts.

Prognostic indicators for adulthood suggest that only about 11% of children identified as ADHD will be free from psychological diagnoses and function well as adults (Barkley, 1990). Lie (1992) reported that by early adulthood ADHD remained present in at least one third of those diagnosed as children. Barkley (1990) notes that "sexual adjustment problems have been described in as many as 20% of ADHD group in adulthood" compared to 2.4% in a normal population (p. 125). Lambert (1988) reported outcome data for hyperactive children at age 17 and 18, 66% had graduated or received a GED from high school, and 47% of a sample of ADHD children were attending college. Barkley (1990) reports that as few as 5% of ADHD children actually complete a university degree program, compared to 41% of a control group sampled.

Researchers are beginning to assess ADHD populations for engaging in harmful behaviors. Farmer and Peterson (1995) indicated that ADHD children have decreased abilities to determine consequences of hazardous play behaviors and risky situations compared to controls, specifically noting a higher increase of accidental injury. ADHD populations have been studied for their risk for alcoholism, substance abuse, criminality, juvenile delinquency, and impulsive behaviors. As well, studies have identified significant ADHD samples who suffer from depression and other mood and anxiety disorders, mental retardation, Tourette's Syndrome, and borderline personality disorder. Many ADHD have received dual-diagnoses consisting of these disorders and ADHD. Studies which have targeted characteristics specifically related to substance abuse indicate overlapping characteristics of ADHD including impulsivity, low self-esteem, non-compliance with authority, poor school performance, and susceptibility to peer pressure (Loney, 1988).

The combination of these characteristics (i.e., impulsivity, low self-esteem, non-compliance with authority, poor academics, and susceptibility to peer pressure) places adolescents with ADHD at risk for substance abuse (Loney, 1988). Limited knowledge regarding the sexual behaviors and prevalence/occurrence of sexually transmitted diseases among the adolescent ADHD population is available. Actually, no research has identified these areas as far as this author is aware. Kohlert and Block (1993) discussed a study finding hyposexual rats to also be hyperactive. This study would seem to indicate that at least for the ADHD rat population, less sexual experiences would be expected.

Specific Subpopulations at Risk for HIV

DiClemente (1993) called for research identifying adolescent subgroups which may be at special risk for HIV/AIDS. Given the identification of ADHD adolescents as impulsive, having behavior control problems, hyperactivity, and susceptibility to peer pressures (Loney, 1988), it would seem that many of these characteristics overlap with those of the general adolescent population at risk for HIV/AIDS (i.e., impulsive sexual behavior, sharing of contaminated drug equipment) (Roscoe & Kruger, 1990; Hein, 1991; Bowler, Sheon, D'Angelo, & Vermund, 1992; Hein, 1987; Kann, Anderson, Holtzman, Ross, Truman, Collins, & Kolbe, 1991; Pendergrast, DuRant, & Gaillard, 1992; and Kegeles, Adler, & Irwin, 1988). Given the absence of studies identifying the sexual behaviors of ADHD adolescents, it seems imperative that this population be assessed for differences in sexual behaviors of ADHD adolescents and for their HIV risk compared to a control sample of adolescents. As with previous adolescent studies identifying sexual behavior, older adolescents

above the age of consent and likely to engage in more sexual conduct were used in the proposed study.

CHAPTER II

METHOD

The Current Study

This study assessed potential differences in sexual behavior and risk for HIV infection between a sample of ADHD and control late-adolescent subjects in a university setting. The assessment wasbased upon a measure of AIDS risk behavior knowledge indicated by the AIDS Risk Behavior Knowledge Scale (Kelly, St. Lawrence, Hood, & Brasfield, 1989), and a measure adapted for the study (from, Ehde, 1989) to identify current and previous sexual behaviors and drug use in the form of a sexual behavior questionnaire.

Hypotheses

The primary hypothesis was that college students who reported a previous/current diagnosis of ADHD (as measured by self-report and parent confirmation of diagnosis) would report a higher frequency of engaging in risky sexual behaviors as measured by the Sexual Behavior Questionnaire (SBQ: see measures section). More specifically, the null hypothesis was that there would be no difference between ADHD identified and controls in frequency of engaging in risky sexual behaviors based on the subset scores for Risky Sexual Behaviors on the SBQ. The Risky Sexual Behaviors Subset consisted of 23 questions which refer to: sexual intercourse while under the influence of alcohol and drugs; communication regarding one's own STD status; sexual encounters before communication about safe sex

practices; number of partners; knowledge of current partner's HIV status, sexual history, IV drug use; use of latex condoms/barriers during the last sexual experience; use of birth control; sexual relations with more than one person at a time; genital, receptive anal, anal, oral/genital, hand/genital, oral/anal, hand/anal, and percentage latex condom/barrier usage. These items are listed in Table 1 (See Appendix H).

Several secondary hypotheses were investigated:

1. College students who reported a previous/current diagnosis of ADHD would report engaging in more sexual behaviors as measured by the Sexual Behavior Questionnaire. More specifically, the null hypothesis was that there would be no difference between ADHD identified and controls in the amount of sexual behaviors engaged in based on the Sexual Behavior Subset on the SBQ. This subset included 16 questions regarding the estimated number (over the past month, year, lifetime) of sexual partners, times of genital intercourse, times of anal intercourse, hand/genital contact, oral/anal contact, and hand/anal contact. These items are listed in Table 2 (See Appendix H).

2. College students who reported a previous/current diagnosis of ADHD would identify a low risk for AIDS perception compared to the behaviors that they actually report on the SBQ. More specifically, the null hypothesis was that there would be no difference between ADHD identified and controls for the difference between perception or risk for HIV/AIDS and endorsement of engaging in risky sexual behaviors which would put them at higher risk for HIV/AIDS, based on the Risk Perception Subset compared to the Risky Sexual Behaviors Subset. The Risk Perception Subset was composed of four questions which identify perceived risk for HIV/AIDS contraction; perception of AIDS as a concern for one's health; having an

AID/HIV blood test; knowledge of HIV status; and perception of risk with current partner. These items are listed in Table 3 (See Appendix H).

3. College students who reported a previous/current diagnosis of ADHD would demonstrate a lower knowledge level regarding AIDS and AIDS risk behaviors as measured by the AIDS Risk Behavior Knowledge Scale, compared to controls. More specifically, the null hypothesis would be that there were no difference between ADHD identified and controls for knowledge of AIDS risk behaviors based on scores from the AIDS Risk Behavior Knowledge Questionnaire (Kelly, St. Lawrence, Hood, & Brasfield, 1989).

4. College students who reported a previous/current diagnosis of ADHD would engage in more impulsive sexual behaviors as compared to controls' responses on the SBQ. More specifically, the null hypothesis was that there is no difference between ADHD or controls on impulsive sexual behaviors based on a subset of Impulsive Sexual Behaviors questions on the SBQ. This subset was composed of 24 questions which identify sexual relations before communication about safe sex practices and current STD presence; commencement with respect to relationship stage of sexual relations with partners; not using latex condoms/barriers if agree it is a generally good practice; not using latex condoms/barriers; and number of sexual partners. . These items are listed in Table 4 (See Appendix H).

5. College students who reported a previous/current diagnosis of ADHD would report more frequency in having sexual intercourse without yet telling a partner that they have an STD. More specifically, the null hypothesis was that there is no difference between ADHD and controls on this question (#16) from the SBQ.

6. There would be a correlation between endorsement of impulsive behaviors on the DSM IV checklist and the endorsement of Impulsive Sexual Behaviors. More

specifically, the null hypothesis was that there is no difference between ADHD identified and controls on the difference between endorsement on DSM IV Current Status Checklist and Impulsive Sexual Behavior subset of the SBQ.

7. College students who reported a previous/current diagnosis of ADHD would endorse more symptoms on the CSCL than controls. More specifically, the null hypothesis was that there is no difference between ADHD and controls on the total number of items endorsed on the CSCL.

Method

Volunteer subjects were recruited from undergraduate courses at Western Michigan University. Four groups were classified based on the following characteristics: (1) those who reported no history of ADHD (labeled controls) as evidence by either self-report alone or with confirmation from a parent; (2) those with a history of ADHD (labeled ADHD1) as evidenced by self-report and parent confirmation; (3) those with a history of ADHD (labeled ADHD2) as evidenced by self-report alone; and (4) those with a history of ADHD (labeled ADHD3) as evidenced by no self-report but confirmed by parent report. The last three groups were collapsed based on an analysis indicating no significant differences between responses on the Demographic Background Information.

Measures

Background Demographic Information (BI)

The Background Demographic Information (BI) was developed to quickly identify various characteristics which describe the subjects. This form was also compared with the returned parent confirmation of self-report of Attention Deficit

Hyperactivity Disorder. The BI asked about information with respect to age, birth date, date of participation, gender, number of children, perception of health status, year in school, selected major, any grades failed, diagnosis of Attention Deficit Disorder or Hyperactivity Disorder, current diagnoses status, age of diagnosis, grade during which diagnosis was determined, individual who diagnosed, medications with respect to diagnosis, current medications with respect to diagnosis, and participation in AIDS intervention programs. (See Appendix D for further information.)

AIDS Risk Behavior Knowledge Scale (ARBKS)

The AIDS Risk Behavior Knowledge Scale developed by Kelly, St. Lawrence, Hood, and Brasfield (1989) has been reported in many studies as a standard measure of knowledge regarding AIDS risk behaviors. This measure does not measure actually engaging in these risky behaviors, only the knowledge of these behaviors as a risk for HIV infection. The scale is comprised of 40 true and false items normed on college students and on gay males with a mean age of 25.5 (range: 17-63). Kelly, et al., (1989) reported internal consistency measures of .73 (Spearman-Brown) and .74 (Kuder-Richardson formula 20), and a test-retest reliability of .84. The measure has demonstrated sensitivity to increases in knowledge regarding AIDS and risk behaviors as evidenced with interventional studies (Kelly, et. al., 1989).

Sexual Behavior Questionnaire (SBQ)

Various types of measures of sexual behaviors have been used. No standard measure exists, especially considering the broad groups to which these measures are applied. The questionnaire in this study has been developed specifically for this study based on other sexual behavior questionnaires given to college-aged adolescent

populations (Ehde, 1989). The SBQ consists of thirty-four questions (with multiple parts) which focus on sexual behavior lifestyles, and past and current: participation in various sexual activities, perception of personal risk for HIV/AIDS infection, knowledge of HIV status, use of safe sex practices, and use of birth control (see Appendix E). Four specific subset areas identify risky sexual behaviors, sexual behaviors, risk for HIV/AIDS perception, and impulsive sexual behaviors. These subsets were identified in order for ease with the statistical analyses of this dependent measure. No reliability or validity data exist for the SBQ or the various Behavior Subsets.

In order to provide consistent data for the analysis, the subset items (see Subset Tables, 1 - 4 in Appendix H) were reduced to be consistently nominal in form. For example a question that offered the subject a multiple choice for perception of risk level was reduced to either 0 or 1 to indicate either no level of risk or a positive level of risk. These reduced data were then summed (to ordinal data), with the exception of the Sexual Behaviors Subset which was consistently ratio. This data reduction method resulted in a conservative definition of risk. For example, if a subject had engaged in any type of intercourse, this was considered a risk behavior that might potentially lead to HIV infection. Also note that a subject who did not report engaging in sexual behaviors was reduced to 0 risk using this conservative definition.

The Risky Sexual Behaviors Subset. The Risky Sexual Behaviors Subset consists of 23 self-report questions from the SBQ (see Table 1 in Appendix H) which refer to: unprotected sex; sexual intercourse while under the influence of alcohol and drugs; communication regarding one's own STD status; sexual encounters before communication about safe sex practices; number of partners; knowledge of current

partner's HIV status, sexual history, IV drug use; use of latex condoms/barriers during the last sexual experience; use of birth control; sexual relations with more than one person at a time; genital, anal, oral/genital, hand/genital, oral/anal, hand/anal, and percentage latex condom/barrier usage. This subset was derived by summing the reduced data for questions 9, 12, 15, 16, 18a-18f, 19, 20, 22, 23, 24, 27c, 27f, 29d3, 30d3, 31d3, 32d3, 33d3 and 34d3 (see Table 1 in Appendix H).

