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I, Jamie A Snyder , hereby submit this original work as part of the requirements for the degree of Doctor of Philosophy in Criminal Justice.

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College Students with ADHD: Extending the Lifestyles/Routine Activities Framework to Predict Sexual Victimization and Physical Assault

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College Students with ADHD: Extending the Lifestyles/Routine Activities Framework to Predict Sexual Victimization and Physical Assault

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By

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ABSTRACT

The victimization of college students has been the focus of many past studies. The majority of these studies have focused on using the lifestyles/routine activities framework to identify predictors of college student victimization. This framework posits that individuals who are exposed to risky situations, in close proximity to motivated offenders, are attractive targets, and lack capable guardianship are at high risk for victimization. While the lifestyles/routine activities framework has received support through empirical testing, some researchers have argued for the need to extend of the framework to incorporate other risk factors. ADHD is a potential risk factor that may be important in the prediction of college student victimization. Past research suggests that children with ADHD are at an increased risk of being victimized, however, no research could be located that examined the relationship between ADHD and victimization risk among young adults. Thus, this dissertation attempts to expand the lifestyles/routine activities framework in several areas: 1) provide an estimate of sexual victimization and physical assault prevalence among a national sample of college students 2) provide an estimate of the prevalence of ADHD among a national sample of college students 3) include ADHD as a potential risk factor in the prediction of sexual victimization and physical assault among college students 4) test the lifestyles/routine activities framework in the prediction of sexual victimization and physical assault. The findings indicate that ADHD is an important predictor of sexual victimization and physical assault, emerging as a significant risk factor across models. The lifestyles/routine activities theory also received general support particularly for the concepts of exposure, proximity, and guardianship. ADHD as an extension of the lifestyles/routine activities framework is discussed along with possible prevention methods.

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CHAPTER 1: STATEMENT OF THE PROBLEM

In the past 25 years the number of individuals attending college has grown rapidly. Between 1997 and 2007, the college enrollment rate increased 26% from 14.5 million to 18.2 million students (National Center for Education Statistics, 2010). With the increase in the number of young people attending college it is not surprising that these individuals have been the focus of victimization research. Past research has suggested that college students are at significant risk for victimization. For example, Fisher, Sloan, Cullen, and Lu (1998) reported that a third of college students had been victims of property or violent crimes during an academic year. Thus, colleges are no longer thought of as "ivory towers" protected against victimization, but as social domains that are important for victimologists to study.

Victimologists have examined a broad range of issues concerning college student victimization and continue to make strides toward better understanding its occurrence and prevention. Researchers have tried to extensively document the prevalence of different types of victimization from violent crime to property crime as well as specific crimes such as rape, sexual assault, physical assault, and stalking (Koss, Gidycz, & Wisniewski,1987; Fisher, et al., 1998; Mustaine & Tewksbury, 1998, 1999, 2002; Fisher, Cullen, & Turner, 2000, 2002; Mohler-Kuo, Dowdall, Koss, & Wechsler, 2004; Baum & Klaus, 2005; Cass, 2007; Krebs, Lindquist, Warner, Fisher, & Martin, 2007; Kilpatrick, Resnick, Ruggiero, Concoscenti, & McCauley 2007).

In addition to studying the prevalence of victimization among college students, a large body of research had also been dedicated to identifying risk factors that may increase or decrease the occurrence of victimization among college students. Research examining risk factors for victimization is most often grounded in the lifestyles/routine activities (LRAT) framework. The lifestyles/routine activities framework posits that some individuals are at a higher risk of

experiencing a victimization based on the lifestyles they lead and the activities they engage in. Specifically, crime is most likely to occur when there is a convergence in time and space of four key factors; proximity to motivated offenders, exposure to risky environments, target attractiveness, and the lack of a capable guardian (Hindelang, Gottfredson, & Garofalo, 1978; Cohen & Felson, 1979).

The assertions of the lifestyles/routine activities framework have been used to explain the victimization of college students. Men and women attending college may live particular lifestyles and engage in particular types of activities that put them at higher risk for victimization (Mustaine & Tewksbury, 1999). College students may be experimenting with drugs and alcohol for this first time in an environment that encourages excessive use, putting them in higher risk situations where they may be considered vulnerable targets (Krebs et al., 2007). For the most part, past research has supported the lifestyles/routine activities framework for college students, although some components seem to receive more support than others. Certain demographics and risky behaviors such as drug and alcohol use tend to arise as significant risk factors, while measures of guardianship and target attractiveness receive mixed or limited support (Fisher et al., 1998).

This mixed support for the lifestyles/routine activities framework has led at least a couple of researchers to explore other risk factors that may be at work in predicting victimization. Schreck (1999) argued that not only is a person's individual lifestyle important in predicting victimization, but a person's level of self-control may also contribute to victimization risk. A person's level of self-control may have an effect on the type of lifestyle a person leads. Specifically, people with lower levels of self-control may then in turn lead riskier lifestyles that put them at increased risk for victimization (Schreck, 1999). Finkelhor and Asdigian (1996) have

also proposed an extension to the LRAT framework which also asserts that factors outside of the traditional framework may contribute to victimization risk. In particular, characteristics of the individual including target vulnerability, target gratifiability, and target antagonism are argued to increase attractiveness of the individual to potential perpetrators (Finkelhor & Asdigian, 1996).

However, only Schreck's work (1999) used a sample of college students, and studies focused on examining other risk factors that may contribute to the victimization risk of college students are limited. The majority of past studies examine the same or similar characteristics and lifestyle factors, not often looking for additional risk factors that could further contribute to victimization risk. Activities such as alcohol and drug use, partying, nights spent out, sorority/fraternity participation, and athletic participation along with demographics are commonly identified and measured as risk factors (Fisher et al., 1998, 2000, 2002; Mustaine & Tewskbury, 1998, 2002; Baum & Klaus, 2005; Krebs et al., 2007, Kilpatrick et al., 2007).

One core focus of this dissertation will be to expand lifestyles/routine activities theory to examine another possible risk factor important in the understanding of college student victimization. Specifically, attention deficit hyperactivity disorder (ADHD) will be examined to see if it contributes significantly to college student victimization risk along with other more traditional lifestyles and routine activities.

Attention deficit hyperactivity disorder is one possible risk factor that warrants further examination for several reasons. First, ADHD is a common neurobehavioral disability once thought of as limited to children that is now recognized to continue into adulthood by both researchers and psychologists (DuPaul, Weyandt, O'Dell, & Varejao, 2009). ADHD is often characterized by symptoms of inattention, over activity, impulsivity, and lack of concentration (American Psychological Association, 2000). Second, research on children with ADHD has

suggested a number of negative outcomes, including victimization, are associated with the disorder (Unnever & Pratt, 1999; Humphrey, Storch, & Geffken, 2007; Wiener & Mak, 2008). Finally, while most of the past research has focused on ADHD outcomes in children, more recently researchers have begun to turn their attention to ADHD among adults finding a range of negative outcomes including substance abuse, criminal behavior, educational difficulties, cognitive impairments, issues with driving performance, relationship, and employment difficulties (DuPaul et al., 2009). However, no published research examining ADHD and its relationship to victimization risk among adults could be identified in an examination of the literature through database (i.e., CJ Abstracts, Academic search complete, PsycINFO) and keyword searching using the following terms: victimization, victims, ADHD and victimization, ADHD and victims, ADHD and stalking, ADHD and rape, ADHD and sexual victimization, ADHD and bullying.

The main purpose of this dissertation is to further the field of victimization in several ways. First, this study employs a large national sample of both men and women college students allowing for analysis of both sexes. For the most part, college student studies have focused exclusively on women, with few studies systematically examining victimization among college men (for exceptions see Fisher et al., 1998; Mustaine & Tewksbury, 2001; Fisher et al., 1999). Additionally, the data utilized in this study contains several types of victimization, including three types of sexual victimization and physical assault. This will allow for the examination of differences in risk factors reflecting possible variations in opportunity structures for each type of victimization.

Second, this study will use the lifestyles/routine activities framework to identify risk factors for victimization among college students. Specifically, variables capturing exposure,

proximity, target attractiveness, and guardianship will be assessed controlling for demographics to predict college students' risk of sexual victimization and physical assault. The effect of each of these variables on physical assault and sexual victimization will be examined to test for significant risk factors predicting each type of victimization.

Third, data from this sample also contains a measure of ADHD that will allow for additional analysis to compare risk factors across individuals with and without ADHD. The importance of this dissertation is to ascertain if having ADHD affects a college student's risk for experiencing sexual victimization and physical assault. Specifically, do college students with ADHD have a higher prevalence of (or overall extent of) victimization than their non-ADHD peers? No past published research through a literature search of peer-reviewed sources could be located that tests whether ADHD is a risk factor for victimization in a college student population. Finally, ADHD will be tested against other known risk factors, (e.g., drug use, alcohol use, fraternity/sorority participation) to see if ADHD emerges as a significant risk factor for victimization once other lifestyles and routine activities are controlled for statistically.

The remainder of this chapter will present estimates of victimization rates reported in studies of college student samples. Specifically, national-level studies of college students that examined sexual victimization and physical assault will be discussed. Prevalence rates for each of these victimization types from national-level studies will be discussed separately.

THE SEXUAL VICTIMIZATION OF COLLEGE STUDENTS

The victimization of college students has been the focus of a large body of research in the past several years (see Koss et al., 1987, Fisher, et al., 1998; Mustaine & Tewksbury, 1998; 1999; 2002; Fisher, Cullen, & Turner, 2000, 2002; Mohler-Kuo et al., 2004; Baum & Klaus, 2005; Cass, 2007; Krebs et al., 2007; Kilpatrick et al., 2007; Jordan, Wilcox, & Pritchard, 2007;

CORE, 2010; ACHA, 2010). One consistent finding among these studies is that a large proportion of college students are victimized during their college tenure. For example, Fisher and colleagues (1998) found that a third of students reported being a victim of a violent or property crime during the school year. The focus of the current section is to provide prevalence rates from national-level studies of college students for the victimization types of interest for this dissertation – sexual victimization and physical assault. Table 1.1 provides a summary of studies examining prevalence rates for sexual victimization among college students.

Prevalence of Sexual Victimization among College Students

When discussing the prevalence of sexual victimization among college students and other types of victimization in general, it is important to note that the vast majority of studies only focus on examining the victimization of women. The lack of studies on the victimization of male college students is a significant omission because males have been found to be twice as likely to be the victim of violence than females (Baum & Klaus, 2005). One contribution of the current dissertation is that the victimization data contains both males and females allowing for prevalence rate estimates for both sexes. However, because most of the research on sexual victimization focuses only on females, almost all of the studies that will be discussed in this section will only present female rates of victimization.

Sexual Aggression and Victimization in a National-level Sample of Students in Higher Education

Considered the first published and well-known national-level study to examine the prevalence of sexual victimization among college women, Koss and colleagues sought to systematically examine the incidence of rape and other forms of sexual victimization. Using the Sexual Experiences Survey (SES), a 10-item survey that contained three items measuring rape, Koss surveyed college women about their experiences with specific types of sexual victimization

including rape, sexual contact, and sexual coercion. Information on the occurrence of rape was collected based on two time periods, since the age of 14 and in the previous year (Koss et al., 1987).

Among the many results reported in Table 1.1 was the finding that 12.1% of college women reporting experiencing an attempted rape since the age of 14 (Koss et al., 1987). The percentages were even higher for those reporting a completed rape. Over 15% of college women reported experiencing a completed rape since the age of 14. Rates of completed and attempted rape over the past year were also high. These estimates revealed that 10.1% of women had been victims of attempted rape in the past year while 6.5% of women were victims of completed rape in the past year. Rates for attempted or completed rape as summarized in Table 1.1 were also estimated per 1,000 female students. In the past 12 months, the victimization rate among college women was 166.3 victims of attempted or completed rape per 1,000 female students (Koss et al., 1987). The results suggested that rape was a significant problem among college women setting the stage for future national-level studies.

The National Crime Victimization Survey

The National Crime Victimization Survey (NCVS) is a nationally representative U.S. survey; including roughly 76,000 households annually containing over 135,000 individuals over the age of 12 provides another estimate of college student victimization (BJS, 2010). Information on several different types of victimization is captured in this data ongoing data effort including sexual victimization.