The Sexual Behaviors Subset. The Sexual Behaviors Subset consists of 16 self-report questions from the SBQ (see Table 2 in Appendix H) which ask about the occurrence and frequency of a variety of sexual behaviors. The number of sexual partners is also identified in this subset. Sexual behaviors included in this subset are: genital intercourse, receptive anal intercourse, insertive anal intercourse, oral/genital contact, hand/genital contact, oral/anal contact, and hand/anal contact. This subset was derived by summing the reduced data for questions 27c, 27f, 29c3, 29c6, 30c3, 30c6, 31c3, 31c6, 31c9, 31c12, 32c3, 32c6, 33c3, 33c6, 34c3, and 34c6 (see Table 2 in Appendix H).

The Risk Perception Subset. The Risk Perception Subset consists of four self-report questions from the SBQ (see Table 3 in Appendix H) which inquire about the subject's perception of their risk for HIV/AIDS infection. The questions reflect perceived risk for HIV contraction; concern for health with respect to AIDS; HIV blood test; knowledge of status of HIV blood test; and perception of risk with respect to their current partner. This subset was derived by summing the reduced data for questions 5, 6, 8, and 25 (see Table 3 in Appendix H).

The Impulsive Sexual Behavior Subset. The Impulsive Sexual Behavior Subset includes 24 self-report questions from the SBQ (see Table 4 in Appendix H) which identify sexual behaviors that are impulsive in nature. These behaviors include: sex before talking about safe sexual practices; choice of commencement of sexual relations with individuals; not using safe sex practices, if in general they are felt to be a good idea; not using latex barriers; number of different sexual partners; and having sexual intercourse with someone who has not yet been informed of current STDs. This subset was derived by summing the reduced data for questions 13, 16, 17a-17n, 18a-18f, 27c, and 27f (see Table 4 in Appendix H).

Current Status Check List (CSCL)

The Current Status Check List (CSCL) is a check list compiled from the combined 49 items from the DSM III, III-R, and IV criteria for Attention Deficit Hyperactivity Disorder (APA, 1985; 1987; 1994). Also, this check list served as a dependent measure by comparing those who endorse many impulsive behaviors on this checklist with those who report Impulsive Sexual Behaviors based on the subset of the SBQ.

Procedure

During either non-compulsory class time or a scheduled laboratory time, subjects completed a consent form and then a questionnaire packet (see Appendix B for further source information). Packets were coded by number and no names were requested. The first part of the packet contained the measures. The second part of the packet contained the parental confirmation. This included a letter which the subject read and gave consent to release through the mail to their parent. The letter

indicated that their child participated in a research protocol which required the identification of a history of attention deficits or hyperactivity diagnoses. The letter explained that the child consented to the parental contact, that only coded numbers and not names were used, and information regarding a history of diagnosis, when and who made the diagnosis, be completed and returned in the return envelope. This letter in no way indicated any information conveyed by the subject, nor would this information be given to a parent if requested. In order to obtain parental confirmation, subjects were required to fill out a second consent form and self address the envelope enclosed in their packet. Subjects not consenting to a release for parental confirmation were still considered participants in the study. Before signing the second consent form, subjects read the confirmation letter. This letter was then enclosed with a return envelope and sealed in the envelope by the subject.

The questionnaire required about 45 minutes to complete and was be reviewed anonymously. Subjects were reimbursed for their time. All materials were stored in a locked cabinet in the child laboratory in West Hall and all self-addressed envelopes were mailed directly after the research session by a trained research assistant. Approval was obtained from the university Human Subjects Institutional Review Board prior to data collection. (See informed consent in Appendix C; HSIRB Approval, Appendix A).

CHAPTER III

RESULTS

Overview of Analyses

Descriptive analyses were conducted on the Demographic Questionnaire to describe the subject samples. In addition, descriptive analyses were conducted on the dependent measures across identified groups. Nonparametric analyses were reported. Independent samples were assumed. All pair-wise comparisons were assessed at $\underline{p} < .05$. Given the exploratory nature of this study, no attempt to control for experiment-wise error rate was adopted. Overall results for items on the Sexual Behavior Questionnaire Subsets are noted in Tables 1-4 (see Appendix H), with respect to ADHD ($\underline{n} = 8$), Random Control Sample ($\underline{n} = 8$), Total Control Sample ($\underline{n} = 105$).

Description of ADHD Subject Group

First, the data from the ADHD1, and ADHD2, and ADHD3 were analyzed to determine if significant differences existed between these groups based on the Demographic Background Information. Data from the ADHD subgroups were collapsed into one group given the low sample size and no significant differences based on visual analysis.

A total of eight subjects reported having a previous or current diagnosis of ADHD. All subjects were male. For the ADHD group ($\underline{n} = 8$), the average age in years was 18.9 ($\underline{SD} = 1.1$). Subjects either self-reported a past or current ADHD

diagnosis or had a returned Parent Letter indicating a past or current ADHD diagnosis. Parent Letters that reported their child had received or currently had a diagnosis of ADHD occurred in three (38%) of these subjects, with one (13%) of the parents reporting a 'not sure' if son had been diagnosed. Two (25%) of the parent reports indicated that their child did not have a diagnosis of ADHD, either current or previous. One (13%) of the parent letters was not sent and one (13%) of the parent letters were not returned.

From the Parent Letter, the average age (at time of diagnosis) reported was 7.1 years with a range from 6 years to 8 years. The average grade at time of diagnosis reported was second. Seven (88%) reported that their child had not failed any grades, three(38%) reported having taken or currently taking a medication for this diagnosis, and one (13%) reported never having taken a medication for this diagnosis. Ritalin was the only medication reported to have been prescribed. Parents were asked to identify who diagnosed their child, more than one professional was identified in a few cases: a doctor, physician, pediatrician reportedly diagnosed three (38%) of the sample; a psychologist reportedly diagnosed one (13%) of the sample; a psychiatrist reportedly diagnosed one (13%) of the sample; a teacher (reported with other professionals) reportedly diagnosed two (25%) of the sample; and a clinic (reported with other professionals) reportedly diagnosed one (13%) of the sample. It was originally proposed that data from the three proposed ADHD groups would be collapsed into one ADHD group. Given the low subject collection as well as visual analysis of similarities within the demographic information one ADHD group was used to analyze the data.

Description of Control Groups

A control group (discussed as Random Sample or RS) was composed of eight randomly selected subjects from the remaining sample collected. These subjects were randomly selected to facilitate the statistical comparisons. The average age of the RS sample (n = 8) was 19.25 (SD = 1.3). The overall sample (discussed as Total Control or TC) who report never having a diagnosis of ADHD (n = 105) had an average age of 19.0 (SD = .98). Control subjects self-reporting DSM IV symptomatology were not excluded since diagnostic practice allows for the possibility one could report experiencing a large number of symptoms without actually being diagnosed with a disorder (APA, 1994).

Planned Comparisons

Primary Hypothesis

The primary hypothesis was tested using the Mann-Whitney U test (which assumes independent groups and ordinal data, but doesn't depend on the distribution of the population scores) to analyze the separation between the the ADHD group and the Random Sample (RS) group using the null hypothesis that the groups population distributions were equal based on the subset scores for Risky Sexual Behaviors on the SBQ as the dependent measure. The primary null hypothesis stated there would be no differences between ADHD and controls in frequency of engaging in risky sexual behaviors as measured by the Risky Sexual Behaviors Subset of the Sexual Behavior Questionnaire (see Table 2 in Appendix H).

The ADHD group obtained a mean of 25.69 (SD = 26.43), the RS group obtained a mean of 25.28 (SD = 27.59), and the TC group obtained a mean of 29.28

(SD = 33.74). The Mann-Whitney U test was not significant (U = 31.5, p = .95) (see Figure 1 in Appendix I). Thus, considering the small sample size (decrease power), this test indicates that the discrepancy between the two samples is small enough to retain the null that both samples have equal distributions.

Secondary Hypotheses

1. The first of the secondary hypotheses was tested using the Mann-Whitney U test to analyze the separation between the the ADHD group and the RS group using the null hypothesis that the groups' population distributions were equal. The more powerful Student t test was also used, with caution, to test the null hypothesis that the group population means were equivalent based on the Sexual Behavior Subset of the SBQ. If we could assume that the subjects were randomly sampled from independent normally distributed populations with homogeneity of variance, a Student's t test would be appropriate. The first of the secondary null hypotheses specifically stated that there would be no differences between ADHD and controls in the amount of sexual behaviors engaged in based on the Sexual Behaviors Subset of the Sexual Behavior Questionnaire (see Table 3 in Appendix H).

The ADHD group obtained a mean of 241.0 (SD = 312.3), the RS group obtained a mean of 487.75 (SD = 801.0), and the TC group obtained a mean of 407.2 (SD = 707.33) (see Figure 2 in Appendix I). Given the ratio data, the Mann-Whitney U test was not significant (U = 32, p = 1.0). Thus, considering the small sample size, this test indicates that the discrepancy between the two samples is small enough to retain the null that both samples have equal distributions. A provisional independent samples t test was not significant (t (14) = .81, df = 14, p = .431). Again, cautioning consideration of the assumptions, this test indicates that the

discrepancy between the means is small enough to retain the null and consider the population means to be equal.

2. The second hypothesis was tested using the Mann-Whitney U test to analyze the separation between the the ADHD group and the RS group using the null hypothesis that the groups' population distributions were equal based on scores from the Risk Perception Subset and the Risky Sexual Behaviors Subset of the SBQ. A Pearson correlation between two subsets tested the null that there was no significant correlation between the two compared groups. This null hypothesis specifically stated that there would be no differences between ADHD and controls for the difference between perception of risk for HIV and endorsement of engaging in risky sexual behaviors which would put them at higher risk for HIV/AIDS, based on the Risk Perception Subset compared to the Risky Sexual Behaviors Subset of the Sexual Behavior Questionnaire (see Table 4 in Appendix H).

For the Risk Perception Subset, the ADHD group obtained a mean of 3.13 (SD = .75), the RS group obtained a mean of 3.0 (SD = .64), and the TC group obtained a mean of 3.0 (SD = .80) (see Figure 3 in Appendix I). The Mann-Whitney U test was not significant (U = 29, p = .79). Thus, considering the small sample size, this test indicates that the discrepancy between the two samples is small enough to retain the null that both samples have equal distributions. Pearson Correlations were not significant for the ADHD group, or for the RS group, or for the TC group.

3. The third hypothesis used the Mann-Whitney U test to analyze the separation between the the ADHD group and the RS group using the null hypothesis that the groups population distributions were equal based on the ARBKS. The Student t test was also used, with caution, to test the null hypothesis that the groups population means were equivalent. This null hypothesis specifically stated that there

would be no differences between ADHD and controls for knowledge of AIDS Risk behaviors based on scores from the ARBKS.

The ADHD group obtained a mean of 36.0 (SD = 3.12), the RS group obtained a mean of 36.13 (SD = 2.95), and the TC group obtained a mean of 34.68 (SD = 3.65) (see Figure 4 in Appendix I). The Mann-Whitney U test was not significant (U = 31.5, p = .95). Thus, considering the small sample size, this test indicates that the discrepancy between the two samples is small enough to retain the null that both samples have equal distributions. A t test was not significant (t (14) = .08, p = .95). Again, cautioning consideration of the assumptions, this test indicates that the discrepancy between the means is small enough to retain the null and consider the population means to be equal.

4. The fourth hypothesis was tested using the Mann-Whitney U test to analyze the separation between the the ADHD group and the RS group using the null hypothesis that the groups population distributions were equal based on the Impulsive Sexual Behaviors Subset of the SBQ. This null hypothesis specifically stated that there would be no differences between ADHD or controls on impulsive sexual behaviors based on a subset of Impulsive Sexual Behaviors of the Sexual Behavior Questionnaire (see Table 5 in Appendix H).

The ADHD group obtained a mean of 10.25 (SD = 11.67), the RS group obtained a mean of 11.38 (SD = 11.45), and the TC group obtained a mean of 16.58 (SD = 21.72) (see Figure 5 in Appendix I). The Mann-Whitney U test was not significant (U = 30, p = .87). Thus, considering the small sample size, this test indicates that the discrepancy between the two samples is small enough to retain the null that both samples have equal distributions.

5. The fifth hypothesis would have used a Chi Squared test based on question #16 from the SBQ as the dependent measure. This null hypothesis stated that there would be no difference between ADHD and controls of frequency in having sexual intercourse without yet telling a partner that they have an STD. The results indicate no occurrences of this (see Figure 6 in Appendix I). No statistical analysis was performed.

6. The sixth hypothesis was tested using the Mann-Whitney U test to analyze the separation between the the ADHD group and the RS group using the null hypothesis that the groups population distributions were equal between the Impulsive Sexual Behaviors Subset and the DSM IV checklist (current status checklist) for the two groups. A Pearson correlation between two subsets tested the null that there was no significant correlation between the two compared groups. The sixth null hypothesis specifically stated that there would be no difference between ADHD and controls in the difference between endorsement on DSM IV Current Status Checklist and Impulsive Sexual Behavior Subset of the Sexual Behavior Questionnaire. The DSM IV criteria were broken into 3 groups: total criteria endorsed, endorsement of Inattention criteria, and endorsement of Hyperactive criteria (see Figure 7 in Appendix I).

Table 1 indicates the means and standard deviations across groups for the different categories of DSM IV criteria. There was a trend toward significance for the Mann-Whitney U test on Total DSM IV criteria, thought this was not significant ($U = 16.5$, $p < .10$). The Mann-Whitney U test on DSM IV Inattention criteria was not significant ($U = 19$, $p = .19$). Thus, considering the small sample size, this test indicates that the discrepancy between the two samples is small enough to retain the null that both samples have equal distributions. However, there was a trend on the

Mann-Whitney U test on DSM IV Hyperactivity criteria though this was not significant (U = 15.5, p <.08). Exploratory Pearson correlations were performed to assess potential relationships between DSM IV symptom endorsement and the Impulsive Sexual Behavior Subset scores within groups (see Figure 8 in Appendix I). A Pearson Correlation was not significant between the total symptoms endorsed and the Impulsive Sexual Behavior Subset for the ADHD group. A Pearson Correlation was not significant between the total symptoms endorsed and the Impulsive Sexual Behavior Subset for the RS group. A Pearson Correlation was not significant between the total symptoms endorsed and the Impulsive Sexual Behavior Subset for the TC group.

Table 1

Endorsed Criteria of DSM IV ADHD Symptoms by Group

	ADHD		RS		TC	
Symptoms	M	SD	M	SD	M	SD
Total DSM IV Items	9.5	4.38	5.63	5.88	3.56	3.73
Inattention Items	5.63	2.92	3.38	3.50	1.81	2.27
Hyperactive/ Impulsivity Items	3.88	1.96	2.25	2.60	1.75	1.94

7. Finally the seventh hypothesis was tested using the Mann-Whitney U test to analyze the separation between the the ADHD group and the RS group using the null hypothesis that the groups population distributions were equal based on the number

of CSCL symptoms endorsed. The final hypothesis specifically stated that there would be no difference between ADHD and controls in the number of CSCL symptoms endorsed on the CSCL. The ADHD group endorsed a mean of 23.75 (SD = 9.69) symptoms with a minimum of 11 and a maximum of 39, the RS group obtained a mean of 13.63 (SD = 14.15) symptoms with a minimum of 0 and a maximum of 42, and the TC group obtained a mean of 8.56 (SD = 9.22) symptoms with a minimum of 0 and a maximum of 42 (see Figure 9 in Appendix I). The Mann-Whitney U test was not significant (U = 14, p <.06). Thus, considering the small sample size, this test indicates that the discrepancy between the two samples is small enough to retain the null that both samples have equal distributions, however, some may consider this a trend toward differences between the two samples.

CHAPTER IV

DISCUSSION

This anonymous survey study was conducted to assess if individuals with ADHD were at higher risk for HIV infection than normal subjects. The results are not generally supportive of the initial hypotheses. A restricted random sample of eight control subjects was selected based on the proposed analyses. Johnston and Pennypacker (1993) suggested that visual analyses should be conducted based on the equal sample sizes of the comparison groups, just as the supplemental statistical analyses would require. Data were provided for the total control sample to compare the representativeness of the random selection to this group.

The literature indicated at least for human adolescent subjects that the lack of impulse control resulted in a higher rate of sexual behavior (Roscoe & Kruger, 1990; Hein, 1987; White & Johnson, 1988; Horvath & Zuckerman; among others). Given these findings, it might follow that those who are deficient in impulse control would have even higher rates of sexual behaviors. However, in an overall visual analysis, the ADHD subjects reported engaging in considerably less frequent of sexual behavior than the controls (see Figure 2 in Appendix I). An explanation for these contrary findings may lie in the area of social skills. Typically ADHD adolescents have reduced social interactions (Barkley, 1990; among others) which might result in reduced opportunities for sexual encounters. Further studies investigating the specific sexual activity of ADHD subjects related to opportunities and perhaps with matched peer samples may begin to answer some of these questions.

An increased sample size with a larger number of sexually active ADHD adolescents may help identify this issue as well.

The results indicated that the ADHD subjects did not report engaging in a higher frequency of Risky Sexual Behaviors than the controls (see Figure 1 in Appendix I). Again, this result may be explained by the lack of opportunity to engage in such behaviors. A future study might research sexual behaviors as well as opportunity to engage in the same sexual behaviors to tease apart the issue of social opportunity.

The results found no significant correlation between ADHD and controls when considering their Risk Perception Subset and their Risky Sexual Behaviors subset score (see Figure 3 in Appendix I). As indicated by visual analysis the ADHD group were less likely to engage in risky sexual behaviors, however, they perceived themselves to be at the same risk level as controls who report engaging in more risky sexual behaviors. This is consistent with the adolescent research indicating that adolescents engaging in risky behaviors will report a lower risk perception (Benthin, Slovic, & Severson, 1993; and Severson, 1991). This indicates that the ADHD subjects were perhaps more aware of AIDS as a risk factor in their lives than the controls or that they consider sexual contact to have significant risks.

The results found no differences between ADHD and controls for knowledge of AIDS risk behaviors. Visual analysis of these data indicate that the ADHD sample actually scored better than the TC sample. ADHD subjects reported less attendance at AIDS awareness programs, however this does not seem to have significantly impacted their knowledge with respect to AIDS risk behavior knowledge. This study indicates that ADHD subjects have an adequate knowledge of risky sexual behaviors. This was tested using the AIDS Risk Behavior Knowledge Scale (ARBKS) developed by Kelly, St. Lawrence, et. al. (1989). The ARBKS psychometric properties were based on an

undergraduate college student sample as well as a sample of gay men. The sample mean age was 25.5 years. Forty-five percent of the college student sample was male. Kelly, St. Lawrence, et. al. (1989) reported an overall mean score of 33.33 with a range of 5-40, (SD = 4.2). Other normative data reported by Kelly, St. Lawrence, et. al. (1989) relating to the present sample, indicated that white college students had a mean score of 32.8 (SD = 3.2). Comparisons between the samples in this study and the overall sample reported by Kelly, St. Lawrence, et. al. (1989) may be found in Figure 4 (see Appendix I). In general, based on the normative psychometrics, the ADHD subjects scored within one SD above the normative sample.

This study found that both ADHD and control subjects reported a fairly good knowledge of AIDS risk behaviors, yet self-report indicates that the same subjects reported engaging in risky sexual behaviors. Knowledge of risk of infection appeared to have no special influence on the current sexual practices of the subjects as per their verbal report. This is a finding that has been reported consistently in the literature (Hein, 1991; Kann, Anderson, Holtzman, Ross, Truman, Collins, & Kolbe, 1991; Moore & Rosenthal, 1991; Kelly, St. Lawrence, et. al., 1989; Nangle & Hansen, 1993; among others).

The results found no differences between ADHD and RS on Impulsive Sexual Behaviors. A visual analysis of these variables indicates that the ADHD sample is report being less impulsive in their sexual behaviors than the RS reported and considerably less than the TC sample reported (see Figure 5 in Appendix I). As previously discussed, this discrepancy may be due to a lack of opportunity to engage in sexual behaviors, or due to a conservative effort on the part of the subject to control their impulsive behaviors in the area of sexual behaviors. The literature would indicate that an opposite finding might be expected as previously discussed.

Again the small number of sexually active ADHD subjects in the pool prevents firm conclusions.

The results indicated that there is no difference between ADHD and RS group for their verbal report of having engaged in sexual intercourse without telling their partner of and STD. For both the ADHD and the RS there were no reports of ever having been diagnosed with a sexual transmitted disease. For the TC however, this was not the case (see Figure 6 in Appendix I). Clearly this difference relates to the lack of opportunity on the part of the ADHD and RS samples as both reported never being diagnoses with an STD. Future research focusing on the reasons for this lack of opportunity would help answer this question.

Visual analysis comparing the endorsement of DSM IV criteria and a breakdown into the subsets that although not statistically significant, a trend indicated that the ADHD sample endorsed more items than the RS and TC groups (see Figure 1 in Appendix I). This would be expected given that the ADHD sample has reported a diagnosis of ADHD. Interestingly, this difference was not statistically significant, although a trend to significance was indicated. The same was true for the Hyperactivity/Impulsivity subset of the diagnostic criteria. The results indicated a trend although not a significant difference for the endorsement of the Hyperactivity/Impulsivity subset of the criteria by the ADHD group. A larger sample is required to determine significance between these discrepancies. However, despite the ADHD sample reporting more hyperactive/impulsive symptoms than the RS or the TC, they reported less impulsive sexual behavior encounters, further supporting the idea of lack of opportunity to engage in sexual relationships as a plausible explanation for some visual differences noted in the data. Parenthetically, the ADHD subjects did not endorse enough symptoms to receive a current diagnosis

based on the DSM IV criteria, which require 6 of 9 items for both the hyperactivity/impulsivity subset and the inattention subset.

The results indicated there was no difference between ADHD and RS group for correlations of Impulsive Sexual Behavior Subset with Total DSM IV criteria endorsed. Visual comparisons between the total number of DSM IV criteria endorsed and the score on the Impulsive Sexual Behaviors Subset seems to indicate that with a decrease in endorsement of diagnostic criteria there is an increase in impulsive sexual behaviors (see Figure 8 in Appendix I). As noted earlier, the possible combination of lack of opportunity for sexual behavior might result in a decrease in impulsive sexual behaviors seen in those reporting a diagnosis of ADHD.

A comparison of the total number of diagnostic criteria endorsed across the groups indicated that although not statistically significant, a trend indicated that the ADHD group endorsed considerably more criteria than the RS and the TC (see Figure 9 in Appendix I). Based on repeat symptom identification, it is not surprising that the ADHD sample would endorse more criteria than the RS or the TC, given a previous or a current diagnosis which qualified them for the ADHD group. A larger sample would verify this trend.

Given the constructs of the dependent measures, another possible approach to these hypotheses could consist of the use of the CSCL as the categorical device. In this manner, subjects would be selected into groups based on their endorsement of the DSM criteria for Attention Deficit Hyperacitivity Disorders. A comparison between those endorsing a number of symptoms consistent with an ADHD diagnosis compared to those not endorsing criteria consistent with an ADHD diagnosis would give a better indication of the relationship between current symptomatology and HIV risk.

One advantage of this approach is that it would increase the sample size by including members of the current control group. As well, this method may be more

consistent with the construct of ADHD diagnoses as supported by the APA (DSM IV, 1994). Specifically, this method would make use of the DSM criteria supplied for the purpose of identifying heterogenous populations of clients and subjects. In practice, diagnoses are made based on clinical judgement and experience, which may not be completely consistent with the proposed criteria. By selecting subjects in this manner we may be more likely to identify adolescents at risk for HIV infection based on their report of characteristics consistent with ADHD diagnoses. Again, these individuals may not have a current diagnosis, however verbal report would indicate endorsement of criteria consistent with an ADHD diagnosis.

Limitations

There are several important limitations to this study. The small sample size is the first consideration for concern. Volunteer ADHD subjects were difficult to find, although they were reimbursed for their time. Despite recruiting from classes across campus for 1.5 years, only eight ADHD subjects were recruited. Contact with some students resulted in declining to participate due to lack of time. There were others who repeatedly missed appointments. The small sample size greatly decreases the power of this study both in visual analyses as well as statistical approaches.

Biased sampling may confound some of the characteristics with respect to the ADHD as well as the control groups. We did not specifically recruit for males, however, some sites were contacted with specific emphasis on individuals with ADHD diagnoses. It was hoped that this might result in a larger sample.

Another major limitation comes from the dependent measures. The dependent measures rely on verbal report. There are no reliability and validity data available for most of these measures (excluding the ARBKS). This survey was anonymous and

relied solely upon the subjects ability to accurately report circumstances through out their adolescent experiences. Many factors may have contributed to distortions in these responses: examiner effect, subject memory, subject honesty, subject's reading ability, subjects' schedules, as well as others. On a sexual behavior questionnaire much sensitive information is requested and subjects were asked to respond to the best of their knowledge. Some questions referring to frequencies were expected to be estimates and not fully accurate, while other responses could only be taken for what was reported.