Table 1.1 Prevalence Rates of Sexual Victimization National-level Studies of College Students

Author	Sample	Victimization Type	Operationalization	Prevalence Rate
Fisher et al., (1998)	National sample of college students, men and women (n = 3,472)	Rape Attempted/Completed	Unwanted attempted/completed penetration by force or threat of force. Penetration includes penile-vaginal, mouth on your genitals, mouth on someone else's genitals, penile-anal, digital-vaginal, object vaginal, and object anal	Attempted rape – 4.9 victims per 1,000 students Completed rape – 3.4 victims per 1,000 students
Baum & Klaus (2005)	National Crime Victimization Survey College students aged 18-24, men and women (n = 36,881)	Rape/Sexual Assault	Forced sexual intercourse including psychological coercion as well as physical force. Sexual assaults may or may not involve force and include such things as grabbing or fondling. Sexual assault also includes verbal threats	Rape/sexual assault – 3.3 victims per 1,000 students Males 1.4 victims per 1,000 students Females 6.0 victims per 1,000 students
Fisher et al., (2000)	National College Women Sexual Victimization study (n = 4,446)	Rape Attempted/Completed	Unwanted attempted/completed penetration by force or threat of force. Penetration includes penile-vaginal, mouth on your genitals, mouth on someone else's genitals, penile-anal, digital-vaginal, object vaginal, and object anal	Completed or attempted rape – 2.8% of women or 27.7 victims per 1,000 students Completed rape – 1.7% of women or 16.6 victims per 1,000 students Attempted rape – 1.1% of women or 11.0 victims per 1,000 students
Mohler-Kuo et al., (2004)	Harvard School of Public Health College Alcohol Study 119 schools 1997 (n = 8,567) 1999 (n = 8,425) 2001 (n = 6,988)	Rape	**Rape while forced** - Since the beginning of the school year, have you ever had sexual intercourse against your wishes because someone used force?" **Rape while threatened** - Apart from question 1, since the beginning of the school year, have you had sexual intercourse against your wishes because someone threatened to harm you? **Rape while intoxicated** - Apart from questions 1 and 2, since the beginning of the school year, have you had sexual intercourse when you were so intoxicated that you were unable to consent?	4.7% across entire sample 5.1% in 1997 4.5% in 1999 4.3% in 2001

Koss et al., (1987)	National level study of college women and men (n = 6,159) 3,187 women	Rape Attempted/Completed	10 item Sexual Experiences Survey (SES)	Attempted or completed rape – 9.3% of women Since age 14 – 12.1% of women and 3.3% of men attempted rape Since age 14 – 15.4% of women and 4.4% of men completed rape 38 victims per 1,000 women in the past 6 months rape 9 victims per 1,000 men in the past 6 months rape
Kilpatrick et al., (2007)	National level study to examine alcohol or drug induced rape (n = 5,000) women (n = 2,000) college women in 253 schools	Rape Forcible Drug-facilitated Incapacitated	**Forcible rape** - unwanted sex act involving oral, anal, or vaginal penetration. The victim also experiences force, threat of force, or sustains an injury during the assault. **Drug-facilitated** - the perpetrator deliberately gives the victim drugs without her permission or tries to get her drunk, and then commits an unwanted sex act against her involving oral, anal, or vaginal penetration. The victim is passed out or awake but took drunk or high to know what she is doing or to control her behavior. **Incapacitated** - Unwanted sex act involving oral, anal, or vaginal penetration that occurs after the victim voluntarily uses drugs or alcohol. The victim is passed out or awake but took drunk or high to know what she is doing or to control her behavior.	5.2% of college women in the last year 11.5% of college women lifetime 1.8% last year college women forcible rape 6.4% forcible rape college women lifetime 3.6% of college women drug facilitated or incapacitated rape 6.4% of college women drug facilitated or incapacitated rape lifetime
CORE – Southern Illinois University	National database of alcohol and drug use among college students 2008 data (n = 77, 481)	Rape	Unwanted sexual intercourse	2.8% of students in 2008 2.9% of students in 2007

Krebs et al., (2007)	National Institute of Justice – Campus Sexual Assault Survey (n = 5,446) women	Rape Incapacitated/Forced	**Rape** - Since you began college, someone has had sexual contact with you by using physical force or threatening to physically harm you. **Incapacitated/Forced** - Has someone had sexual contact with you when you were unable to provide consent or stop what was happening because you were passed out, drugged, drunk, incapacitated, or asleep?	Attempted or completed sexual assault since entering college, women – 19%, men – 6.1% Attempted sexual assault, women – 12.6%, men – 3.8% Completed sexual assault, women – 13.7%, men 3.7% Physically force sexual assault, women – 4.7%, men – 0.7% Incapacitated sexual assault, women – 11.1%, men 3.4%
American College Health Association	National College Health Association National sample of college students conducted bi-annually (n = 95,712) men and women from Spring 2010	Rape Attempted/Completed	**Rape attempted** - In the last 12 months, was sexual penetration attempted (vaginal, anal, oral) without your consent? **Rape completed** - In the last 12 months, were you sexually penetrated (vaginal, anal, oral) without your consent?	Attempted rape – 2.3% of total sample Attempted rape males – 0.9% Attempted rape females – 3.1% Completed rape – 1.5% of total sample Completed rape males – 0.6% Completed rape females – 1.9%

In 2005, The NCVS released a special report highlighting the violent victimization of college students. One purpose of this special report was to present the violent victimization rates of college students including rape and sexual assault. It is important to note for this report, rape and sexual assault were categorized together. This means that actions such as rape, attempted rape, sexual coercion, and sexual contact are all included under the same category. Rates of college student rape or sexual assault were estimated at 3.3 victims per 1,000 students (Baum & Klaus, 2005). Rape and sexual assault rates were also reported (See Table 1.1.) for both males and females separately. Rates for males were significantly lower (1.4 victims per 1,000 students) compared to females (6.0 victims per 1,000 students) (Baum & Klaus, 2005). Rates of sexual assault or rape victimization were also compared to non-students. Compared to non-students, college students ran similar risks of sexual victimization, however, for women this risk was slightly lower (Baum & Klaus, 2005). These results highlight the importance of examining overall victimizations rates and rates by gender. Additionally, this report revealed that while in some instances college students may be at a lower risk of victimization than compared to non-students, the risk is still significant and needs to be examined.

American College Health Association – National College Health Assessment

Estimates of prevalence rates of victimization among college students can be found in data collected by the American College Health Association (ACHA). Since 1990, information has been collected twice a year – fall and spring – from a national sample of college students on a wide range of behaviors including victimization. Specifically, the National College Health Assessment (NCHA) is a survey that contains 65 questions including information on rape and physical assault. An advantageous feature of this data collection effort is that both males and females are surveyed which allows for the assessment of victimization prevalence rates for each

sex. In this section the prevalence rates for sexual victimization will be discussed (see the physical assault section for respective relevance rates from the NCHA).

The most recent survey available from spring 2010 reported that 1.5% of students experienced a completed rape in the past 12 months while 2.3% of students experienced an attempted rape (ACHA, 2010). Numbers were also reported (See Table 1.1) for males and females reporting rape and attempted rape. Specifically, nearly 2% of females reported experiencing a completed rape in the past 12 months compared to a little over a half percent males, while at little over 3% of females reporting experiencing an attempted rape compared almost 1% of males. These numbers were similar to rates from past ACHA surveys. For example, in 2009 2.4% of students reported experiencing an attempted rape while 1.4% reported experiencing a completed rape. Rates of rape for males and females were also very similar in 2009 to 2010 percentages. Specifically, 3.2% of females and 0.8% of males were victims of an attempted rape in the past year, and 1.7% of females and 0.6% of males were victims of a completed rape (ACHA, 2009).

The National College Women Sexual Victimization Study

Conducted in 1996 by Fisher and colleagues, another national-level study of college women – the National College Women Sexual Victimization Study (NCWSV) – has also examined the prevalence of sexual victimization among college women. According to the NCWSV, close to 3% of college women reported experiencing a completed or attempted rape since the beginning of their school year in fall of 1996 (Fisher, et al., 2000). When computed into rates per 1,000 students, there were 27.7 victims of attempted or completed rape per 1,000 students. While this number may seem small, the reference period for victims was only a little more than a half year. When the entire year is considered, this number is almost 5% and when a

five-year average tenure of a college career is considered, the prevalence could be as high as 25% or one quarter of college women experiencing a rape victimization during their college attendance. Even more worrisome, was the large proportion of women who reported experiencing multiple-rape victimizations. Specifically, almost 23% of the rape victims reported they were victimized in the form of rape more than once since the beginning of the fall of 1996 (Fisher, et al., 2000).

The NCWSV also examined other forms of sexual victimization among college women as reported in Table 1.1. For example, nearly 2% of college women reported experiencing either sexual coercion, or sexual contact with force (Fisher, et al., 2000). Overall, this study suggests that sexual victimization is a problem among college women. Further, once an entire year or several years of college attendance is considered, the extent of victimization is projected to be much larger (Fisher, et al., 2000).

Harvard School of Public Health – College Alcohol Survey

The Harvard School of Public Health conducts a national-level study of college students to examine alcohol use and other behaviors including rape victimization. This survey was first conducted in 1993 and contained 140 colleges across 40 states. In 2004, Mohler-Kuo and associates published a paper comparing rape victimization rates for women from three waves of data collected in 1997, 1999, and 2001. Rape was measured using three different questions examining rape while forced, rape while threatened, and rape while intoxicated. These three measures were intended to shed light on the argued influence of intoxication on unwanted sexual intercourse (Mohler-Kuo et al., 2004).

Across the three waves, 4.7% of female college students had experienced some form of rape. Percentages were also presented for each wave of data separately. In particular, 5.1% of

female college students in 1997 experienced rape compared to 4.5% in 1999 and 4.3% in 2001 (Mohler-Kuo et al., 2004). These results translated into about 1 out of every 20 college women as rape victims every school year. The results also revealed the considerable involvement of intoxication in sexual victimization. Close to three quarters (72%) of women reported they were intoxicated when their rape occurred. Percentages of rape were also reported (See table 1.1) for each type of rape victimization including intoxication, force, and threat of force. When examined separately across the three levels of data, 3.4% of women reported being raped while intoxicated, 1.9% reported being raped with force and 0.4% reported being raped with the threat of force (Mohler-Kuo et al., 2004). Overall, the results of this study are similar to other studies that have found rape to be a serious problem among college students.

The National Institute of Justice – Campus Sexual Assault Survey

In 2005, a national-level study of sexual victimization among college men and women was funded by the National Institute of Justice (NIJ) and administered as a Campus Sexual Assault (CSA) survey. One goal of this study was to document the different types of sexual assault that occurred among both college men and women including assaults with and without the use of force and in the influence of intoxication on sexual assault (Krebs et al., 2007). Information was collected on several different types of sexual assault including physically forced sexual assault, incapacitated sexual assault, rape, and sexual battery. Participants in the study included men and women ages 18-25 attending two large universities in the Midwest and Southeast (Krebs et al., 2007). Women were also asked if their victimization had occurred before entering college or since they entered college.

Overall, 19% of the sample of women and 6.1% of men reported that they had experienced an attempted or completed sexual assault since entering college (Krebs et al., 2007).

This percentage includes men and women that were victims of any type of sexual assault since entering college. When broken down into attempted and completed sexual assault as reported in Table 1.1, 12.6% of women and 3.8% of men reported that their sexual assault was attempted while 13.7% of female victims and 3.7% of male victims reported their sexual assault was completed. Victims were also asked if their sexual victimization was incapacitated, meaning they were unable to provide consent, or if they were physically forced. A little over 11% of women and 3.4% of men reported they were incapacitated at the time of their sexual assault. Overall, rape victims were more likely to report being incapacitated than physically forced during their victimization. Close to 5% of women reported their sexual assault was forced compared to less than 1% of men (Krebs, et al., 2007).

In summary, the Campus Sexual Assault survey found that a significant proportion of both men and women had been victims of sexual assault since entering college. This study also highlights the role that incapacitation plays in victimization – with a large proportion of victims reporting they were incapacitated at the time of their victimization. For example, 16% of women college seniors reported they were incapacitated while sexually assaulted since entering college (Krebs et al., 2007).

CORE Institute

The CORE Institute based at Southern Illinois University retains the largest national database on alcohol and drinking behaviors among college students (CORE, 2010). Along with these data, the CORE institute also collects information on risky behaviors and victimization including unwanted sexual intercourse. Data from the 2008 survey indicated that 2.8% of students reported experienced unwanted sexual intercourse in the past year. Additionally a large proportion of victims reported the involvement of alcohol or drugs. Specifically, 76.3% of

victims reporting consuming drugs or alcohol shortly before their victimization occurred. Estimates of unwanted sexual intercourse have remained relatively stable over the past few years with slightly more (2.9%) of students reporting experiencing unwanted sexual intercourse in 2007 (CORE, 2010).

Other National-level Studies Examining Sexual Victimization Prevalence

In 1993, a national-level study examining several different types of victimization among college students was conducted by Fisher and colleagues. Prior to this study, a limited amount of literature on the extent of victimization in college students existed (Fisher et al., 1998). Consequently, one goal of this study was to examine the prevalence of different types of victimizations which included sexual victimization in the forms of completed and attempted rape. Participants from 12 post-secondary institutions were asked if they had experienced several different types of victimization since the beginning of the 1993-94 academic year (Fisher et al., 1998). The results as summarized in Table 1.1 provided the first extensive look into the world of college student victimization. Attempted and completed rapes were examined as part of this study allowing for the calculation of prevalence rates. The study reported rates of both attempted and completed rape per 1,000 students. In particular there were 4.9 victims per 1,000 students for attempted rape and 3.4 victims per 1,000 students for completed rape (Fisher et al., 1998).

National Study of Drug-Facilitated, Incapacitated, and Forcible Rape

Another national-level study of college women was conducted in 2007 by Kilpatrick and colleagues that examined rape and the role that drugs and alcohol play in rape victimization. Specifically, Kilpatrick examined three forms of rape; forcible rape, drug facilitated, and incapacitated rape. This study examined 5,000 women – 2,000 college women – representing a

national-level sample of women from the U.S. and college women from the U.S. (Kilpatrick et al., 2007).

The results from this study indicated that 5.2% of college women were raped in the past year compared to about 1% of the general population (Kilpatrick et al., 2007). These results are in contrast to the special report by the NCVS which reported similar, even slightly lower rates of sexual victimization among college students. It is important to note however, that that the NCVS combines both rape and sexual assault, while Kilpatrick and colleagues separate the different kinds of sexual victimization. This combination of sexual assault and rape may have contributed to these conflicting results. Further, once the lifetime estimates of rape are examined, college women have a lower lifetime prevalence rape rate (11.5%) compared to the general population (18%) (Kilpatrick et al., 2007).

Results were also presented for each type of rape including forcible, drug facilitated, and intoxicated rape among college women (See Table 1.1). Over the past year an estimated 1.8% of women experienced forcible rape while 3.5% experienced drug facilitated or intoxicated rape. These estimates can also be presented as lifetime estimates for both forcible and drug facilitated/incapacitated rape. Specifically, the lifetime prevalence for forcible rape is estimated at 6.4%, which was also the same estimate as the lifetime rate for drug facilitated or intoxicated rape (Kilpatrick et al., 2007). This study is important because it uses a national-level sample to show the role that drugs and intoxication play in sexual victimization, a finding that has been reported in other studies of sexual victimization (see Abbey, Ross, McDuffie, & McAuslan, 1996; Fisher et al., 1998; Mohler-Kuo et al., 2004; Fisher, et al., 2000, 2002; Krebs et al., 2007; Cass, 2007).

In summary, several national-level studies have tried to estimate the prevalence of sexual victimization among college students. Of those reviewed above, the prevalence is significant (with some studies finding that up to a third of students are sexually victimized) and suggests that the sexual victimization of college students warrants further attention from researchers, college administrators, policy makers, and those in the prevention field.

PHYSICAL ASSAULT AMONG COLLEGE STUDENTS

The prevalence of physical assault has been the focus of fewer studies examining college student victimization. While fewer studies have been conducted in this area, the studies that have been carried out suggest that physical assault has a high prevalence among college students, especially men.

ACHA – NCHA Spring 2010 Data on Physical Assault

The most recent data as summarized in Table 1.2 from the National College Health Assessment also reveal physical assault as a significant problem among college students. Over to 6% of college males and close to 4% of females reported being physically assaulted in the past 12 months (ACHA, 2010). These estimates are comparable to recent past ACHA surveys which show comparable rates of stalking. For example, in 2009, 6.3% of males reporting being a victim of physical assault in the past year. Also similar, was the rate of physical assault in females. In 2009, 3.7% of females reported being a victim of physical assault in the past year (ACHA, 2009).

The National Crime Victimization Survey

Another focus of the 2005 special report on college students by the NCVS was physical assault. Specifically, aside from estimated rates of sexual victimization as discussed earlier, rates of victimization were also presented for two types of assault – simple and aggravated. Rates of

college student aggravated assault were estimated at 9.1 victims per 1,000 students as shown in table 2.1. For simple assault the rates were higher with estimates of 25.3 victims per 1,000 students (Baum & Klaus, 2005).

Other National Level Studies on Physical Assault

Fisher and colleagues, in their 1998 study of college students also included rates of assault in their victimization estimates. Rates were estimated per 1,000 students for both simple and aggravated assault. Simple assault occurred at a higher rate with 30.2 victims per 1,000 students compared to aggravated assault at 14.4 victims per 1,000 students (See table 2.1).

While research is more limited in the estimation of the prevalence of physical assault among college students, the few studies that have been conducted suggest that assault is a significant problem among college students. One contribution of the current dissertation is to provide another national-level estimate of the prevalence physical among college students. The current data also allows for the estimation of prevalence rates for both sexes, an omission from most past studies.

SUMMARY OF PREVELANCE RATE STUDIES

Taken collectively, all of the studies presented in the prior section emphasize that the victimization of college students – both male and female – is an important issue to study. When examining sexual victimization and physical assault one conclusion is apparent: victimization among college students is not a rare event, but something that a significant proportion of students experience. Additionally, when rates of victimization are considered over longer periods of time,

Table 1.2 Prevalence Rates of Physical Assault in National-level Studies of College Students

Author	Sample	Victimization Type	Operationalization	Prevalence rate
American College Health Association	National College Health Association National sample of college students conducted bi-annually (n = 95,712) men and women from Spring 2010	Physical Assault	**Physical assault** - Within the past 12 months, were you physically assaulted (does not include sexual assault)?	Assault Simple – 30.2 victims per 1,000 students Aggravated – 14.4 victims per 1,000 students
Fisher et al., (1998)	National sample of college students, men and women (n = 3,472)	Simple Assault Aggravated Assault	**Simple assault -** Attack without a weapon resulting either no injury, minor injury (for example, bruises, black eyes, cuts, scratches or swelling) or in undetermined injury requiring less than 2 days of hospitalization **Aggravated assault -** Attack or attempted attack with a weapon, regardless of whether or not an injury occurred and attack without a weapon when serious injury results	Assault Simple – 30.2 victims per 1,000 students Aggravated – 14.4 victims per 1,000 students
Baum & Klaus (2005)	National Crime Victimization Survey College students aged 18-24, men and women (n = 36,881)	Simple Assault Aggravated assault	**Simple assault -** Attack without a weapon resulting either no injury, minor injury (for example, bruises, black eyes, cuts, scratches or swelling) or in undetermined injury requiring less than 2 days of hospitalization **Aggravated assault -** Attack or attempted attack with a weapon, regardless of whether or not an injury occurred and attack without a weapon when serious injury results	Assault Simple– 25.3 victims per 1,000 students Aggravated – 9.1 victims per 1,000 students

these numbers become even higher. For example, the NCWSV study estimated that a quarter of college women could be victims of rape during their college tenure (Fisher, et al., 2000). There is also evidence that rates of victimization among college students are not declining, but staying relatively stable. For example, the prevalence rates for rape reported by the Harvard School of Public Health have remained between 4.3% and 5.1% between 1997 and 2001 (Mohler-Kuo et al., 2004).

Overall, the past research examining prevalence rates suggests that future assessment is needed to better understand the extent of victimization in college students. Past studies have used a variety of measures and methods, but still have come to similar conclusions that sexual victimization and physical assault are not rare events among college students. However, more research is needed to better understand the extent and nature of these victimizations among college students. Some types of victimization, physical assault for example, have few national-level studies of college samples from which to examine prevalence and risk from. One focus of this dissertation is to add to the existing research on the prevalence of victimization among college students with estimates from a large national sample of college students consisting of both males and females allowing for the estimation of prevalence rates for both sexes.

The main purpose of this dissertation is to further the field of victimization more generally in several ways. First, this study employs a large national sample of both men and women college students allowing for analysis and comparison across sexes. Second, this study will use the lifestyles/routine activities framework to identify risk factors for victimization among college students. Third, data from this sample includes measures of attention deficit hyperactivity disorder (ADHD) which will allow for additional analysis to compare risk factors across individuals with and without ADHD to see if this condition effects victimization risk. This

chapter outlined a statement of the problem with a focus on examining the estimated prevalence rates for the two victimization types of interest – sexual victimization and physical assault.

Chapter 2 will outline the lifestyles/routine activities framework in more detail and also provide empirical support generally for the theory as applied in other contexts outside of college students. This next section also will discuss extensions of the lifestyles/routine activities framework. Past research concerning the victimization of college students will also be discussed in relation to lifestyles/routine activities theory. In Chapter 3 the risk factor of interest, ADHD, will be presented. Prevalence rates of ADHD for both children and adults will be discussed, as well as measurement issues, and past research concerning outcomes of both adults and children with ADHD. The end of this chapter will discuss the current focus of this dissertation propose the hypotheses that will be tested. Chapter 4 will describe the methods used to test the hypotheses as well as define measurement of the independent and dependent variables. Chapter 5 will present and discuss the results from the bivariate and multivariate analyses. Finally, Chapter 6 of this dissertation will provide a summary of the main results as well as policy implications, limitations, and conclusions. Implications for the LRAT framework and possible extensions will also be discussed.

CHAPTER 2: EXPLAINING VICTIMIZATION: LIFESTYLES/ROUTINE ACTIVITIES THEORY

The most commonly tested framework used to examine victimization risk is the lifestyles/routine activities framework (Sampson & Wooldredge, 1987; Sampson 1987; Massey, Krohn, & Bonati, 1989; Sampson & Lauristen, 1990; Kennedy & Forde, 1990; Cantor & Lynch, 1992; Wilcox & Land, 1996, Fisher et al., 1998; Mustaine & Tewksbury, 1999, 2002; Fisher et al., 2000, 2002; Cass, 2007). The lifestyles/routine activates framework is the combination of two separate yet similar theories; Hindelang, Gottfredson, and Garofalo's (1978) lifestyles theory and Cohen and Felson's (1979) routine activities theory. These two theories are usually treated as one overarching framework because they both recognize the notion that victimization is influenced by opportunities. In other words, lifestyles and routine activities are both considered opportunity theories. Crime is most likely to occur when there are opportunities for it to occur (Cohen & Felson, 1979).

Since its introduction the lifestyles/routine activities framework has been tested in a number of different contexts including micro-level or macro-level measures such as neighborhoods, cities, streets, and census blocks (Sampson 1987; Massey, et al., 1989; Sampson & Lauristen, 1990; Kennedy & Forde, 1990; Cantor & Lynch, 1992). The framework has also been applied in multiple contexts to examine different levels of opportunity (Sampson & Wooldredge, 1987; Wilcox & Land, 1996, Fisher et al., 1998, Cass, 2007). The current chapter will focus on presenting each of these two theories in detail. Next, more current extensions of the theory will be discussed and empirical evidence for the lifestyles/routine activities framework in other contexts outside of college students will be briefly presented. This will be followed by the empirical evidence testing lifestyles/routine activities theory to predict sexual victimization and physical assault in college students.

Lifestyles Theory

Lifestyles theory was first proposed by Hindelang, Gottfredson, and Garofalo (1978) as an explanation of why some individuals have a higher risk of victimization than other individuals. The theory was outlined in their book, *Toward a Theory of Personal Criminal Victimization,* where the authors examined victimization data from the National Crime Survey (NCS). In analyzing their data, the authors found that some types of individuals experienced a disproportionate number of victimizations. Hindelang and colleagues argued that lifestyle is the core of the explanation as to why some individuals are at higher risk for victimization. Lifestyle refers to routine activities that an individual engages in and can include both vocational and leisure activities. For example, daily actions such as going to work, school, or hanging out with friends would be considered part of a person's lifestyle. A person's lifestyle is then influenced by several factors. In particular, Hindelang and colleagues argued that the factors influencing an individual's lifestyle link lifestyle with victimization.

The individual's lifestyle is influenced by several factors according to the theory. First, demographics including age, sex, race, income, marital status, education and occupation put constraints on the individuals (Hindelang, et al., 1978). These constraints then influence *role expectations* imposed on an individual as defined by the cultural norms of society. Role expectations are defined as behaviors that are deemed appropriate for individuals to engage in based on their demographic characteristics. For example, the demographic of age limits what expectations and roles a person has. Younger individuals who cannot drive would be expected to spend more time at home as opposed to teenagers who can legally drive and have more opportunity to be outside of the home. Similarly, young adults are often expected to spend more time away from home attending classes, hanging out with friends, and engaging in social

activities, while older adults are expected to spend more time at home caring for children and attending to household needs.

Additionally, Hindelang and colleagues argued that demographics influence *structural constraints* placed on an individuals. Structural constraints are situations that limit behavioral options for individuals and may include economic, familial, educational, and legal constraints. These constraints can bound a person's range of behaviors. For example, individuals who have higher economic statuses may be able to afford a more public lifestyle of going out to restaurants, movies, and shopping as opposed to someone with a lower economic situation. Structural constraints can also affect where a person lives, what types of jobs a person may obtain, their educational level, and options for transportation.