Another limitation of this study may be the sample we chose. This same study conducted in a high school may yield very different results. This sample's age range fell in the high end of the adolescent range. It may be that at the time this survey was conducted, adolescents at the lower end of the age range were engaging in different behaviors than these subjects. As well, the sample analyzed consisted of only male subjects.

Tentative Conclusions

The results give visual indication that ADHD subjects engage in fewer sexual behaviors than the controls sampled. Although researchers typically argue that many ADHD children have social difficulties in adolescence and adulthood (Barkley, 1990), the authors are aware of no longitudinal studies which specifically assess sexual behaviors in ADHD individuals across their lifespan. Further studies are needed to investigate the relationship of social skills and opportunity for sexual experiences in order to separate out the possibility that when given the opportunity ADHD subjects might engage in similar patterns of sexual behaviors as controls. The literature is rather sparse in what is known regarding the sexual behaviors of

individuals with ADHD and this study serves as a stepping stone to the beginning of the investigation of this area. It appears that for whatever the reason, this sample of ADHD subjects were not at any greater risk for HIV than the control subjects. Generalizability of these findings is certainly limited. Studies with larger samples as well as more broad population bases are needed in order to extend these results to the general adolescent ADHD population.

Appendix A

Approval Statements From the Human Subjcts
Institutional Review Board

Human Subjects Institutional Review Board

Kalamazoo, Michigan 49008-3899
616 387-8293

WESTERN MICHIGAN UNIVERSITY

Date: March 9, 1995

To: Adams, Margo

From: Richard Wright, Interim Chair

Re: HSIRB Project Number 94-11-31

This letter will serve as confirmation that your research project entitled "Attention deficit hyperactivity disorder in adolescents and risk for human immunodeficiency virus infection" has been approved under the **expedited** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you must seek specific approval for any changes in this design. You must also seek reapproval if the project extends beyond the termination date. In addition if there are any unanticipated adverse or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: Mar 9, 1996

xc: Armstrong, Kevin, PSY

Human Subjects Institutional Review Board

Kalamazoo, Michigan 49008-3899
616 387-8293

WESTERN MICHIGAN UNIVERSITY

Date: November 21, 1995

To: Margo Adams

From: Richard Wright, Chair

Re: HSIRB Project Number 94-11-31

This letter will serve as confirmation that the changes to your research project "Attention deficit hyperactivity disorder in adolescents and risk for human immunodeficiency virus infection" requested in your memo dated November 6, 1995 have been approved by the Human Subjects Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

You must seek reapproval for any changes in this design. You must also seek reapproval if the project extends beyond the termination date.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: March 9, 1996

xc: Kevin Armstrong, PSY

Appendix B

Survey Packet Source Information

Survey Packet Source Information

1. Sexual Behavior Questionnaire (SBQ) compilation source (for Appendix E):

   Ehde, D. M. (1989). The prevention of AIDS: Assessment and intervention in a heterosexual college population. Unpublished doctoral dissertation, University of North Dakota, Grand Forks.

2. AIDS Risk Behavior Knowledge Scale (ARBKS) source:

   Kelly, J. A., St. Lawrence, J. S., Hood, H. V., & Brasfield, T. L. (1989). An objective test of AIDS risk behavior knowledge: Scale development, validation, and norms. Journal of Behavior Therapy and Experimental Psychiatry, 20(3), 227-234.

3. Current Status Check List (CSCL) compilation sources:

   American Psychiatric Association. (1980). Diagnostic and statistical manual of mental disorders (3rd ed.). Washington, DC: Author.

   American Psychiatric Association. (1987). Diagnostic and statistical manual of mental disorders (3rd ed. revised). Washington, DC: Author.

   American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.

Appendix C

Consent Forms

Consent Form

Western Michigan University - Department of Psychology

Attention Deficit Hyperactivity Disorder in Adolescents and Risk for Human Immunodeficiency Virus Infection

Principal Investigator: Kevin J. Armstrong, Ph.D.
Student Investigator: Margo A. Adams, B.S., B.A.

I understand that I have been invited to participate in a confidential survey study investigating the relationship between attention deficits and hyperactivity disorders and behaviors which place one at risk for HIV infection. I understand that I must be 18 years of age, but not older that 21 years, 11 months, in order to participate in this study. I understand that I must also be currently enrolled in an undergraduate course load at Western Michigan University. I understand that I may withdraw my consent to participate in this research at any time without any negative effects on my grades or my relationship with WMU. I understand that I will be filling out a Background Demographic Information Form, a Sexual Behavior Questionnaire, an AIDS Knowledge Questionnaire, and a Current Status Checklist. I understand that the approximate time required to complete these measures is 45 minutes. As well, I will be asked to give my consent (through self addressing an envelope) for my primary care-giving parent to confirm the status of my ADD, ADD-H, or ADHD diagnosis, without mention of the specific nature of the study. I will be presented the letter that will be sent to my parent with my birth date on it, sign a consent of release of such letter, and seal and address the envelope to be turned in to the researcher and immediately mailed. I understand that my participation is not dependent upon accessibility to my parent, and that my responses will be useful to the researcher even if my primary care-giving parent is unable to participate in this project. At no time will the researcher be able to match my responses on the questionnaire to my name. The researcher will not know my name, except by signature on the consent forms which will be stored separate from the questionnaires.

I understand that there are no potential benefits to my participation in this study. I understand that potential risks related to this study may be the inadvertent questioning by my parents regarding my participation in a research study. It is also possible I may experience some discomfort at being asked highly personal questions. Confidentiality of myself and my family will be maintained through the use of code numbers. Additionally, the surveys will have no names or other identifying information on them. My signature will only be on the consent forms, which will be kept in a locked file in Dr. Armstrong's Lab, away from the actual questionnaire data.

As in all research, there may be unforeseen risks to the participant. If an accidental injury occurs, appropriate emergency measures will be taken; however, no compensation or treatment will be made available to the subject except as otherwise stated in this consent form.

Finally, I understand that I may contact Dr. Armstrong at 387-4472, or Margo Adams, B.A., B.S., at 387-3965 at anytime if I have questions, etc. If I have any questions or concerns about this research study, I may also contact the Chair of the Human Subjects Institutional Review Board, at 387-8293 or the Vice President for Research, at 387-8293, if questions or problems arise during the course of this study.

My signature below indicates that I give my consent to participate in this study.

_____ _____

Signature Date

Consent for Parental/Guardian Confirmation

I agree to allow the researchers, Dr. Kevin J. Armstrong and Margo Adams, B.A., B.S., to inquire as to my diagnostic status with respect to Attention Deficit Hyperactivity Disorder diagnosis. I understand that this letter will merely serve to supplement my report of whether I have ever been diagnosed with Attention Deficit Hyperactivity Disorder. I understand that confidentiality with respect to my responses on the rest of the survey will be maintained, and that only the letter of explanation and letter of confirmation will be seen by my parent. I have read the letter which my parent will receive, and put my birth date on it in the space provided. I then will insert the letter, with the return envelope, seal and address the envelope to my primary care-giving parent. I agree to allow the researcher to mail this envelope. I understand that no identifying names will be used on my survey and that all forms will be coded in order to protect my confidentiality. At no time will my parent be able to receive information regarding any of my responses on this survey, nor will I be able to inquire as to information that my parent may provide, or their participation in this study.

_____ _____

Signature Date

Appendix D

Background Demographic Information (BI)

Subject Code # _____

Background Demographic Information

Please answer the following questions to the best of your ability. If you don't know a response please leave it blank. If you decline to answer a question, please use D to indicate decline.

1. Age _____

2. Today's Date Month_____Day_____Year_____

3. Birth Date Month_____ Day_____Year_____

4. Gender
   a. male
   b. female

5. Please indicate what you consider your current health status to be:
   a. excellent
   b. very good
   c. good
   d. fair
   e. poor

6. Approximate year in school (Please select only one):
   a. freshman
   b. sophomore
   c. junior
   d. senior
   e. other (please specify: _____)

7. Have you selected a major?
   a. yes (please specify: _____)
   b. no

8. Did you ever fail (held back) any grades in K-12?
   a. yes (Please indicate how many _____)
   b. no

9. Have you ever had a diagnosis of Attention Deficit Disorder with or without Hyperactivity?
   a. yes
   b. no
   c. not sure

-> GO ON TO BACK SIDE OF PAGE

Background Demographic Information (continued...)

10. Do you currently have a diagnosis of Attention Deficit Disorder or Hyperactivity?
    a. yes (go on to #11)
    b. no (go on to #11)
    c. not sure (go on to #16)

11. If yes, about how old were you when you received this diagnosis? _____

12. About what grade were you in when you received this diagnosis? _____

13. Do you know who gave you this diagnosis?
    a. doctor, physician, pediatrician
    b. psychologist
    c. psychiatrist
    d. teacher
    e. clinic
    f. other (please specify: _____)
    g. don't know

14. Have you ever been on medications for this diagnosis?
    a. yes
    b. no

15. Are you currently taking any medications related to this diagnosis?
    a. yes (please specify: _____)
    b. no

16. Have you ever participated in an AIDS intervention program (e.g., speaker at high school or college, workshop at dorm, program at sorority/fraternity, individual appointment with health professional, etc.)?
    a. yes (please indicate how many: ____)
    b. no

Please go on to the next page.

Appendix E

Sexual Behavior Questionnaire (SBQ)

Subject # _____

Sexual Behavior Questionnaire

The next series of questions ask about your sexual activities. Please think back and answer as carefully as possible. Think of the places you have visited and people you have met. Then, answer the following questions. Please be candid and honest. The questions will ask you both the number of male and the number of female partners. So if you are heterosexual and have only had partners of the opposite sex, please fill in every blank (even if you must write a lot of zeros).

1. Your gender: (Please circle)
   a. male
   b. female

2. Which of the following best describes your lifetime sexual BEHAVIOR or activities (Please circle one.)
   a. exclusively heterosexual
   b. almost exclusively heterosexual, but a small degree of homosexual activity
   c. primarily heterosexual, but with a substantial degree of homosexual activity
   d. equally heterosexual and homosexual
   e. primarily homosexual, but with a substantial degree of heterosexual activity
   f. almost exclusively homosexual, but a small degree of heterosexual activity
   g. exclusively homosexual
   h. asexual

3. Have you ever had unwanted sexual contact with another person before age 12?
   a. yes
   b. no

4. After age 12, were you ever forced to have sexual contact with another person against your will?
   a. yes
   b. no

5. How concerned are you about AIDS as a problem for your health? Would you say that you are:
   a. extremely concerned
   b. concerned
   c. fairly concerned
   d. not concerned at all

6. At what risk do you think you are for contracting HIV, the AIDS virus? (Choose only one)
   a. no risk
   b. low risk
   c. average risk
   d. high risk

7. Do you know your HIV status?
   a. yes (please circle: HIV negative HIV positive)
   b. no

8. When was the last time you were tested for HIV?
   a. never had an HIV blood test
   b. In the past 3 months
   c. 4-6 months ago
   d. 7-12 months ago
   e. more than a year ago

9. How would you describe your current sexual activity? (Circle one)
   a. I have never had sexual contact with anyone (i.e., I have NEVER had hand/genital contact, oral/genital contact, or body rubbing with anyone IN MY LIFETIME)
   b. I have never had genital or anal intercourse with anyone BUT I have had other sexual contact such as oral/genital contact, hand/genital contact, etc.
   c. I'm not sexually active with anyone at this time
   d. I'm sexually active with only one person, and I am certain neither of us has sex with anyone else.
   e. I'm sexually active with only one person, but I think this person may be having sex with other people
   f. I'm sexually active with more than one person

   ** If you answered a to question #9, you may turn to the AIDS Risk Behavior Knowledge Test.

10. Have you ever been pregnant, or gotten someone pregnant?
   a. yes (please estimate how many times: _____)
   b. no

11. Do you have any children?
   a. yes (please indicate how many: ____)
   b. no

12. Have you ever been diagnosed with any sexually transmitted disease (e.g., herpes, syphilis, gonorrhea, chlamydia, HIV/AIDS)?
   a. yes, but only once
   b. yes, more than once
   c. no

13. If you generally agree that it is wisest to use safe sex techniques (e.g., latex barriers), have you ever chosen to have sexual intercourse without using these techniques?
   a. yes
   b. no

14. Have you ever used intravenous drugs or shared needles?
   a. yes
   b. no

15. How often do you have intercourse (genital or anal intercourse) after you have been using alcohol or other drugs (e.g., marijuana, cocaine)?
   a. never
   b. occasionally (please indicate the drug used most often: _____)
   c. sometimes (please indicate the drug used most often: _____)
   d. often (please indicate the drug used most often: _____)
   e. always (please indicate the drug used most often: _____)

16. Have you ever had sex with someone without telling them you had an STD (e.g., herpes, HPV, syphilis, gonorrhea, HIV/AIDS)?
   a. yes
   b. no

17. Have you ever chosen to engage in sexual intercourse (genital or anal intercourse): (please circle)

a. with a person whose name you did not know?	Y	N
b. with a person whose name you can't remember?	Y	N
c. with a stranger or someone you didn't know?	Y	N
d. on the first date?	Y	N
e. on the second date?	Y	N
f. after dating one week?	Y	N
g. after dating one month?	Y	N
h. after dating three months?	Y	N
i. after dating six months?	Y	N
j. after dating twelve months?	Y	N
k. before marriage?	Y	N
l. in a non-exclusive relationship?	Y	N
m. without having safe sex supplies available?	Y	N
n. without using safe sex techniques?	Y	N

18. Have you ever chosen to engage in sexual intercourse (genital intercourse) with someone before (please indicate yes or no for each):

a. talking about HIV status?	Y	N
b. talking about how many sex partners they have had?	Y	N
c. talking about if they have ever used IV drugs?	Y	N
d. talking about if they have engaged in sexually risky behaviors?	Y	N
e. talking about condom use or other latex barriers?	Y	N
f. talking about birth control?	Y	N

Please respond to the following questions with respect to the last time you had sexual intercourse (genital or anal).