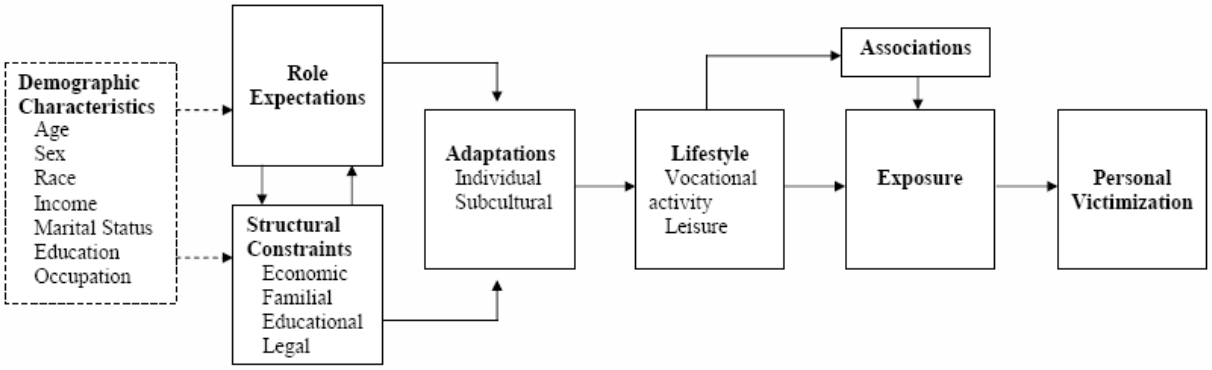
In sum, a person's demographics affect both the role expectations that a person has as well as the structural constraints they must cope with. Role expectations and structural constraints are also proposed to affect one another in a reciprocal fashion. In other words, the two concepts are not mutually exclusive. For example, the structural constraints of economic status, employment, and education can affect the role expectations a person has. The role expectations for someone who is unemployed, poorly educated, and of low economic status may be very different from someone who is highly educated, employed, and has high economic status.

Lifestyles theory posits that both role expectations and structural constraints effect a person's *adaptations*. Adaptations allow a person to manage within their structural constraints and role expectations and create skills and attitudes that aid in this functioning. Formed within adaptations are several important values and beliefs related to victimization. In particular, Hindelang and colleagues argued that beliefs about crime and fear of crime are developed out of

adaptations and can then later affect the routine activities of an individual. These adaptations then become crucial in determining an individual's lifestyle. Specifically, the adaptations a person takes then forms regular patterns of activity that then constitute a person's lifestyle. Lifestyles are then in turn related to risk. Some people then have greater chances for victimization based on risk. In particular, different types of lifestyles may place a person in a particular place or situation that exposes a person to a high risk of being victimized (Hindelang, et al., 1978). This concept of *exposure* has become one of the most important and widely tested components of lifestyles theory (Sampson & Wooldredge, 1987; Sampson & Lauritsen, 1990; Fisher et al., 1998; Mustaine & Tewksbury, 1998, 1999, 2002; Fisher et al., 2000, 2002; Cass 2007).

Exposure in lifestyles theory refers to the types of situations a person is put into based on their lifestyle. Some individuals may be more exposed or subjected to high risk situations than others. In other words, individuals who live lifestyles that put them in a lot of high risk situations are expected to have higher victimization rates than those who have low exposure to high risk situations (Hindelang, et al., 1978). Subsequent researchers have operationalized exposure as a number of proposed risky situations such as drug and alcohol use, partying, and spending large amounts of time away from home (Fisher et al., 1998; Ullman, Karabatsos, & Koss, 1999; Mustaine & Tewksbury, 1999, 2002; Fisher et al., 2000, 2002; Mohler-Kuo et al., 2004; Cass 2007; Krebs et al., 2007). Figure 2.1 shows the complete lifestyle/exposure model of personal victimization as proposed by Hindelang and colleagues.

Figure 2.1 A Lifestyle/Exposure Model of Personal Victimization



From: Hindelang, Gottfredson, & Garofalo (1978). Victims of Personal Crime: An Empirical Foundation for a Theory of Personal Victimization

Overall, lifestyles theory considers a person's lifestyle or activities to be very important in the explanation of victimization risk through the concept of exposure to high risk situations. Particularly, this theory predicts that individuals who posses certain characteristics will lead lifestyles that increase their exposure to risk (Hindelang, et al., 1978). For example, sex is one important demographic characteristic that is posited to effect and individuals lifestyle and victimization risk. In particular, the lifestyles theory predicts that males will be at higher risk for victimization than females. This expectation is built on the notion that males and females have different role expectations that often place males in more high risk situations. Although, this difference is argued to be less apparent in older and very young groups of people where male and female role expectations and behaviors may be more comparable resulting in similar levels of exposure.

Another demographic characteristic that is hypothesized to play an important role in determining lifestyles is age. Not surprisingly, young adults are expected to have different

lifestyles than older adults. Thus, young adults are argued to be at higher risk of victimization because they are more likely to lead lifestyles that expose them to situations where crime is likely to occur. Young adults may spend more time outside the home with non-family members than older adults. An important assertion from lifestyles theory is that individuals who spend more time outside the home in public places, particularly at night, are at higher risk of experiencing a personal victimization. In other words, age affects a person's lifestyle which then affects victimization risk.

Another demographic characteristic thought to influence a person's lifestyle and their risk of victimization is marital status. People who are married are expected to spend more time at home, while those that are unmarried (and often younger) are expected to spend more time away from home. Similar, to the assertion that younger adults are at a higher risk for victimization because of the particular lifestyles they lead, those that are unmarried are also assumed to be at higher risk (Hindelang, et al., 1978).

Finally, the demographics of family income and race are also expected to be related to a person's risk of victimization. In particular those of lower economic status that are non-white are proposed to be at higher risk for victimization. The lifestyles of individuals with these demographics may be more likely to place them in situations with high exposure to risk. For example, lower income families may not have as many options for transportation and may have to rely on public transportation. The use of public transportation increases their exposure to situations where crime might occur. Similarly, non-whites may have less support from family members and may be alone more of the time increasing their risk (Hindelang, et al., 1978).

In summary, lifestyles/exposure theory predicts that individuals who lead lifestyles that expose them to high risk situations will be more likely to be victimized. A person's lifestyle is

affected by a number of factors including demographics, role expectations, structural constraints, and adaptations. The lifestyles theory specifically posits that individuals you are younger, male, unmarried, and non-white are expected to have higher victimization rates (Hindelang, et al., 1978). Additionally, individuals who spend more time in public places especially at night are also argued to be at a higher risk for victimization.

Routine Activities Theory

Cohen and Felson's (1979) examination of U.S. crime trends from 1947-1974 resulted in the development of routine activities theory. Specifically, Cohen and Felson sought to explain the increase in crime rates while social forces such as unemployment and income thought to increase crime were at particularly low levels. The argument proposed was that changes in the larger structure of daily activities influenced criminal opportunities therefore influencing fluctuations in crime rates. In other words, the routine activities of Americans had changed in such ways that increased opportunities for criminal behavior and thus resulted in increasing crime rates. Cohen and Felson asserted that since WWII more individuals were spending time outside of the household and spending much of this time in the presence of non-household members. Further, these changes in routine activities were asserted to influence three main elements needed for a crime to be committed. In particular, routine activities theory argues that crime is most likely to occur when there is a convergence in time and space of the three minimal elements of a *motivated offender*, an *attractive target*, and the lack of capable *guardianship*. In other words, when a motivated offender comes into contact with a target they feel is suitable and lacks protection in the form of guardianship, the offender is likely to seize the opportunity. Cohen and Felson referred these as *minimal* elements because the elimination of any one of these elements they argue is enough to prevent a crime from occurring.

The Motivated Offender

The motivated offender in routine activities theory refers to individuals that are motivated or have the inclinations to perpetrate a crime. This element in routine activities theory is considered a constant, meaning motivated offenders will always be available to take advantage of opportunities that arise. In fact, according to the theory, the convergence in time and space of a suitable target with no guardianship is sufficient to produce crime without any change to structural conditions thought to motivate offenders (Cohen & Felson, 1979). In empirical tests of the theory, this element may not be directly measured, but assumed to be constantly present as argued by Cohen and Felson. Another strategy often used by researchers is to measure motivated offenders through the concept of proximity, introduced as a refinement to the theory (Cohen, Kluegel, & Land, 1981).

After the original proposal of three elements, Cohen and colleagues (1981) later refined the theory to include the concept of *proximity*. Proximity refers to the actual space that separates potential offenders from their targets (Cohen, et al., 1981). For example, Hindelang, et al., (1978) argued that people who live in or spend a lot of time in areas that have high crime will be more likely to be victimized. Not surprisingly, proximity is often measured by researchers as the amount of time spent in places that are thought to be high risk places for the convergence of targets and offenders (Fisher et al., 1998; Mustaine & Tewksbury, 1999, 2002; Fisher et al., 2000, 2002; Cass 2007). For example, in studies of college students, proximity may be measured as living in a dorm or the number of days and nights spent on campus (Fisher et al., 1998). Other studies have measured proximity using neighborhood characteristics such as living near a public part or abandoned buildings (Mustaine & Tewksbury, 1998) or living close to a high crime area (Fisher et al., 1998).

Target Attractiveness

The element of target attractiveness is described by Cohen and Felson (1979) as the characteristics of people or items that are viewed as attractors to perpetrators. As such, people or items that have desirable qualities or characteristics are more likely to be targeted for victimization. In the form of goods, these characteristics can be viewed in terms of Value, Visibility, Accessibility, and Inertia also known as VIVA (Cohen & Felson, 1979). In other words, items that have higher levels of value, are easily moved, and obtained will have high levels of target attractiveness. When first proposed, this term was applied to goods including autos and electronic devices such as TV's and VCR's.

More recently, VIVA could also be applied to small goods such as laptops, cell phones, IPads, Blackberry's, and MP3 players. In addition, other researchers have expanded the element of target attractiveness using another set of attractive characteristics. CRAVED refers to items that are considered Concealable, Removable, Available, Valuable, and Enjoyable and Disposable (Clarke, 1999). Items that can easily be hidden or concealed, moved, and are accessible to the offender will be more attractive. For example, an offender sees a cell phone left on a desk at school, this would be an attractive target because it is small, can be hidden easily in a pocket or book bag, and readily available to the offender. Additionally, if the item has monetary value and is enjoyable, as well as easy to sell or dispose of, this may also attract an offender to the target. A laptop is a good example of this because they are often very valuable and can be used by the offender for their own pleasure or disposed of easily through sale to another individual.

When referring to individuals, target attractiveness is often implied to be characteristics of the person that make them desirable to an offender (Cohen, et al., 1981). For example, individuals who carry large sums of money or flaunt their wealth may become attractive targets

to offenders. Researchers have tried to capture this desirability when examining property crimes such as theft by measuring behaviors that might indicate affluence such as the amount of money spent a week on non-essentials (Fisher et al., 1998).

Guardianship

The last element that routine activities theory argues to influence opportunities for crime is guardianship. More specifically, the lack of a capable guardian is thought to increase the chances of a crime occurring. Guardianship refers to protection over a person or item and can be in the shape of formal social control (such as police) or argued to be more important in the form of ordinary citizens as they carry out their daily activities (Cohen & Felson, 1979). In other words, crime is not likely to occur in situations where a person or item is heavily guarded. In studies, guardianship is often measured through examinations of living situations such as living alone or number of household members (Sampson & Wooldredge, 1987; Massey et al., 1989; Fisher et al., 1998; Mustaine & Tewksbury, 1999, 2002; Fisher et al., 2000, 2002).

Guardianship can be provided by other people, but also can be provided by tools used by people to guard themselves or their items. For example, individuals may use locks, alarms, or cameras to protect their property. They may use mace, weapons, or other self-protection items to defend themselves. Researchers have often used measures such as these (i.e., locks, alarms, dogs, living situation) to capture the effect of guardianship on victimization (Fisher et al., 1998; Mustaine & Tewksbury, 1999, 2002; Fisher et al., 2000, 2002).

Extensions of Lifestyles/Routine Activities Theory

Along with extensive testing since its introduction, the lifestyles/routine activities framework has also been criticized by some researchers. Specifically, some researchers argue that there are other risk factors for victimization outside the traditional lifestyles/routine activities

factors (Finkelhor & Asdigian, 1996; Schreck, 1999). These criticisms have led to at least two proposed extensions to the framework. Finkelhor and Asdigian (1996) argue that individuals' characteristics that make them congruent with the offenders needs are also risk factors for victimization. Schreck (1999) argues that low self-control leads to both criminal activities and victimization, so an individual's level of self-control also needs to be considered a risk factor. Each of these two extensions will be discussed separately.

Target Congruence

Finkelhor and Asdigian (1996), two researchers interested in examining risk factors to predict youth victimization, proposed an extension to the LRAT framework. The authors argued that there were personal characteristics outside of those normally proposed by LRAT, which contribute to youth victimization risk. Specifically, three elements – target vulnerability, target gratifiability, and target antagonism – will increase an individual's desirability to offenders conceptualized as target congruence. The authors hypothesized that individuals who had high target vulnerability, high target gratifiability, and high target antagonism will have higher target congruence which increases their risk of assault victimization. So, individuals who appeared vulnerable, gratified the offender's needs, or provoked the offender would be more likely to be victimized. Finkelhor and Asidigian (1996) then tested there theory using data from the National Youth Victimization Prevention Study.

Overall, the results provided support for their extension. Across the three types of assault victimization – nonfamily, sexual, and parental – target congruence variables were significant predictors for each type of victimization. Although not all of the target congruence variables were significant or measured in each model, the results from this study suggest that other risk factors may be important in predicting youth victimization outside of the normal

lifestyles/routine activities concepts. Understanding the individual characteristics of the person that make them more vulnerable to, desirable (gratifiability) to, or provoke (antagonism) offenders could then be used in prevention strategies aimed at youth.

Low Self-Control

A second extension to the lifestyles/routine activities framework proposed by Schreck (1999) posits including the concept of self-control in the theory. Self-control (or lack thereof) is argued to be the central reason that individuals engage in crime over all other explanations for why individuals commit crime (Gottfredson and Hirschi, 1990). While this theory was originally formulated to explain offending behaviors, it has also been suggested to be related to victimization risk.

Schreck (1999) proposed that an individual's level of self-control not only predicted their risk of engaging in criminal behavior, but also their risk of becoming a victim. The rationale underlying this assertion is that the same characteristics that influence crime commission also influence victimization risk. In particular, individuals who have lower levels of self-control may lack the abilities to perceive risk or protect themselves making them vulnerable compared to individuals with higher levels of self-control. For example, individuals who have lower levels of self-control are often thought to be impulsive and this characteristic may lead to the participation in high-risk activities. Schreck argued that individuals with low self-control may lack diligence, risk avoidance, and empathy. Further, these individuals are unable to delay gratification and have a low tolerance for situations that may be frustrating. These characteristics place individuals at a greater risk for experiencing victimizations than those lacking these characteristics or with higher levels of self-control.

Using data from the 1996 Tucson Youth Project which contained 1,039 college students from the University of Arizona, Schreck tested the relationship between self-control and victimization. Overall, support emerged for the hypothesis that individuals with low self-control have higher victimization risks for both violent and property crime. Specifically, self-control had a direct effect on victimization risk for both property and violent crime and reduced the effect of demographic variables. This effect remained once self-reported criminality was included in the models. Self-control continued to have an effect on both property and violent crime risk once all variables were controlled for statistically. The effect of self-control on victimization has been tested in further victimizations studies with general empirical support (see Schreck, Wright, Miller, 2002; Schreck & Fisher, 2004; Schreck, Stewart, & Fisher, 2006).

Overall, these two extensions of the LRAT framework suggest that other factors outside of those commonly used to predict victimization may be important for understanding its occurrence. One contribution of this dissertation is to propose another factor – ADHD – that may contribute to victimization risk.

Empirical Support in other Contexts for Lifestyles/Routine Activities Theory

The lifestyles/routine activities theory has been tested extensively since its introduction in a multitude of contexts or domains. As discussed in the prior chapter, many of the studies testing this framework have relied on the college student population. However, empirical support has also been found using macro-level data such as census tracts (Wilcox & Land, 1996), census metropolitan areas (Kennedy & Forde, 1990) and multiple levels of aggregation such as unit, street segment, neighborhood, and city (Lynch & Cantor, 1992). Although originally proposed at the macro level, routine activities theory has also received much attention at the micro level. Studies focusing on the victimization of college students are often at the micro-level however,

many studies have recently employed a multi-level approach (see Sampson & Wooldredge, 1987; Wilcox & Land, 1996, Fisher et al., 1998, Cass, 2007). These studies examined the notion that criminal opportunity is multi-level meaning it exists at both the micro or individual and macro levels. Other studies testing the framework have used different types of victimization, samples, and measures generally finding support for the theory (see Sampson 1987; Massey, et al., 1989; Sampson & Lauristen, 1990).

EMPIRICAL SUPPORT FOR LIFESTYLES/ROUTINE ACTIVITIES THEORY AMONG COLLEGE STUDENTS

In addition to the large number of studies that have tested the lifestyles/routine activities framework in a variety of contexts such as individuals, census blocks, streets, and multiple levels, several studies have also had the focus of applying the framework to the specific context of college students. These studies often examine what types of risk factors, lifestyles, and routine activities may enhance or increase a college student's risk of victimization. Studies have examined the core components of the lifestyles/routine activities framework in hopes of better understanding and preventing victimization among college students. These four components include: exposure to high risk situations, proximity to offenders, target attractiveness, and lack of capable guardianship (Hindelang et al., 1978; Cohen & Felson, 1979). Each of these concepts were discussed in detail in the previous section. The purpose of this section is to provide an overview of the past research examining these core factors and to also discuss which factors have consistent empirical support, while others tend to receive mixed, or little empirical support. While the concepts of lifestyles/routine activities theory have been applied in other contexts, the following section will focus only on studies that examine college students and their risk of victimization. However, it is important to note that not all of the studies discussed in the next section are explicit tests of LRAT, rather they can be interpreted within the LRAT conceptual

framework. Table 2.1 provides a summary of national-level studies that can be assessed under the lifestyles/routine activities framework using college student samples and also highlights which concepts were empirically supported.

Exposure to High-Risk Situations

One assumption of the lifestyles/routine activities framework is that individuals who are placed in or exposed to high-risk situations or environments may be at higher risk for victimization. Exposure to high-risk situations is influenced by an individual's lifestyle including their vocational and leisure activities (Hindelang et al., 1978). For example, some activities such as drug and alcohol use may place individuals in high-risk situations. These situations then provide opportunities for motivated offenders to victimize (Fisher et al., 1998). Researchers often have operationalized exposure using variables such as alcohol and drug use, sorority/fraternity membership, athletic participation, and nights spent out engaging in activities such as attending movies or bars (Cass, 2007; Fisher et al., 1998, Mustaine & Tewksbury, 1998; 2001).

The concept of exposure can be applied to the study of college student victimization in several ways. First, students just beginning college are often away from home for the first time and may experience several new opportunities to engage in risky activities. Second, college students may drink and experiment with drugs for the first time. Several studies on college students and alcohol intake have found that a large proportion of college students report drinking large quantities of alcohol while attending college (Abbey, 1991; Abbey, Zawacki, Buck, Clinton, & McAuslan, 2004; Ham & Hope, 2003, Kilpatrick et al., 2007, Krebs et al., 2007, ACHA, 2010) Third, students may join campus teams or clubs, such as an athletic team or fraternity/sorority, in which they will encounter large groups of new people. Engaging in campus

Table 2.1 College Student Studies Testing LRAT to Predict Sexual Victimization and Physical Assault

Author	Sample	Dependent Variable	Significant Predictors	LRAT Components Supported
		Sexual Victimization		
Cass (2007)	NCWSV Nationally representative sample of 3,036 students from 11 colleges	Sexual Assault	Drug use **(Exposure +)** Female **(Demographics +)**	Exposure Demographics
Krebs et al., (2007)	Campus Sexual Assault Study 5,446 undergraduate women at 2 schools	Sexual Assault Physically Forced Incapacitated	**Forced Sexual assault** Number of sexual partners **(Target attractiveness +)** Being threatened/humiliated or hurt by dating partner **(Target attractiveness +)** Years in college **(Demographics +)** Freshman/sophomore **(Demographics +)** **Incapacitated sexual assault** Experiencing incapacitated sexual assault before college **(Target attractiveness +)** Frequently report getting drunk **(Exposure +)** Marijuana use **(Exposure +)** Frequency reported being drunk during sex **(Exposure +)** Having been given a drug without ones knowledge or consent **(Exposure +)** Frequency attended fraternity parties **(Exposure +)** Being threatened/humiliated or hurt by dating partner **(Target attractiveness +)** **Both physically forced and incapacitated sexual assault** Experiencing either physical or incapacitated sexual assault before college **(Target attractiveness +)** Frequently report getting drunk **(Exposure +)** Having been given a drug without ones knowledge or consent **(Exposure +)** Number of sexual partners **(Target attractiveness +)** Non-white women **(Demographics +)**	Exposure Target attractiveness Demographics

Mohler-Kuo et al., (2004)	Harvard School of Public Health College Alcohol Study (1997, 1999, 2001) 119 schools	Rape while Intoxicated	Women who drank heavily in high school **(Exposure +)** Sorority membership **(Exposure +)** Illicit drug use **(Exposure +)** Attended colleges with high rates of heavy episodic drinking **(Exposure +)**	Exposure
Mustaine & Tewksbury (2002)	674 College and University Women from 12 post-secondary southern institutions across 8 states 2-4 year schools	General Sexual Assault Serious Sexual Assault	**General Sexual Assault** Members of a higher number of school groups/clubs/ organizations **(Exposure +)** Member of college athletic team **(Exposure +)** Greater percent of drug use in public **(Exposure +)** Has bought illegal drugs **(Exposure +)** Frequently spends time going to the movies **(Exposure -)** Frequently spends leisure time hanging out **(Exposure +)** Frequently goes out at night for leisure **(Exposure** +) While growing up, father was consistently employed **(Demographics -)** **Serious Sexual Assault** Members of a higher number of school groups/clubs/ organizations **(Exposure +)** Frequently spends time going to the movies **(Exposure -)** Frequently goes out at night for leisure **(Exposure +)** Greater percent of drug use in public **(Exposure +)** When in difficulty, mainly got advice of parents (-)	Exposure Demographics
Fisher et al., (2000)	Nationally representative sample of 4,446 college or university women in 233 schools	Completed Rape Attempted Rape	Frequently drinking enough to get drunk **(Exposure +)** Being unmarried **(Target attractiveness +)** Having been a victim of a sexual assault before the start of the current school year **(Target attractiveness +)** Living on campus **(Proximity +)** Heterosexual **(Demographics +)**	Exposure Proximity Target attractiveness Demographics

Ullman, et al., (1999)	National sample of college women (Koss et al., 1987) 3,187 women in 32 schools	Sexual assault	Victim propensity to abuse alcohol **(Exposure +)** Pre-assault alcohol use by victim or offender **(Target attractiveness +)**	Exposure Target attractiveness
Violent Crime				
Fisher et al., (1998)	Nationally representative sample of 3,472 students across 12 institutions	Violent Crime (Robbery, Rape, Attempted Rape,	**Violent crime** Number of nights spent partying on campus **(Exposure +)** Likelihood of regularly taking recreational drugs during the year **(Exposure +)** Attending a non-mandatory crime prevention or crime prevention awareness program **(Guardianship -)**	Exposure Target attractiveness Guardianship

activities like these may put students into contact with many strangers (Mustaine & Tewksbury, 1998). Finally, the college social setting may provide students with the opportunity to frequently go out at night, to bars, clubs, or other sites of social recreation where they come into contact with potential offenders. Hindelang, et al., (1978) asserted that spending more time away from home and in the presents of non-family members increase exposure risk. In general, studies have provided empirical support for these claims often finding that students who engage in certain more "risky" behaviors often have a higher risk for victimization (Fisher et al, 1998; Mustaine & Tewksbury, 1998; 1999; 2002; Ullman et al., 1999; Fisher et al., 2000, 2002; Mohler-Kuo et al., 2004; Krebs et al., 2007). The next section focuses on presenting empirical support for the lifestyles/routine activities framework for each concept of the theory (e.g. exposure, proximity, target attractiveness, and guardianship) for both sexual victimization and physical assault. A summary of the studies testing each of these concepts using college student samples and empirical support can be found in Table 2.1.

Empirical Support for Exposure Predicting Sexual Victimization and Physical Assault among College Students

The lifestyles/routine activities concept of exposure generally receives empirical support from studies testing the theory that have examined sexual victimization and physical assault using college student samples. While many of these studies focus on measures of alcohol and drug use, other exposure variables have also been found to be important in predicting college student sexual victimization. For example, Mustaine and Tewksbury (2002) measured exposure with several different variables including school club participation, athletic participation, and other activities away from the home to examine both general and serious sexual assault. Their results revealed a number of variables as significant predictors of sexual assault. In particular, being a member of a high number of school clubs, being a member of a college athletic team and

engaging in frequent activities away from home such as hanging out, or going out at night all increased a women's risk for general sexual assault (Mustaine & Tewksbury, 2002). Table 2.1 provides a summary of the exposure variables reported as significant by Mustaine & Tewksbury.

These activities represent lifestyles consistent with Hindelang, Gottfredson, and Garofalo's (1978) and Cohen and Felson's (1979) argument that individuals who spend more time away from home are at increased risk for victimization. Women who are involved in a number of school activities such as clubs and athletics would attend meetings and events associated with these activities increasing their time spent away from home. Consistent with these findings, Mohler-Kuo et al., (2004) reported that women who were members of a sorority were at an increased risk for experiencing rape while intoxicated.

Another finding that is supportive of the lifestyles/routine activities framework from Mustaine and Tewksbury's (2002) study was that women of frequently go out at night are at an increased risk, which is argued to increase their exposure to risky situations. On the other hand, women who frequently went to the movies were at a decreased risk of experiencing general sexual assault (Mustaine & Tewksbury, 2002). A possible explanation for this finding is that women, who choose to spend their leisure time in places like the movies instead of places like bars, may reduce their risk of coming into contact with offenders. In other words, offenders may be more likely to frequent certain types of places such as bars and not places like the movies.

For serious sexual assault, several measures of exposure were also found to be significant predictors. Again, activities away from home such as belonging to clubs and organizations and frequently going out at night increased a women's risk of serious sexual assault (Mustaine & Tewksbury, 2002). Also similar to the findings from general sexual assault, frequently going to movies was found to reduce the risk of experiencing a serious sexual assault.