19. For heterosexual partners: What forms of birth control did you use the last time you had sexual (genital) intercourse (please circle)?

a. None	Y	N
b. Birth Control Pill	Y	N
c. diaphragm or cervical cap	Y	N
d. sponge	Y	N
e. IUD	Y	N
f. Condom (rubber)	Y	N
g. foam, jelly, or spermicide	Y	N
h. female condom	Y	N
i. depo-provera (shots)	Y	N
j. norplant (implant in arm)	Y	N
k. tubes tied (tubal ligation)	Y	N
l. vasectomy	Y	N
m. withdrawal (pulling out)	Y	N
n. other:	Y	N

20. Did you use a latex condom/barrier?
    a. yes
    b. no

Please respond to the following questions with respect to your current partner (or last partner if you are not currently in a sexual relationship).

21. About how long have you been seeing your current partner? months _____
years _____

22. What do you know of your current partner's HIV status?
    a. I am absolutely positive my current partner is HIV+ (received a positive test result for HIV/AIDS virus)
    b. I am fairly certain my current partner is HIV+
    c. I have no idea of my current partner's HIV status
    d. I am fairly certain my current partner is HIV-
    e. I am absolutely positive my current partner is HIV- (received a negative test result for HIV/AIDS virus)

23. What do you know of your current partner's sexual history?
    a. I know how many sexual partners my current partner's has had
    b. I am fairly certain of how many sexual partners my current partner has had
    c. I have no idea how many sexual partners my current partner has had

24. What do you know of your current partner's intravenous drug use history?
    a. I am positive that my current partner has never used IV drugs
    b. I am fairly certain that my current partner has never used IV drugs
    c. I have no idea if my current partner has ever used IV drugs
    d. I am fairly certain that my current partner has used IV drugs
    e. I am positive that my current partner has used IV drugs

25. How risky do you feel sexual intercourse is with your current partner?
    a. no risk
    b. low risk
    c. average risk
    d. high risk

26. Please indicate why you feel this risk level for sexual intercourse with your current partner:

Please consider your sexual experiences and relationships for the following questions. If you are unsure of the exact numbers, please provide an estimate, and remember to fill in all spaces. For your "Past Year" responses consider a year from today's date. Use "0" to indicate no occurrences, and "D" to indicate decline to answer the question.

27. How many different sexual partners have you had?

	Past Month	Past Year	Lifetime (Total)
male sexual partners	_____	_____	_____
female sexual partners	_____	_____	_____

28. What was your age at the time of your first sexual experience (any type of sexual contact, including body rubbing and hand/genital contact, genital or anal intercourse): _____

29. GENITAL INTERCOURSE: Have you ever had genital intercourse? (Genital intercourse is defined as any activity in which your or your partner's penis was inserted into your or your partner's vagina.)

a. yes (go on to #29A)
b. no (go on to #30)

29A. Age of first genital intercourse: _____

29B. With how many different partners have you had genital intercourse?

	Past Month	Past Year	Lifetime (Total)
male sexual partners	_____	_____	_____
female sexual partners	_____	_____	_____

29C. Estimate how many times you have had genital intercourse:

	Past Month	Past Year	Lifetime (Total)
times with males	_____	_____	_____
times with females	_____	_____	_____

29D. How often did you and your partner use latex condoms/barriers when having genital intercourse? (Circle one)

Past month:
0% 10% 25% 50% 75% 90% 100%

Past year:
0% 10% 25% 50% 75% 90% 100%

Lifetime:
0% 10% 25% 50% 75% 90% 100%

30. ANAL INTERCOURSE: Have you ever had receptive anal intercourse (Anal intercourse is defined as any activity in which your or your partner's penis was inserted into your or your partner's anus.)?

a. yes (go on to #30A)
b. no (go on to #31)

30A. Age of first receptive anal intercourse: _____

30B. With how many different partners have you had anal intercourse?

	Past Month	Past Year	Lifetime (Total)
male sexual partners	_____	_____	_____
female sexual partners	_____	_____	_____

30C. Estimate how many times you had anal intercourse:

	Past Month	Past Year	Lifetime (Total)
times with males	_____	_____	_____
times with females	_____	_____	_____

30D. How often did you and your partner use latex condoms/barriers during anal intercourse?

Past month:
0% 10% 25% 50% 75% 90% 100%

Past year:
0% 10% 25% 50% 75% 90% 100%

Lifetime:
0% 10% 25% 50% 75% 90% 100%

31. ORAL-GENITAL CONTACT: Have you ever had oral/genital contact (Oral/genital contact is defined as any activity in which either you have placed your mouth on your partner's genitals or your partner has placed their mouth on your genitals)?

a. yes (go on to #31A)
b. no (go on to #32)

31A. Age of first oral/genital contact: _____

31B. With how many different partners have you had oral/genital contact?

male partners in which I stimulated his genitals

Past Month	Past Year	Lifetime (Total)
_____	_____	_____

male partners in which he stimulated my genitals

Past Month	Past Year	Lifetime (Total)
_____	_____	_____

female partners in which I stimulated her genitals

Past Month	Past Year	Lifetime (Total)
_____	_____	_____

female partners in which she stimulated my genitals

Past Month	Past Year	Lifetime (Total)
_____	_____	_____

31C. Estimate how many times you had oral/genital contact:

times with males in which I stimulated his genitals

Past Month	Past Year	Lifetime (Total)
_____	_____	_____

times with males in which he stimulated my genitals

Past Month	Past Year	Lifetime (Total)
_____	_____	_____

times with females in which I stimulated her genitals

Past Month	Past Year	Lifetime (Total)
_____	_____	_____

times with females in which she stimulated my genitals

Past Month	Past Year	Lifetime (Total)
_____	_____	_____

31D. How often did you and your partner use latex condoms/barriers when having oral/genital contact?

Past month:
0% 10% 25% 50% 75% 90% 100%

Past year:
0% 10% 25% 50% 75% 90% 100%

Lifetime:
0% 10% 25% 50% 75% 90% 100%

31E. How often did you or your partner take your semen/vaginal fluid into their mouth?

Past month: N/A
0% 10% 25% 50% 75% 90% 100%

Past year: N/A
0% 10% 25% 50% 75% 90% 100%

Lifetime: N/A
0% 10% 25% 50% 75% 90% 100%

32. HAND/GENITAL CONTACT: Have you ever had hand/genital contact? (Hand genital contact is defined as any activity in which your or your partner's hand or finger(s) had contact with the other person's genital area).

a. yes (go on to #32A)
b. no (go on to #33)

32A. Age of first hand/genital contact: _____

32B. With how many different partners have you had hand/genital contact?

	Past Month	Past Year	Lifetime (Total)
male sexual partners	_____	_____	_____
female sexual partners	_____	_____	_____

32C. Estimate how many times you had hand/genital contact:

	Past Month	Past Year	Lifetime (Total)
times with males	_____	_____	_____
times with females	_____	_____	_____

32D. How often did you and your partner use latex condoms/barriers when having hand/genital contact?

Past month:

0% 10% 25% 50% 75% 90% 100%

Past year:

0% 10% 25% 50% 75% 90% 100%

Lifetime:

0% 10% 25% 50% 75% 90% 100%

33. ORAL/ANAL CONTACT: Have you ever had oral/anal contact (rimming)? (Oral/anal contact is defined as any activity in which your or your partner's mouth was placed on the other person's anus.)

a. yes (go on to #33A)
b. no (go on to #34)

33A. Age of first oral/anal contact: _____

33B. With how many different partners have you had oral/anal contact?

	Past Month	Past Year	Lifetime (Total)
male sexual partners	_____	_____	_____
female sexual partners	_____	_____	_____

33C. Estimate how many times you had oral/anal contact:

	Past Month	Past Year	Lifetime (Total)
times with males	_____	_____	_____
times with females	_____	_____	_____

33D. How often did you use latex condoms/barriers when having oral/anal contact with your partner?

Past month:

0% 10% 25% 50% 75% 90% 100%

Past year:

0% 10% 25% 50% 75% 90% 100%

Lifetime:

0% 10% 25% 50% 75% 90% 100%

34. HAND/ANAL CONTACT: Have you ever had hand/anal contact? (Hand/anal contact is defined as any activity in which you or your partner's hand or finger(s) had contact with the other person's anus).

a. yes (go on to #34A)
b. no (gon on to the next page)

34A. Age of first hand/anal contact: _____

34B. With how many different partners have you had hand/anal contact?

	Past Month	Past Year	Lifetime (Total)
male sexual partners	_____	_____	_____
female sexual partners	_____	_____	_____

34C. Estimate how many times you had hand/anal contact:

	Past Month	Past Year	Lifetime (Total)
times with males	_____	_____	_____
times with females	_____	_____	_____

34D. How often did you use latex condoms/barriers when having hand/anal contact with your partner?

Past month:

0% 10% 25% 50% 75% 90% 100%

Past year:

0% 10% 25% 50% 75% 90% 100%

Lifetime:

0% 10% 25% 50% 75% 90% 100%

Appendix F

Parent Letter

College of Arts and Sciences
Department of Psychology

Kalamazoo, Michigan 49008-5052
616 387-4498

WESTERN MICHIGAN UNIVERSITY

March 1995

Dear Parent/ Guardian:

Your son/daughter whose date of birth is *(Date of Birth)* recently participated in a research project in our department. This study is being conducted to investigate attention deficits and hyperactivity disorders compared to control subjects in a number of descriptive areas. Parental confirmation of a self-report of this disorder will help us more accurately identify our subject pool. Confidentiality of your son's or daughter's and your responses will be maintained through coded surveys which have no names or identifying information on them.

At no time will your son/daughter be able to receive information with respect to your responses or participation, nor will you be able to inquire as to information that your child provided. We ask that you do not place your return address on the enclosed return envelope. Below are several questions that your daughter or son responded to on their survey. If you consent to participate, would you please take a few minutes and fill in your own responses and then return this form in the enclosed envelope.

I understand that if I have any questions or concerns about this research study. I may contact Dr. Armstrong at 387-4472 or Margo Adams, B.S., B.A., at 387-3965. I may also contact the chair of the Human Subjects Institutional Review Board at 387-8293, or the Vice President for Research at 387-8293, if questions or problems arise during the course of this study.

Please see reverse for the questionnaire.

Thank you for your time and interest.

Kevin J. Armstrong, Ph.D.
Assistant Professor
Clinical Psychology Training Program

Margo A. Adams, B.S., B.A.
Doctoral Student,
Clinical Psychology Training Program

Subject # _____

Letter to Parents/Guardians

1. Did your son/daughter mentioned in the letter ever fail any grades in K-12 ?
   a. no
   b. yes - How many? _____
      Which ones? _____

2. Has your daughter or son ever received a diagnosis of Attention Deficit Disorder with or without Hyperactivity?
   a. yes (go on to #3)
   b. no (please return survey)
   c. not sure (go on to #3, or indicate information relevant to this)

3. If yes, how old was your son or daughter when this diagnosis was received? _____

4. What grade was your son or daughter in when this diagnosis received? _____

5. Who gave this diagnosis?
   a. a doctor, physician, pediatrician
   b. a psychologist
   c. a psychiatrist
   d. a teacher
   e. a clinic
   f. other (please specify: _____)
   g. unsure

6. Has your daughter or son ever been on medication(s) for this diagnosis?
   a. yes
   b. no
   c. not sure

7. Is your son/daughter currently taking any medications related to this diagnosis?
   a. no
   b. yes (please specify: _____)
   c. not sure

Please return as soon as possible to:

Dr. Kevin J. Armstrong and Margo A. Adams, B.S., B.A.,
Department of Psychology
Western Michigan University
Kalamazoo, MI 49008

Appendix G

Receipt of Funds

Receipt of Funds

I received _____ for participating in the survey study titled "ADHD in Adolescents and Risk for HIV Infection" on (date) _____.