Other studies examining sexual victimization among college students have also found that exposure measured as activities away from the home, or activities at night away from home are important in prediction victimization risk. Fisher and colleagues (1998) used several measures of exposure including nights spent partying, nights spent on campus, fraternity/sorority membership and athletic participation to predict violent victimization which included sexual victimization and physical assault. One exposure variable was found to be significant predictor of violent victimization in college students. Specifically, the number of nights spent partying on campus was predictive of violent victimization (Fisher et al., 1998). A similar result was found by Krebs et al., (2007) who reported that women who attended fraternity parties frequently were at an increased risk of experiencing incapacitated sexual assault. Overall, these studies provide support for the notion that individuals who spend a large proportion of their leisure time away from home and this time is frequently at night, are at an increased risk for sexual victimization and physical assault. See Table 2.1 for studies providing empirical support for exposure measures.

The Role of Alcohol and Drugs in Sexual Victimization and Physical Assault

A common way that exposure is operationalized in studies of college student victimization is through drug and alcohol use. Researchers have long argued that intoxication plays a role in victimization risk (Koss et al., 1987). Additionally, research supports the notion that alcohol is involved in at least half of sexual victimizations through use ether by the victim, perpetration, or both (Abbey et al., 2004). There are several reasons hypothesized for the connection between alcohol use and sexual victimization and physical assault. First, drug and alcohol use is argued to increase possible exposure to motivated offenders (Fisher et al., 1998). Offenders looking for victims may frequent places where they think vulnerable targets maybe

located such as places where alcohol is served or people go to by illegal substances. In other words, alcohol might increase the risk of sexual victimization because individuals who drink may be targeted by perpetrators (Abbey et al., 2004). Similarly, individuals who drink often may also be targeted by offenders resulting in assault. The same argument can be made for drug use. Offenders may target victims they feel are incapacitated through drug use (Cass, 2007). Thus, the risk of coming into contact with a motivated offender may be increased in situations where drug and alcohol use is occurring.

Second, a large proportion of college students drink and a significant proportion of students report drinking large quantities of alcohol or binge drinking. Wechsler, Davenport, Dowdall, Moeykens, & Castillo (1994) reported that almost half of students (44%) in their national survey of U.S. campuses were binge drinkers (defined as 5 drinks for males and 4 for females in one sitting) and that 19% reported binge drinking frequently. More recent estimates also reveal high rates of drinking and binge drinking among college students. In the spring 2010 administration of the National College Health Assessment II, 65% of students reported drinking in the past 30 days and 23% reported having five or more drinks in a sitting once or twice in the past two weeks (ACHA, 2010). Drinking could increase target attractiveness to an offender looking for a vulnerable target. For example, individuals who are drinking may have impaired motor skills making it more difficult to defend against sexual victimization (Mohler-Kuo et al., 1994).

Third, much of the excessive drinking that college students do is in public places such as parties, bars, or clubs. Drinking in public places exposes victims to potential offenders looking for vulnerable targets that they may not have come into contact with drinking in a private setting (Mustaine & Tewksbury, 2002). This assertion is consistent with the lifestyles/routine activities

framework that individuals who spend time outside the home in public are more likely to be victims of crime (Hindelang, et al., 1978; Cohen & Felson, 1979). This argument may be especially true for explaining sexual victimization. Sexual victimizations that involve alcohol are more likely that non-alcohol involved sexual victimizations to involve interactions at a party or bar (Abbey et al., 2004).

Finally, alcohol can increase misperceptions about sexual intent (Abbey et al., 1996; Abbey, 2002; Abbey et al., 2004). In other words, offenders may misinterpret signals from a victim leading to sexual victimization. Further, communication about intent may be hindered from both the victim and perpetrator end if both individuals are drinking (Abbey, 2002). Research supports this notion with several studies examining sexual victimization among college women reporting that victims feel alcohol use by themselves, their perpetrator, or both played a role in their victimization (Mohler-Kuo, et al., 1994; Abbey et al., 1996; Krebs et al., 2007) Consequently, empirical support for alcohol use as measure of exposure in past studies has been relatively consistent.

Koss and colleagues (1987) conducted one of the first national-level studies that sought to examine sexual victimization of college students. While this study revealed that a large proportion of college women had been sexually victimized (i.e., attempted and completed rape), it also revealed that alcohol was related to victimization risk. In particular, the results of a later analysis using these data by Ullman and colleagues showed that pre-assault use of alcohol by the victim or perpetrator was related to victimization risk. Further, women who had a greater propensity to abuse alcohol were also at an increased risk for sexual victimization (Ullman et al., 1999).

Another study that found support for the link between alcohol use and sexual victimization was the National College Women Sexual Victimization Study. Multivariate models were estimated for several different types of sexual victimization with one consistent finding: College women who reported that they frequently drank enough to get drunk were at an increased risk of sexual victimization (Fisher, et al., 2000). In other words, college women that were heavy drinkers had higher risks of sexual victimization than college women who were not heavy drinkers. Additionally, in a review of several different studies examining the role of alcohol on sexual assault Abbey (2002) concluded that alcohol use by the offender or victim increased the likelihood of sexual assault occurring. Further, it is estimated that approximately half of all sexual assaults are associated with alcohol used by the victim, offender, or both (Abbey et al., 1996; Abbey et al., 2004).

Other national-level studies of college students have also supported the link between alcohol use and sexual victimization. One study even found that the aggregate level of drinking at an institution was related to sexual victimization risk. The Harvard School of Public Health College Alcohol Study reported that colleges with high rates of binge drinking also had higher rates of sexual assault (Wechsler et al., 1994). More recent findings from this study lend further support. Data from three years of survey administration (1997, 1999, and 2001) were analyzed to examine the correlates of rape. Of the many results, one finding was that 72% of the victims of rape were intoxicated at the time of their victimization (Mohler-Kuo et al., 2004). Alcohol use was also found to increase risk of sexual victimization. In particular, women who drank heavily in high school and attended colleges that had high rates of binge drinking were at an increased risk of being sexually victimized while intoxicated (Mohler-Kuo et al., 2004).

The Campus Sexual Assault study also found support for a link between different types of sexual victimization and alcohol use. This study examined both physically forced and incapacitated (incapacitated included drug facilitated) sexual assault. When forcible sexual assault risk was examined alone, none of the substance abuse variables were found to be significantly related to victimization risk (Krebs et al., 2007). However, when incapacitated sexual assault was examined, alcohol use emerged as a significant factor. Specifically, women who reported drinking frequently since entering college were at an increased risk of experiencing an incapacitated sexual assault. Further, women who reported they were drunk frequently during sex also had higher rates of incapacitated sexual assault. When the two types of sexual assault – forcible and incapacitated – were combined, alcohol again emerged as a significant predicator of risk. Similar to incapacitated sexual assault, women who frequently reported getting drunk since entering college were at an increased risk of experiencing either type of assault (Krebs et al., 2007).

Support for the relationship between sexual victimization and alcohol use, however, has not always been consistent. Cass (2007) did not find alcohol use to be a significant predictor of sexual assault risk among college women. In other words, women who reported that they would regularly drink three or more alcoholic drinks at any time in the next year were not at increased risk for sexual assault. Similarly, once other lifestyle factors were taken into consideration, Mustaine & Tewksbury (2002) did not find alcohol to be a significant risk factor in predicting the sexual assault of college women. However, it could be that simply drinking alcohol does not put one at an increased risk, but rather the amount and frequency that one drinks. Additionally, many surveys – but not all – examining the link between alcohol and victimization do not ask questions beyond if one drinks, ignoring the amount drank, frequency of drinking, or level of

intoxication when the victimization occurred (Abbey et al., 2004). Mustaine and Tewksbury (2002) argued that it is important to examine beyond if an individual drinks to activities such as how frequently one drinks, how much one drinks in a sitting, and who one drinks with. There is some evidence to suggest that examining alcohol use further may better explain some of the inconsistencies in findings.

Schwartz and Pitts (1995) found that frequent alcohol use contributed to the risk of being sexually victimized in a sample of college women. Specifically, women who went out to drink more frequently and drank larger quantities of alcohol when out were more likely to be sexually assaulted than women who went out drinking less and consumed less alcohol. This study also found that who women reported hanging out with also contributed to their victimization risk. Women who reported having male friends who got women drunk in order to have sex with them had higher risks of experiencing sexual victimization themselves (Schwartz & Pitts, 1995). These findings suggest that examinations into the link between alcohol use and victimization may need to be more specific, looking into more than just simply the use of alcohol. To help address this issue, the current dissertation contains a measure of binge drinking to examine differences in victimization risk based on the amount of alcohol consumed.

More consistent is the support for drug use as a measure of exposure in predicting sexual victimization. Mustaine and Tewksbury (2002) found drug use to be a significant predictor of sexual assault victimization among college women. Specifically, college women who bought illegal drugs or used illegal drugs in public frequently had a higher risk of experiencing a general sexual assault. This study also found support for drug use in predicting serious sexual assault. In particular, women who frequently used drugs in public were at an increased risk for serious sexual assault (Mustaine & Tewksbury, 2002).

Other studies have provided further empirical support when examining sexual victimization risk. For instance, Cass (2007) found that drug use increased sexual assault risk among college women, one of the only predictors that were significant in this study. Mohler-Kuo et al., (2004) using data from the Harvard School of Public Health College Alcohol Study also found support for the link between drug use and sexual victimization. Women who reported illicit drug use were at an increased risk for being raped while intoxicated. Although not measured directly, Fisher et al., (1998) found that women who had a higher likelihood of taking recreational drugs during the year had higher risks for violent victimization. Violent victimization in this study included attempted rape, rape, robbery, and physical assault. Finally, Krebs et al., (2007) reported that marijuana use increased a women's risk for incapacitated sexual assault.

Proximity to Offenders

The second important concept of the lifestyles/routine activities framework is the proximity to motivated offenders. Proximity refers to the physical space that separates the victim from a motivated offender. Specifically, crime is more likely to occur when people or property converge in time and space with motivated offenders (Fisher et al., 1998). Individuals who spend more time in the presence of potential offenders are more likely to be victimized. For college students, who are often in situations with many new people, the proximity to offenders could be frequent. Students often spend a great deal of time in classes, student centers, or around campus possibly increasing their proximity (Fisher et al., 1998). Thus, proximity to offenders is often measured with variables such as living in a dormitory that is all male, the size of the dormitory, days on campus, nights on campus, and student standing.

Empirical Support for Proximity Predicting Sexual Victimization and Physical Assault among College Students

While not examined as frequently in studies as exposure, proximity also tends to receive some empirical support as an important risk factor in explaining college student victimization. For example, Fisher and colleagues (1998) found that living in an all-male or coed dorm as well as the number of nights spent on campus increased a student's risk for experiencing a theft victimization. However, none of the proximity measures were significantly related to violent victimization risk which included rape and physical assault. On the other hand, Fisher, et al., 2000 found that for sexual victimizations that occurred on campus, living on campus was a significant predictor. A summary of the empirical support for proximity to offenders can be found in table 2.1.

Another way that proximity has been measured is through examining the types of people that college students hang out with. For example, Schwartz and Pitts (1995) hypothesized that women who reported having friends that got women drunk in order to have sex with them would be at a higher risk of experiencing a sexual victimization themselves. Results from their study supported this notion finding that women with more friends who got women drunk for sex were at higher risk for experiencing sexual assault. In essence, these women may be more likely to come into contact (proximity) with motivated offenders because they hung out with friends that may be perpetrators of sexual violence.

Proximity has also been measured through the experience of prior victimization. Prior victimization may increase the risk of being victimized again because the same perpetrator may return or there may be characteristics of the individual such as lifestyle that are attractive to multiple perpetrators (Farrell & Pease, 1993). A number of studies examining college student sexual victimization have found prior victimization to be a predictor of future victimization risk.

For example, Fisher et al., (2000) found that women who had been a victim of sexual assault before the start of the current school year were at an increased risk for experiencing another sexual assault.

A similar result reported by Krebs and colleagues (2007) in their examination of forced and incapacitated sexual assault. Women who have experienced an incapacitated sexual assault or a forcible sexual assault before entering college were at an increased risk of experiencing either type of sexual assault again (Krebs et al., 2007). Experiencing a prior victimization has also been linked to stalking risk. Fisher, et al., 2002 found that women who experienced a sexual victimization prior to the school year beginning were at an increased risk for being stalked.

Importantly, not all studies have been consistent in supporting the concept of proximity and sexual victimization risk. While Mustaine and Tewksbury (2002) did find support for some of their proximity variables in relation to sexual victimization risk, several others were found to be insignificant. For example, a student's status as full or part time and living on campus were insignificant as predictors for sexual assault risk among college women.

Target Attractiveness

The third important concept of the lifestyles/routine activities framework is target attractiveness. This concept, asserts that some targets or victims are selected by motivated offenders because they have attractive or alluring characteristics (Cohen & Felson, 1979). Thus, target attractiveness refers to characteristics of an individual or item that draws or attracts an offender to possible target. Common measures of target attractiveness include average money spent per week on non-essentials (Fisher et al., 1998), relationship status (Fisher, et al., 2002) life style statuses such as hanging with younger people (Mustaine & Tewksbury, 2002) or the amount of cash carried by a person (Miethe & Meier, 1990). Empirical support for the concept of

target attractiveness is much less clearer and consistent than the concepts of proximity and exposure when examining college student victimization risk.