_____
(signature of subject)

_____
(signature of researcher)

* This form will be attached to your consent form(s) and not kept with your survey.

Appendix H

Tables 2 - 5

Table 2

Number of Subjects Reporting Sexual Activity on the Risky Sexual Behavior Subset Items

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ9	Describe current sexual activity:			
	a. never had any sexual contact	0	2	6
	b. never had genital or anal contact	1	0	16
	c. not currently sexually active	4	3	22
	d. sexually active, one exclusive	2	3	38
	e. sexually active, non-exclusive	0	0	3
	f. sexually active, more than one	1	0	20
SBQ12	Ever been diagnosed with an STD:			
	Of the subjects reporting past and current sexual experiences,			
		n = 8	n = 6	n = 89
	a. yes, once	0	0	2
	b. yes, more than once	0	0	0
	c. no	100	100	87

Table 2 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ15	Times having intercourse after using alcohol/drugs:			
	Of the subjects reporting past and current sexual intercourses,	n = 7	n = 6	n = 83
	a. never	5	2	32
	b. occasionally	2	2	23
	c. sometimes	0	1	17
	d. often	0	1	9
	e. always	0	0	2
SBQ16	Sex without telling partner you had an std:			
	Of the subjects reporting past and current sexual experiences,	n = 8	n = 6	n = 89
	a. yes	0	0	4
	b. no	8	8	85

Table 2 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ18a	Engaged in sex before talking about HIV:			
	Of the subjects reporting past and current sexual intercourses,	n = 7	n = 6	n = 83
	1. yes	3	4	55
	2. no	4	2	28
SBQ18b	Engaged in sex before talking about how many sex partners:			
	Of the subjects reporting past and current sexual intercourses,	n = 7	n = 6	n = 83
	1. yes	1	3	43
	2. no	6	4	40
SBQ18c	Engaged in sex before talking about IV drug use:			
	Of the subjects reporting past and current sexual intercourses,	n = 7	n = 6	n = 83
	1. yes	1	3	51
	2. no	6	3	32

Table 2 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ18d	Engaged in sex before talking about if they engaged in sexually risky behaviors:			
	Of the subjects reporting past and current sexual intercourses,	n = 7	n = 6	n = 83
	1. yes	1	3	46
	2. no	6	3	37
SBQ18e	Engaged in sex before talking about condom use or latex barriers:			
	Of the subjects reporting past and current sexual intercourses,	n = 7	n = 6	n = 83
	1. yes	3	3	35
	2. no	4	3	48
SBQ18f	Engaged in sex before talking about birth control:			
	Of the subjects reporting past and current sexual intercourses,	n = 7	n = 6	n = 83
	1. yes	1	4	36
	2. no	6	2	22

Table 2 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ19	Did you use birth control the last time you had sex:			
	Of the subjects reporting past and current sexual experiences,	n = 8	n = 6	n = 89
	1. Yes	1	1	20
	2. No	7	5	69
SBQ20	The last time you had sex did you use a condom/latex barrier:			
	Of the subjects reporting past and current sexual experiences,	n = 8	n = 6	n = 89
	a. yes	6	3	66
	b. no	2	3	23

Table 2 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ22	Knowledge of current (most recent) partner's HIV status:			
		n = 8	n = 8	n = 105
	a. absolutely positive HIV+	0	0	2
	b. fairly certain HIV+	0	0	0
	c. no idea of partner's status	3	2	15
	d. fairly certain HIV-	2	3	41
	e. absolutely positive HIV-	3	3	47
SBQ23	Knowledge of current (most recent) partner's sexual history:			
		n = 8	n = 8	n = 105
	a. know # of partner's they've had	6	5	na
	b. fairly certain of # of partner's	1	1	na
	c. no idea of # of partner's	1	2	na

Table 2 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ24	Knowledge of current (most recent) partner's IV drug use:			
		n = 8	n = 8	n = 105
	a. positive never used IV drugs	7	7	87
	b. fairly certain never used IV	1	0	7
	c. no idea if used IV drugs	0	1	9
	d. fairly certain has used IV drugs	0	0	1
	e. positive has used IV drugs	0	0	1
SBQ27c	Lifetime number of male sex partners			
	Of the subjects reporting past and current sexual experiences,			
		n = 8	n = 6	n = 89
	0	7	6	85
	1	1	0	1
	3	0	0	1
	4	0	0	1
	7	0	0	1

Table 2 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ27f	Lifetime number of female sexpartners			
	Of the subjects reporting past and current sexual experiences,	n = 8	n = 6	n = 89
	0	0	0	0
	1	4	3	15
	2	1	1	14
	3	2	0	12
	4 - 80	1	2	42

Table 2 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ29d3	Genital Intercourse: Lifetime % non-condom use			
	Of the subjects reporting past and current sexual intercourses,	n = 6	n = 6	n = 76
	0	0	1	0
	10	0	3	8
	25	0	0	7
	50	2	0	8
	75	1	0	12
	90	2	1	21
	100	1	1	20
SBQ30d3	Anal Intercourse: Lifetime % non-condom use			
	Of the subjects reporting past and current sexual intercourses,	n = 1	n = 2	n = 11
	0	0	2	6
	50	0	0	1
	100	1	0	4

Table 2 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ31d3	Oral-Genital Contact: Lifetime % non-condom use			
	Of the subjects reporting past and current sexual experiences,	n = 8	n = 5	n = 78
	0	8	5	89
	10	0	0	1
	25	0	0	1
	90	0	0	3
	100	0	0	4
SBQ32d3	Hand-Genital Contact: Lifetime % non-condom use			
	Of the subjects reporting past and current sexual experiences,	n = 8	n = 8	n = 89
	0	8	7	89
	50	0	0	1
	90	0	0	1
	100	0	1	2

Table 2 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ33d3	Oral-Anal Contact: Lifetime % non-condom use			
	Of the subjects reporting past and current sexual experiences,			
		n = 1	n = 2	n = 10
	0	1	2	9
	90	0	0	1
SBQ34d3	Hand-Anal Contact: Lifetime % non-condom use			
	Of the subjects reporting past and current sexual experiences,			
		n = 1	n = 2	n = 19
	0	1	2	19

Note: These data were presented based on the number of subjects (n) reporting they have engaged in sexual behaviors (see Table 1). It is hoped this may provide information as a proportion of the subjects having had some type of sexual experience. Ranges used for the dependent measure may vary within the table. For the TC group participants declined to respond on some questions.

Table 3

Number of Subjects Reporting Sexual Activity on the Sexual Behavior Subset Items

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ27c	Lifetime number of male sex partners			
	Of the subjects reporting past and current sexual experiences,			
		n = 8	n = 6	n = 89
	0	7	6	85
	1	1	0	1
	3	0	0	1
	4	0	0	1
	7	0	0	1

Table 3 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ27f	Lifetime number of female sexpartners			
	Of the subjects reporting past and current sexual experiences,	n = 8	n = 6	n = 89
	0	0	0	0
	1	4	3	15
	2	1	1	14
	3	2	0	12
	4 - 80	1	2	42
SBQ29c3	Genital Intercourse: Times with male partners			
	Of the subjects reporting having had genital intercourse,	n = 6	n = 6	n = 76
	0	100	100	98
	1	0	0	1
	153	0	0	1

Table 3 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ29c6	Genital Intercourse: Times with female partners			
	Of the subjects reporting having had genital intercourse,	n = 6	n = 6	n = 76
	0	2	0	5
	1 - 10	0	2	20
	11 - 50	3	2	17
	51 - 99	1	0	4
	100 - 1500	0	2	30
SBQ30c3	Anal Intercourse: Times with male partners			
	Of the subjects reporting having had anal intercourse,	n = 0	n = 2	n = 11
	0	0	2	9
	1	1	0	1
	15	0	0	1

Table 3 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ30c6	Anal Intercourse: Times with female partners			
	Of the subjects reporting having had anal intercourse,	n = 0	n = 2	n = 11
	0	0	2	3
	1	0	0	4
	2 - 5	0	0	4
SBQ31c3	Oral-Genital Contact: Times with males I stimulated			
	Of the subjects reporting having had oral-genital contact,	n = 8	n = 5	n = 78
	0	7	5	74
	1 - 3	1	0	2
	4 - 350	0	0	4

Table 3 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ31c6	Oral-Genital Contact: Times with males he stim			
	Of the subjects reporting having had oral-genital contact,	n = 6	n = 6	n = 78
	0	7	5	74
	1 - 4	1	0	2
	5 - 350	0	0	2
SBQ31c9	Oral-Genital Contact: Times with females I stim			
	Of the subjects reporting having had oral-genital contact,	n = 6	n = 6	n = 78
	0	1	0	1
	1 - 10	5	0	32
	11 - 50	1	3	22
	51 - 150	1	1	13
	151 - 600	0	1	10

Table 3 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ31c12	Oral-Genital Contact: Times with females she stim			
	Of the subjects reporting having had oral-genital contact,	n = 8	n = 6	n = 78
	0	0	0	5
	1 - 10	2	0	31
	11 - 50	5	3	16
	51 - 150	1	1	15
	151 - 600	0	1	11
SBQ32c3	Hand-Genital Contact: Times with male partners			
	Of the subjects reporting having had hand-genital contact,	n = 8	n = 6	n = 93
	0	7	6	89
	1 - 10	1	0	1
	11- 300	0	0	3

Table 3 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ32c6	Hand-Genital Contact: Times with female partners			
	Of the subjects reporting having had hand-genital contact,	n = 8	n = 6	n = 93
	0	1	0	9
	1 - 10	1	1	18
	11 - 50	4	1	25
	51 - 200	1	2	20
	201 - 1800	1	2	21
SBQ33c3	Oral-Anal Contact: Times with male partners			
	Of the subjects reporting having had oral-anal contact,	n = 1	n = 2	n = 10
	0	1	2	9
	3	0	0	1

Table 3 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ33c6	Oral-Anal Contact: Times with female partners			
	Of the subjects reporting having had oral-anal contact,			
		n = 1	n = 2	n = 10
	0	7	6	2
	1 - 10	1	2	7
	11 - 20	0	0	1
SBQ34c3	Hand-Anal Contact: Times with male partners			
	Of the subjects reporting having had hand-anal contact,			
		n = 1	n = 2	n = 10
	0	1	2	18
	26	0	0	1

Table 3 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ34c6	Hand-Anal Contact: Times with female partners			
	Of the subjects reporting having had hand-anal contact,			
		n = 1	n = 2	n = 10
	0	7	6	0
	1 - 10	1	2	13
	11 - 50	0	0	6
	51 - 95	0	0	1

Note: These data were presented based on the number of subjects (n) reporting they have engaged in sexual behaviors (see Table 1). It is hoped this may provide information as a proportion of the subjects having had some type of sexual experience. Ranges used for the dependent measure may vary within the table. For the TC group participants declined to respond on some questions.

Table 4

Number of Subjects Reporting Sexual Activity on the Risk Perception Subset Items

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ5	Concern of AIDS as a problem for your health:			
	Of the subjects responding,	n = 8	n = 8	n = 104
	a. extremely concerned	3	0	13
	b. concerned	0	2	42
	c. fairly concerned	5	3	25
	d. not concerned at all	0	3	24
SBQ6	Risk level you think you are at for contracting HIV:			
	Of the subjects responding,	n = 8	n = 8	n = 105
	a. no risk	2	2	19
	b. low risk	5	5	51
	c. average risk	1	1	28
	d. high risk	0	0	7

Table 4 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ8	Last time you were tested for HIV:			
	Of the subjects responding,	n = 8	n = 8	n = 103
	a. never	7	7	63
	b. in the past 3 months	1	0	12
	c. 4 - 6 months	0	0	10
	d. 7 - 12 months	0	1	8
	e. more than a year ago	0	0	10

Table 4 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ25	Risk level you feel sex is with current partner:			
	Of the subjects responding,	n = 8	n = 8	
	a. no risk	1	2	na
	b. low risk	1	3	na
	c. average risk	4	2	na
	d. high risk	2	1	na

Note: These data were presented based on the number of subjects (n) reporting they have engaged in sexual behaviors (see Table 1). It is hoped this may provide information as a proportion of the subjects having had some type of sexual experience. Ranges used for the dependent measure may vary within the table. For the TC group participants declined to respond on some questions.

Table 5

Number of Subjects Reporting Sexual Activity on the Impulsive Sexual Behavior Subset

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ13	Generally agree wise to use safe, but engaged without:			
	Of the subjects reporting past and current sexual experiences,	n = 7	n = 6	n = 83
	a. yes	5	4	68
	b. no	2	2	15
SBQ16	Sex without telling partner you have an std:			
	Of the subjects reporting past and current sexual experiences,	n = 7	n = 6	n = 83
	a. yes	0	0	4
	b. no	7	7	79

Table 5 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ17a	Engaged in sex with person whose name did not know:			
	Of the subjects reporting past and current sexual experiences,	n = 7	n = 6	n = 83
	a. yes	0	0	12
	b. no	7	6	61
SBQ17b	Engaged in sex with person whose name did can't remember:			
	Of the subjects reporting past and current sexual experiences,	n = 7	n = 6	n = 83
	a. yes	0	1	17
	b. no	7	5	66
SBQ17c	Engaged in sex with stranger or person you didn't know:			
	Of the subjects reporting past and current sexual experiences,	n = 7	n = 6	n = 83
	a. yes	1	2	22
	b. no	6	4	61

Table 5 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ17d	Engaged in sex on the first date:			
	Of the subjects reporting past and current sexual experiences,	n = 7	n = 6	n = 83
	a. yes	1	2	40
	b. no	6	4	43
SBQ17e	Engaged in sex on the second date:			
	Of the subjects reporting past and current sexual experiences,	n = 7	n = 6	n = 83
	a. yes	1	2	41
	b. no	6	4	42
SBQ17f	Engaged in sex after dating one week:			
	Of the subjects reporting past and current sexual experiences,	n = 7	n = 6	n = 83
	a. yes	2	3	44
	b. no	5	4	39

Table 5 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ17g	Engaged in sex after dating one month:			
	Of the subjects reporting past and current sexual experiences,	n = 7	n = 6	n = 83
	a. yes	3	3	44
	b. no	4	4	39
SBQ17h	Engaged in sex after dating three months:			
	Of the subjects reporting past and current sexual experiences,	n = 7	n = 6	n = 83
	a. yes	3	3	57
	b. no	4	3	26
SBQ17i	Engaged in sex after dating six months:			
	Of the subjects reporting past and current sexual experiences,	n = 7	n = 6	n = 83
	a. yes	4	2	62
	b. no	3	4	21

Table 5 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ17j	Engaged in sex after dating twelve months:			
	Of the subjects reporting past and current sexual experiences,	n = 7	n = 6	n = 83
	a. yes	5	3	59
	b. no	2	3	24
SBQ17k	Engaged in sex before marriage:			
	Of the subjects reporting past and current sexual experiences,	n = 7	n = 6	n = 83
	a. yes	5	5	75
	b. no	2	1	8
SBQ17l	Engaged in sex in non-exclusive relationship:			
	Of the subjects reporting past and current sexual experiences,	n = 7	n = 6	n = 83
	a. yes	1	3	51
	b. no	6	3	32

Table 5 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ17m	Engaged in sex w/o having safe sex supplies available:			
	Of the subjects reporting past and current sexual experiences,	n = 7	n = 6	n = 83
	a. yes	4	5	50
	b. no	3	1	23
SBQ17n	Engaged in sex w/o using safe sex techniques:			
	Of the subjects reporting past and current sexual experiences,	n = 7	n = 6	n = 83
	a. yes	4	1	57
	b. no	3	5	26
SBQ18a	Engaged in sex before talking about HIV:			
	Of the subjects reporting past and current sexual intercourses,	n = 7	n = 6	n = 83
	1. yes	3	4	55
	2. no	4	2	28

Table 5 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ18b	Engaged in sex before talking about how many sex partners:			
	Of the subjects reporting past and current sexual intercourses,	n = 7	n = 6	n = 83
	1. yes	1	3	43
	2. no	6	4	40
SBQ18c	Engaged in sex before talking about IV drug use:			
	Of the subjects reporting past and current sexual intercourses,	n = 7	n = 6	n = 83
	1. yes	1	3	51
	2. no	6	3	32
SBQ18d	Engaged in sex before talking about if they engaged in sexually risky behaviors:			
	Of the subjects reporting past and current sexual intercourses,	n = 7	n = 6	n = 83
	1. yes	1	3	46
	2. no	6	3	37

Table 5 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ18e	Engaged in sex before talking about condom use or latex barriers: Of the subjects reporting past and current sexual intercourses,	n = 7	n = 6	n = 83
	1. yes	3	3	35
	2. no	4	3	48
SBQ18f	Engaged in sex before talking about birth control: Of the subjects reporting past and current sexual intercourses,	n = 7	n = 6	n = 83
	1. yes	1	4	36
	2. no	6	2	22

Table 5 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ27c	Lifetime number of male sex partners			
	Of the subjects reporting past and current sexual experiences,	n = 8	n = 6	n = 89
	0	7	6	85
	1	1	0	1
	3	0	0	1
	4	0	0	1
	7	0	0	1

Table 5 - Continued

Question	Topic	Responses ADHD (n = 8)	RS (n = 8)	TC (n = 105)
SBQ27f	Lifetime number of female sexpartners			
	Of the subjects reporting past and current sexual experiences,	n = 8	n = 6	n = 89
	0	0	0	0
	1	4	3	15
	2	1	1	14
	3	2	0	12
	4 - 80	1	2	42

Note: These data were presented based on the number of subjects (n) reporting they have engaged in sexual behaviors (see Table 1). It is hoped this may provide information as a proportion of the subjects having had some type of sexual experience. Ranges used for the dependent measure may vary within the table. For the TC group participants declined to respond on some questions.

Appendix I

Figures 1 - 9

Figure 1

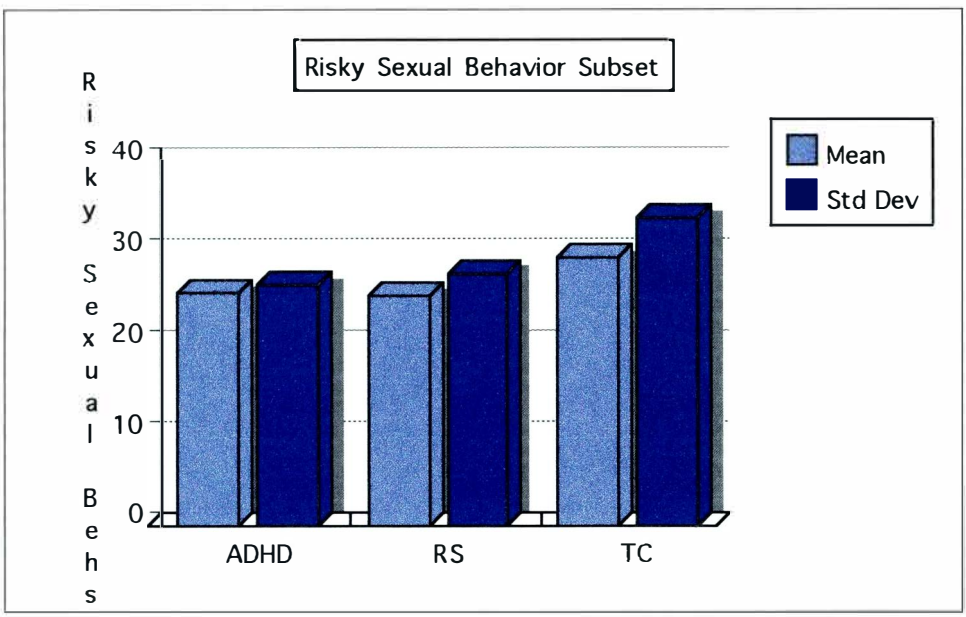

Figure 1. Risky Sexual Behavior Subset Score by ADHD, RS, and TC.

Figure 2

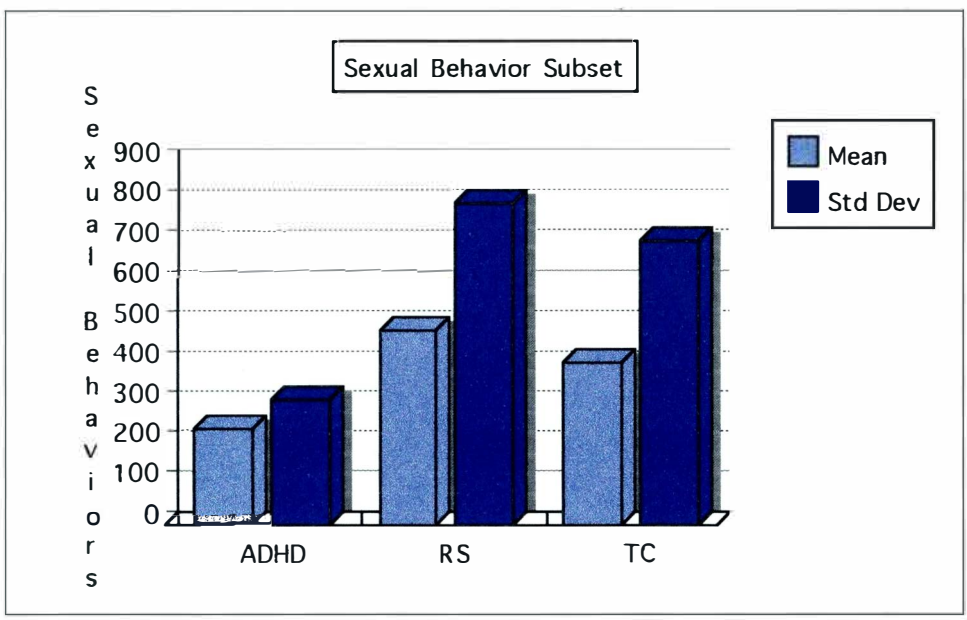

Figure 2. Frequency of Sexual Behaviors Reported by ADHD, RS, and TC.

Figure 3

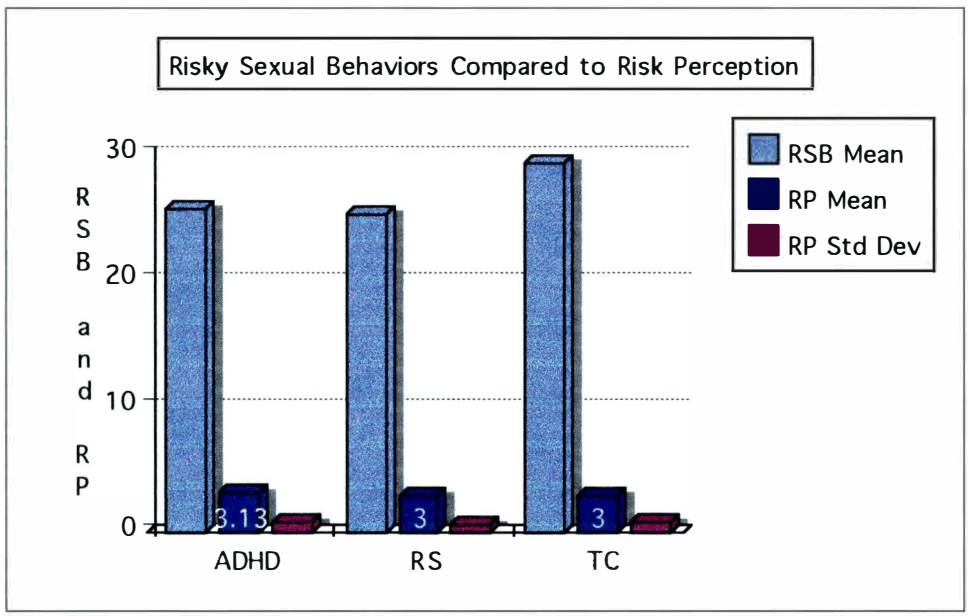

Figure 3. Risky Sexual Behaviors Compared to Risk Perception by ADHD, RS, and TC. The Risk Perception Subset total possible was 4. The Risky Sexual Behaviors Subset total possible was 21 plus the number of sexual partners.