Empirical Support for Target Attractiveness Predicting Sexual Victimization and Physical Assault among College Students

Unlike exposure and proximity that have some consistency across the variables used to measure these concepts, target attractiveness has been measured in several different ways possibly contributing to the mixed findings on its relationship to college student victimization. National-level studies examining sexual victimization have either not measured the concept or have not found target attractiveness to be significantly related to victimization. For example, Fisher, et al., 2000 did not find a relationship between target attractiveness and risk of sexual victimization among college students. Table 2.1 provides a summary of empirical support for target attractiveness and college student sexual victimization. Fisher and colleagues (1998) found that none of the measures of target attractiveness were significantly related to violent victimization including rape and physical assault.

Guardianship

The fourth concept of the lifestyles/routine activities framework is guardianship. When either a potential victim or target lacks capable guardianship or protection there is an increased risk or opportunity for a motive offender to be attracted and victimize (Cohen & Felson, 1979). Guardianship refers to individuals or devices that provide surveillance or security for other individuals or potential targets. College students may be away from home for the first time, and may lack the oversight they received when living at home putting them at increased risk. Further, it is argued that college students are often poor guardians for themselves and their property commonly leaving personal items unguarded, doors unlocked, and living spaces open to strangers (Fisher et al., 1998). Thus, common measures for guardianship include devices such as

carrying mace, a weapon, cell phone, or alarm for protection (Mustaine & Tewksbury, 2002) or physical guardianship in the form of living alone on campus or attending a crime prevention program (Fisher et al., 1998).

Empirical Support for Guardianship Predicting Sexual Victimization and Physical Assault among College Students

Guardianship has received mixed support in the limited amount of studies that have examined this concept in relation to college student victimization. For example, Fisher and colleagues (1998) found that only one measure of guardianship, attending a non-mandatory crime prevention program, was related to a college student's risk of experiencing a violent victimization which included sexual victimization and physical assault. The other measure of guardianship (i.e. living alone on campus) was not found to be a significant predictor for violent victimization. Further, none of the contextual-level measures of guardianship (i.e. campus programs, security personnel) were related to the violent victimization risk for college students (Fisher et al., 1998). See Table 2.1 for a summary of empirical support for guardianship and its relationship to physical assault and sexual victimization among college students.

Demographic Characteristics

Along with the examination of the core concepts of lifestyles/routine activities theory, several demographic characteristics have also been found to be important predictors of college student victimization. Among the studies that examine both men and women, college women are consistently found to be at higher risk for experiencing sexual victimization (Cass, 2007). Therefore, most studies focusing on sexual victimization of college students only examine females, often ignoring or not collecting data on the sexual victimization of males.

Research has also examined race and college student victimization risk with mixed results. Krebs et al., (2007) reported that non-white college women were at increased risk for

experiencing either a physically forced or incapacitated sexual assault. The NCVS in their special report on the victimization of college students also reported a race effect. The NCVS reported that white college students had slightly higher rates of violent victimization (including physical assault) than non-white students (Baum & Klaus, 2005). However, some past studies have failed to find a race effect for sexual victimization (Cass, 2007; Mustaine & Tewksbury, 2002). Again, due to the limited amount of studies that have examined race and victimization among college students it is difficult to draw conclusions on the relationship between race and victimization risk. Table 2.1 provides a summary of empirical support for demographic variables and college student sexual victimization and physical assault.

Other demographics have received some support in predicting college student victimization. One finding is that individuals who were unmarried had an increased risk of being sexually victimized (Fisher, et al., 2000). Further, Krebs et al., (2007) reported that freshman and sophomores were at higher risk of experiencing a physically force sexual assault, however this risk also increased as the years attending college increased. Another focus of the current dissertation is to examine both males and females, filling the gap of limited research on male college student victimization as well as examining race and other demographics to better define the role (or lack of) that these demographics have in predicting college student victimization.

Summary of Support for Lifestyles/Routine Activities Framework and College Student Victimization

Overall, studies that have tested the lifestyles/routine activities framework using college students have found varying support for the theory. The concepts of exposure and proximity often receive the most empirical support while support for the concepts of target attractiveness and guardianship receive mixed or limited support. Demographics, such as sex and race, also receive inconsistent or even contradictory support. The variation in findings could be due to

several reasons. First, most of the studies using a sample from a college student population do not use consistent measures for each concept. For example, alcohol use has been measured as the likelihood of regularly drinking a certain amount (Fisher et al., 1998), frequently drinking during the week (Mustaine & Tewksbury, 2002), or frequently drinking enough to get drunk (Fisher et al., 2002). In other words, the variation in measures used to proxy each concept may account for some of the variation in findings.

Second, it may be that there are different opportunity structures for different types of crime suggesting that each type should be looked at individually. Finally, the mix of support for lifestyles/routine activities theory may be due to the exclusion of other important risk factors. It may be that the concepts covered in the lifestyles/routing activities framework are not the only important factors that need to be considered when examining college student victimization. Another focus of this dissertation will be to examine an additional possible risk factor for college student victimization. Specifically, ADHD is may be an important risk factor for college student victimization and is examined along with more traditional lifestyles/routine activities variable to test this notion. Pratt and colleagues (2002) have argued that ADHD needs to be considered in the realm of criminological theories as a potential risk factor for both criminal behavior and victimization.

CHAPTER 3: EXPLAINING VICTIMIZATION: THE ROLE OF ADHD

This chapter will examine ADHD as a potential risk factor for college student victimization along with its empirical literature. Estimated prevalence rates for children and adults will be discussed in addition to issues with measurement and past research. Empirical research on outcomes of children and adults with ADHD and their proposed link with victimization will also be discussed. This chapter will end with the presentation of the focus for this dissertation.

Attention deficit and hyperactivity disorder (ADHD) is a common neurobehavioral disability in children that is often characterized by symptoms of inattention, over activity, impulsivity, and lack of concentration. ADHD tends to be more prevalent in males than females with males receiving a diagnosis at three times the rate of females (Greydanus, Pratt, & Patel, 2007). The Diagnostic Statistical Manual (DSM-IV) has established a set of criteria used to diagnose children with ADHD. The criterion for ADHD includes having six (or more) symptoms that must have persisted for at least six months to a degree that is maladaptive and inconsistent with the child's developmental level (DSM, 2000). Symptoms are broken down into two major categories and are usually observed before the age of 7: 1) Inattention, and 2) Impulsivity/Hyperactivity.

Prevalence of ADHD

It is difficult to accurately estimate the true prevalence of ADHD among both children and adults. However, it has been estimated that the worldwide prevalence for ADHD including both children and adults is about five percent (Polanczyk, Horta, Biederman, & Rohde, 2007). The difficulty in pinpointing the exact prevalence of ADHD is due to several issues with the

measurement and diagnosis of the disorder. First, doctors are often criticized for over-diagnosis and treatment of ADHD, so estimates could be inflated. On the other hand, estimates could be deflated by inconsistent criteria used by studies to measure the prevalence of ADHD (DuPaul et al., 2009). The issue of diagnosis is related to the differences in measurement across studies.

Inconsistency in the measurement of ADHD is a second and (and possibly more serious) issue preventing the exact estimation of ADHD prevalence. For example, one common way for studies to examine ADHD is to use a medical diagnosis of the disorder as the measurement of ADHD. Even then, there are variations of measurement within using a medical diagnosis to capture the extent of ADHD. For example, a medical diagnosis could include a self-report from the individual of medical diagnosis, or a diagnosis from a doctor. Most often due to the difficulty of obtaining medical records, a self-report diagnosis given to an individual is used. Self-report diagnosis relies on the individual to report if they had been diagnosed by a medical professional with ADHD. This technique can be problematic due mistakes in reporting and lack of follow-up to check diagnosis (DuPaul et al., 2009). As a result, inaccurate estimates of ADHD may be projected adding to the variation in prevalence rates across studies.

Another common way studies measure the prevalence of ADHD is through validated scales that capture ADHD symptoms. Participants are typically asked to report different types of behaviors, attitudes, and perceptions that are recognized as symptoms of ADHD (DuPaul et al., 2009). For example, they might be asked to report behaviors and actions such as having difficulty concentrating, feeling restless, or have difficulty following through with activities. These scales are then examined by medical professionals or a researcher using ADHD threshold criteria and a determination is made on whether or not the individual meets the predetermined ADHD threshold. Measuring ADHD through self-report symptoms may inflate estimates based

on the criteria used to determine whether or not an individual meets the threshold for ADHD (Barbaresi, Katusic, Colligan, Pankratz, Weaver, Weber et al., 2002).

A third way that this utilized by researchers to measure the prevalence of ADHD is the use of medication. Participants are asked whether or not they are currently taking or have ever taken in the past, medication for ADHD (Unnever, Cullen, & Pratt, 2003). DuPaul and colleagues (2009) argue that the biggest criticism of this method is that it does not measure individuals who have been diagnosed with ADHD, but do not take medication. So, if an individual has ADHD, but is not taking medication, studies using medication for a measurement of ADHD would underestimate the actual prevalence. This argument has not been unfounded. Studies have found that as few as a third of those diagnosed with ADHD may not take any type of medication for their disorder (Rowland, Umbach, Stallone, Naftel, Bohlig, & Sandler, 2002). So, studies that employ this method could be underestimating the prevalence of ADHD by a significant amount.

Finally, it is difficult to estimate the prevalence of ADHD because of the variety of types of studies that have been conducted. Studies have used different experimental designs, study populations (e.g., children, adults, and birth cohorts), assessment methods, ADHD criteria and most of them lack any type of follow-up of study participants (Ingram, Hechtman, & Mogenstern, 1999). These issues make it very difficult to compare across studies and stress the need for consistency especially in the measurement of ADHD.

ADHD Prevalence among Children

Taking into consideration the limitations in measurement discussed above, estimates of ADHD among school children range from 3 to 7 percent (Weyandt & DuPaul, 2006). Although there is variation in estimates, most studies find prevalence rates that fall within the

aforementioned range. However, there are some instances that the prevalence of ADHD changes depending on the type of measurement used and fall outside the normally accepted. For example, in a cohort study, Barbaresi and colleagues (2010) found that between 7.5 and 16 percent of children could be considered as ADHD depending on the criteria used to make an ADHD determination. This study highlights the measurement issues in simply determining an accurate estimated of ADHD prevalence: using diagnosis criterion tends to produce lower prevalence rates than measuring self-reported symptoms.

ADHD Prevalence among Adults

Measuring the prevalence of ADHD among adults is even more difficult than providing estimates for children. First, the majority of the research on ADHD focuses only on children, with adults being virtually ignored. In fact, DuPaul and Colleges (2009) argued that research among adults with ADHD is in its infancy, with very few studies conducted in the area. Further, ADHD is not recognized to have "adult onset" meaning that ADHD must have been present in childhood (Resnick, 2005). This means that in order to be diagnosed with ADHD as an adult, the individual must have a history of symptoms or remember possible symptoms from childhood. In fact, the DSM –IV requires that symptoms be present before the age of seven and excludes those who cannot remember (Ingram, et al., 1999). However, it is not uncommon for symptoms in childhood to be overlooked or misdiagnosed especially if the child does not display extreme hyperactivity (Resnick, 2005).

Another issue that plagues adult ADHD research is the lack of accepted criteria that are applicable to adults. The DSM-IV criteria were developed to measure ADHD in children and do not accurately reflect the behaviors of adults (Ingram, et al., 1999). A critical component in the advancement of the understanding of adult ADHD is the development of behaviorally

appropriate diagnostic criteria that can be applied to adults (Spencer, Biederman, & Mick, 2007). At least one set of researchers has tried to develop criteria that can be used for adult diagnosis. The Wender Utah Rating Scale (WURS) contains components that examine both past childhood symptoms and current adult behaviors. This scale has shown some promise in accurately diagnosing ADHD in adults (Wender, Wolf, & Wasserstein, 2001). However, much more research is needed to validate this scale across the adult population.

Although it is difficult to estimate accurately, some research has been conducted to estimated prevalence of ADHD among adults resulting in a variety of estimates. Estimates usually fall in the range of 2 to 4 percent (Wilens, Spencer, & Biederman, 1995). For example, using a clinician review, Kessler and colleagues (2006) reported that 4.4 percent of their sample of adults (N = 10,000) had ADHD. Many of those estimates focus on the continuance or persistence of ADHD from childhood to adulthood. Specifically, studies suggest that from one-third to two-thirds of children with ADHD have persisting symptoms into adulthood (Wender et al., 2001). In other words, a significant proportion of children continue to display symptoms of ADHD throughout their lives. Another study estimated that as much as 80 to 85 percent of children have symptoms that persist at least until adolescence (Ingram et al., 1999). So, while the exact prevalence of adults with ADHD is unclear, it is apparent that a large proportion of children with ADHD continue to have problems throughout their adult lives.