Figure 4

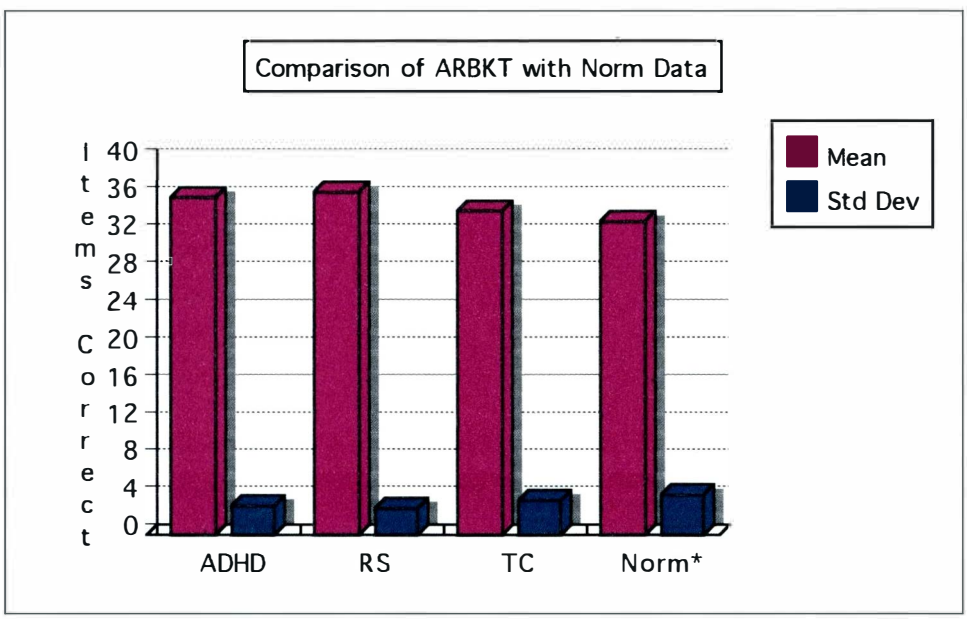

Figure 4. Comparison of ADHD, RS, and TC Samples With That of Norm Samples. Reported by Kelly, St. Lawrence, et. al. (1989) on the AIDS Risk Behavior Knowledge Scale.

Figure 5

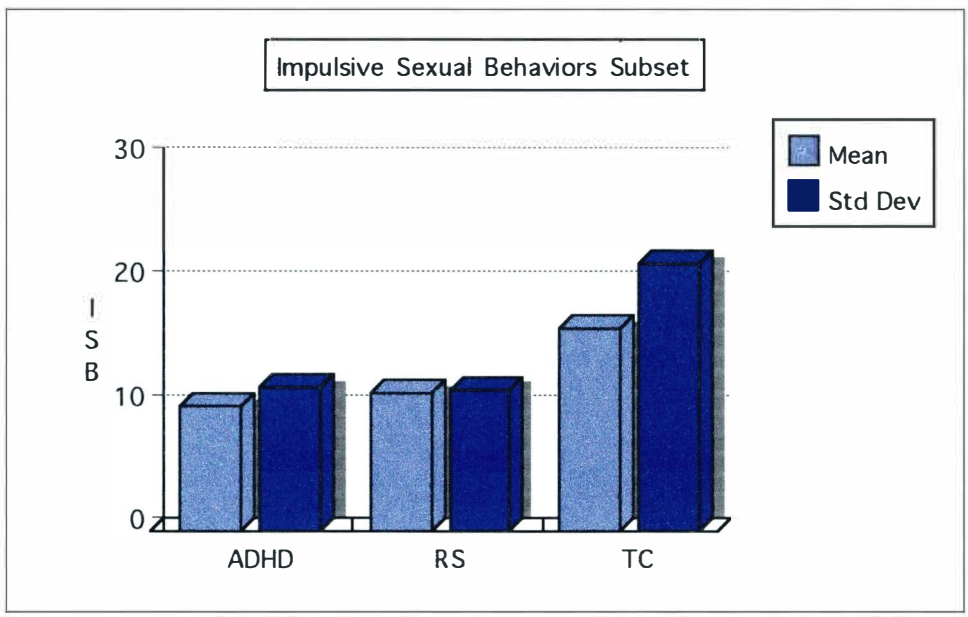

Figure 5. Impulsive Sexual Behavior Subset Scores by ADHD, RS, and TC.

Figure 6

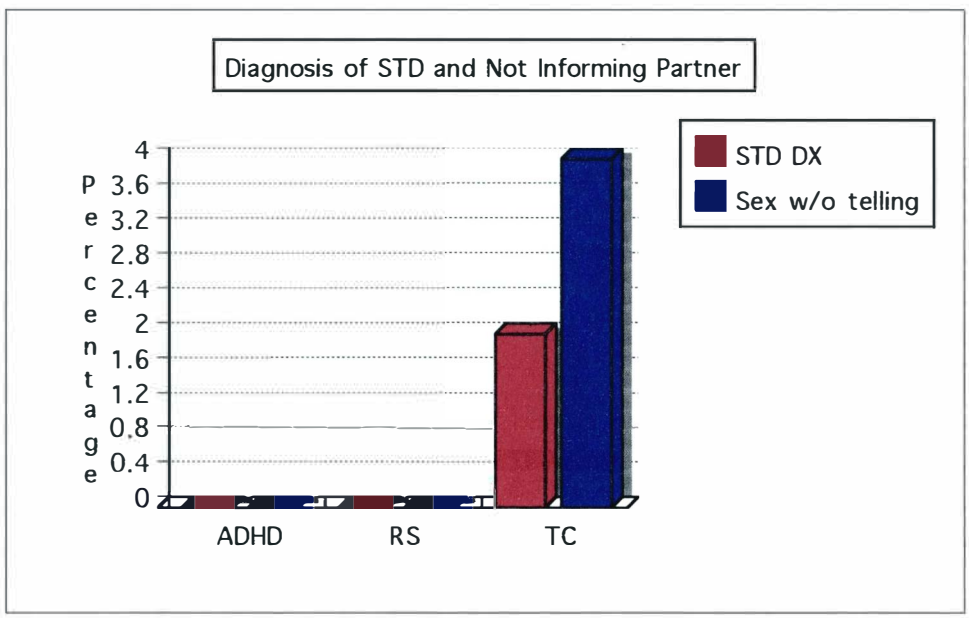

Figure 6. Percentage of Subjects Reporting an STD Diagnosis and Engaging in Sexual Encounters Without Telling Their Partner of Their Diagnosis.

Figure 7

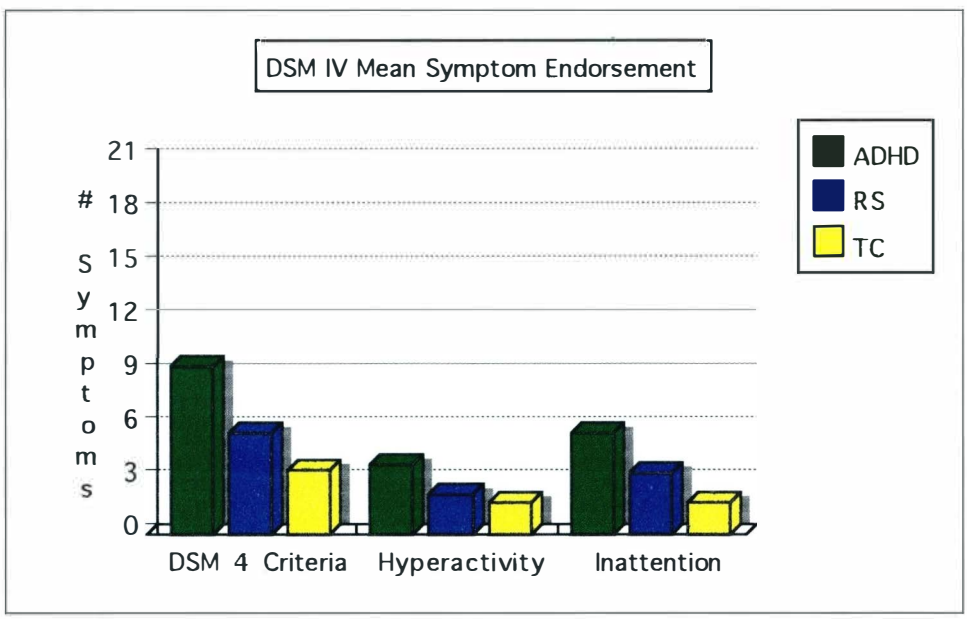

Figure 7. Mean Endorsement of Diagnostic Symptoms Divided Into Complete DSM IV Criteria, and Broken Into the Two Subcategories of Hyperactivity and Inattention, by Group.

Figure 8

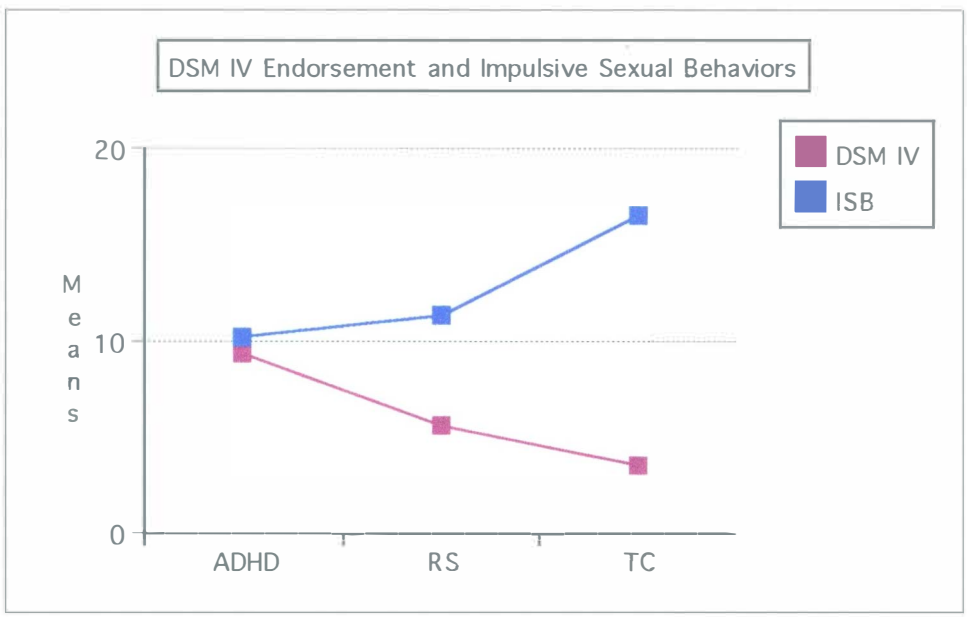

Figure 8. Comparison of DSM IV Symptom Endorsement and Impulsive Sexual Behavior Subset Scores by ADHD, RS, and TC.

Figure 9

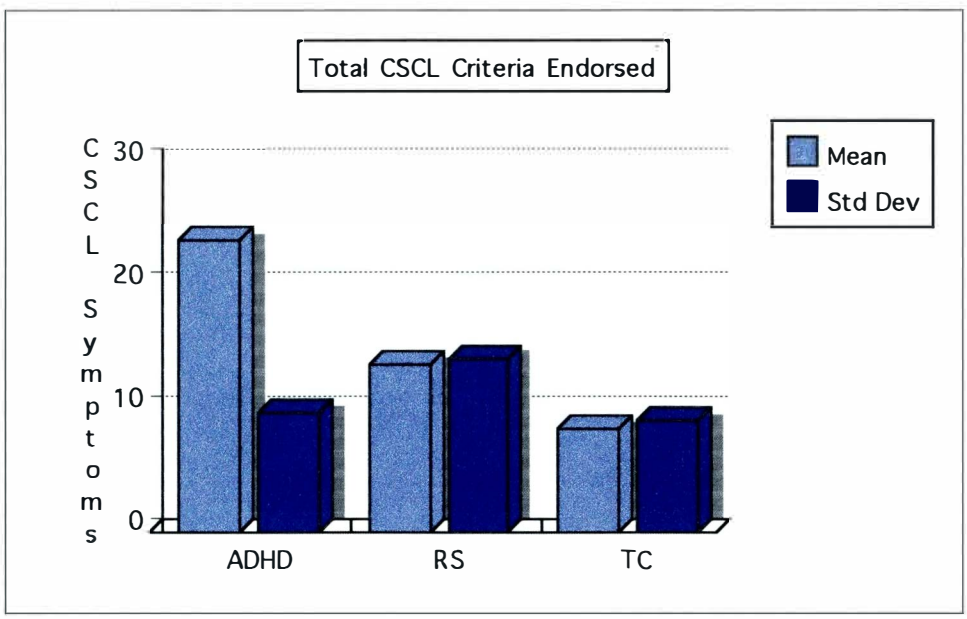

Figure 9. Total CSCL Criteria Endorsed by ADHD, RS, and TC.

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