ADHD in College Students

A few studies (and more pertinent to the current dissertation) have also tried to document the prevalence of ADHD among college students. For example, Weyandt and DuPaul (2006) reported that 2-8 percent of college students have self-reported symptoms of ADHD. However, as discussed above the measurement of ADHD through self-report symptoms is problematic.

DuPaul et al., (2009) argued that diagnosis provides the best estimates of ADHD prevalence, a measurement not often used in ADHD studies. For example, Rabiner et al., (2008) conducted a survey of 1,648 college freshman and reported that approximately 4 percent of participants have a current diagnosis of ADHD. Most recently, DuPaul and colleagues (2009) reported that between 2 and 8 percent of the college population meet a clinical diagnosis for ADHD. The current study seeks to help fill this gap by examining the extent of ADHD in a large national sample of college students.

Treatment of ADHD among Children

The most common treatment for children with ADHD is medication. While estimates vary, the majority of children who have ADHD usually report receiving some sort of medication For example, in a study of over 6,000 children grades first to fifth, of those who had been diagnosed with ADHD, 71 percent were receiving medication (Rowland et al., 2002). The most common form of medication used to treat ADHD are stimulants (Pary et al., 2002). Stimulant medication drugs seek to control the symptoms of ADHD. While medication is not the only form of treatment used for ADHD, it has been found to have dramatic effects on reducing the core symptoms of inattention, hyperactivity, and impulsivity. In fact, it has been argued that 60 percent of children receiving medication as treatment for ADHD will experience a dramatic difference in behavior (Wender et al., 2001). Medication as treatment for ADHD has also been linked to reductions in later substance abuse issues. Biederman and colleagues (1999) reported that children who had ADHD and received medication reduced their risk of developing later substance use disorders (SUD's) by 85 percent. Other studies have found similar results on the reduction of substance abuse risk when medication is used for treatment of ADHD in children (Wilens et al., 2003; Wilens & Biederman, 2006).

Medication, however, is not the only option for children diagnosed with ADHD. Psychotherapy or counseling is also used sometimes in combination with medication and sometimes alone. This form of treatment is often characterized by focusing on behavior modification to give children more control over their behaviors (Ingram et al., 1999). Therapy with children may also teach parents how to respond to their child's behaviors and use positive discipline practices (Hinshaw, 2009).

Finally, some children are diagnosed with ADHD but do not receive treatment. One estimate suggests that close to 30 percent of children diagnosed with ADHD were not receiving any medication as treatment (Rowland et al., 2002). The absence of treatment could be for several reasons. First, some parents may be resistant or concerned about putting their children on medication. Parents may worry about side effects of medication or the overuse of medication. Common side effects of stimulants may include difficultly sleeping, weight issues, headaches, irritability, or even addiction (Pary et al., 2002). Second, parents may not think that an ADHD diagnosis is correct. Doctors are often criticized for over-diagnosing ADHD, leaving some parents wary of the disorder. Although, there is empirical evidence to suggest that many doctors are very cautious when making decisions about an ADHD diagnosis and that over diagnosis may be a small problem (Goldman, Genel, Bezman, & Slanetz, 1998). Finally, parents may choose to opt out of treatment because they think they can treat the child on their own without medication or counseling.

Treatment of ADHD among Adults

The treatment of ADHD among adults is similar to its treatment in children. Similar to the treatment of children, medication is the most common action taken to address the symptoms of ADHD. Again, stimulants are the most common form of medication prescribed for treatment

(Resnick, 2005). Less common is the treatment of adult ADHD with counseling. However, there is evidence to suggest that cognitive behavioral therapy can be effective in reducing adult ADHD symptoms (McDermott, 2009). More recently, the use of multiple treatments has been argued to be the most effective course in dealing with adult ADHD. Multi-modal treatments may include medication as well as multiple forms of counseling to address deficits in parenting, family conflict, and social skills (Ingram et al., 1999). On the other hand, a large proportion of adults with ADHD symptoms may be receiving no form of treatment. This may be due to the lack of a diagnosis or the incorrect notion that ADHD is only present in children and is outgrown in adulthood.

Past Research on Children with ADHD

Research on children with ADHD has suggested that the disorder is linked with several negative outcomes including early delinquent behavior, victimization, family problems, problems at school, as well as emotional and cognitive issues. For example, evidence (although not always consistent) from past research suggests that children with ADHD are more likely to engage in delinquent activities than their non-ADHD peers. Unnever, Cullen, & Pratt (2003) found that in a sample of middle school students those who reported ever taken medication for ADHD had a significantly higher involvement (41%) in delinquency than those who reported never taking medication (33%). In addition to evidence that childhood ADHD is connected to delinquency and later criminal behavior, there is also evidence that children with ADHD engage in other different forms of deviance. Some of these deviant behaviors include drug and alcohol use, skipping school, and fighting (Murphy & Barkley, 1996; Pratt et al., 2002; Rabiner et al., 2005).

Further, ADHD in children is often comorbid with other disorders such as anxiety, anti-social behavior, conduct disorder, depression, and mood disorders (Furman, 2005). Comorbidity rates are estimated as high as 60 percent for oppositional defiant disorder, a disorder often linked to later criminality (Hechtman, 2009). Overall, past research focusing on the effect of ADHD on children suggests a host of issues are related to the disorder. One issue that has received empirical support is the increased risk of victimization in children with ADHD. The next section will focus on describing studies that have examined the link between ADHD and victimization among minors.

ADHD and Victimization in Minors

While many studies have focused on examining a range of issues related to ADHD (e.g. substance abuse, deviance, delinquency, school failure) in minors, an emerging body of literature has also focused on victimization risk. Children with ADHD may be more likely to be victimized for several reasons. First, children with ADHD may have problems with social adjustment and as a result have fewer friends to insulate them from becoming targets (Unnever & Cornell, 2003). Indeed, difficulties in socially interacting with others has been argued to be one of the most negative aspects of the disorder (Shea & Wiener, 2003). Children with ADHD may lack the social skills that other children have that make them seem approachable, friendly, and personable.

Second, if other children are aware of the child's diagnosis, the child with ADHD could be labeled "different" and become a target because of this status (Shea & Wiener, 2003). Third, children with ADHD may display a different range of behaviors than their peers such as daydreaming, distraction, and hyperactivity leaving them vulnerable for negative peer attention

(Humphrey, Storch, & Geffken, 2007). Other students may then resent special attention given to these students by teachers inviting further isolation leading to victimization.

Finally, the case could be made that minors with ADHD have characteristics that make them congruent targets for perpetrators (e.g., other students) as suggested by Finkelhor and Asidigian's (1996) work on the victimization of children. Children with ADHD may provoke responses from their peers stemming from different behaviors related to their disorder increasing their target antagonism. Further, children with ADHD may be seen as particularly vulnerable targets because of their "different" status or social difficulties. Children with ADHD could also been seen as targets that provide gratification to other students, they may be easy to victimize and (target vulnerability) provide status rewards among friends. Several studies have supported the argument that children with ADHD are victimized at higher rates than their non-ADHD peers. Table 3.1 presents a summary studies examining the link between ADHD and victimization in minors.

Unnever and Cornell (2003) conducted a study examining the link between bullying victimization and ADHD using a sample of middle school students. To measure ADHD, students were asked if they had ever taken medication for ADHD. As summarized in Table 3.1, about 34 percent of the students who reported taking medication for ADHD also reported being bullied at least two or three times a month, compared to 22 percent of students who did not report taking medication.

Multivariate results also supported the notion that children with ADHD are at a higher victimization risk. Specifically, children who had ADHD were significantly more likely to be victimized in the form of bullying than children without ADHD (Unnever & Cornell, 2003). This relationship remained when other variables such as self-control were controlled for statistically.

Humphrey and colleagues (2007) reviewed psycho-educational assessment files of children to examine the link between peer victimization and ADHD. Children who had been diagnosed with ADHD were then included in the study and their parents completed a survey that included items to assess peer victimization. Peer victimizations included getting into fights, being teased a lot, not getting along with other children, and not being liked by other children.

The results from this study provide further evidence that children with ADHD are at high risk for victimization. In particular, children with ADHD had higher rates of peer victimization than children without the disorder (Humphrey et al., 2007). These victimizations were also related to a number of negative outcomes summarized in Table 3.1. Children with ADHD who had been victimized also had higher rates of anxiety, depression, social problems, delinquent behavior, and aggressive behavior.

Similar results have also been found for other different types of bullying that children may experience. Wiener and Mak (2008) conducted a study using a sample of 9-14 year olds to investigate peer victimization among students with ADHD. Both teacher and parent ratings were used to confirm ADHD diagnosis in this study. Peer victimization was broken down into three different types; verbal (e.g., teasing, name calling), physical (e.g., push, kick, hit), and relational (e.g., rumors, isolated from activities) bullying. Again, this study confirmed that students with ADHD reported higher rates of victimization.

Illustrated in Table 3.1, children with ADHD reported higher rates of victimization across the three types of bullying; verbal, physical, and relational. These results were also confirmed by teacher ratings of bullying. Specifically, teachers rated children with ADHD has being bullied

Table 3.1 Studies Examining ADHD and the Victimization of Minors

Author	Sample	ADHD Measure	Victimization Type	Findings
Unnever & Cornell (2003)	Middle School students (n = 1,315)	Ever taken medication for ADHD	Bullying	34% of children with ADHD reported being bullied 2 to 3x per month compared to 22% Multivariate: ADHD significant predictor of bullying victimization
Humphrey et al., (2007)	Children from University of Florida Division of Child and Adolescent Psychiatry (n = 116)	ADHD Diagnosis	Peer Victimization	Children with ADHD significantly higher rates of peer victimization
Wiener & Mak (2008)	9-14 year old children (n = 104)	Previous ADHD Diagnosis	Peer Victimization: Verbal, Physical, Relational	Children with ADHD significantly higher rates across the three categories Teacher ratings confirm higher victimization rates Females with ADHD higher rates of bullying than males
Cuevas et al., (2009)	Parents and children between ages 2-17 using RDD (n = 2,030)	Ever been diagnosed by a doctor, therapist, or other professional	Conventional Crime Maltreatment Peer/Sibling Victimization Sexual Victimization Witness/Indirect Victimization	Children with psychiatric diagnosis (ADHD) higher rates across types of victimization Only one sexual victimization significant: sexual exposure

more than children without ADHD. This study also reported a gender effect on bullying victimization. Females with ADHD were particularly more likely to be bullied by their peers compared males with ADHD (Wiener & Mak, 2008).

More recently, Cuevas and colleagues (2009) used a national sample of children to examine the risk of victimization among children with a psychiatric diagnosis that included ADHD. To assess ADHD parents in the survey were asked if their child had ever been diagnosed with the disorder. This study also expanded on the past studies by examining several different types of victimization aside from the commonly used bullying victimization of previous studies. Victimization types included several individual victimizations collapsed under five areas called conventional crime (e.g., theft, vandalism, assault), child maltreatment (e.g., physical abuse, emotional abuse, neglect), peer and sibling victimization (e.g., group assault, bullying), sexual assault (e.g., peer sexual assault, rape, sexual exposure), and witnessing and indirect victimization (e.g., witness physical abuse, witness assault) (Cuevas et al., 2009).

The results of this study summarized in Table 3.1 revealed that bulling is not the only type of victimization that is commonly experienced by children with ADHD. Overall, children with a psychiatric diagnosis (including ADHD) had a significantly higher number of victimizations than their non-ADHD counterparts (Cuevas et al., 2009). Results were also presented for the five different categories of victimization. Across the five different categories of victimizations, again children with ADHD had significantly higher rates of victimization. This result was especially true for conventional crime, where children with ADHD were at higher risk for almost every victimization type in this category. Psychiatric diagnosis had the weakest link with sexual assault with only one type of victimization, sexual exposure, emerging as significant. This study highlights the importance of examining victimizations types outside of bullying in

children. Cuevas argued that Researchers and clinicians should expand the range of victimizations studied to better understand the link between victimization and psychiatric disorders.

Overall, research supports the argument that children with ADHD are at higher risk for experiencing victimizations, mostly in the form of bullying. However, no published research could be located that examines the victimization risk of adults with ADHD. One focus of the current dissertation is to examine the link between ADHD and college student victimization.

Past Research on Adults and College Students with ADHD

While ADHD was once thought of as a disorder that only affected children, more researchers are acknowledging that ADHD is a condition that impacts all ages across the lifespan (Greydanus et al., 2007). Accordingly, researchers have begun to look at adults with ADHD and have examined a range of outcomes including crime, social outcomes, relationships, mental health, work, and academic outcomes. The results of this research were revealing; a significant proportion of adults with ADHD also had a range of harmful issues that impacted all areas of their lives. For example, ADHD in adulthood has been linked to unemployment and educational difficulties (Murphy & Barkely, 1996; Weiss & Murray, 2003; Wilens et al., 2003; Kessler, Adler, Barkley, Biederman, Conners, Demler, & Zaslavsky, 2006) differences in socialization, anxiety, depression (Young, Toone, & Tyson, 2003; Young & Gudjonsson, 2006) antisocial activities (Mannuzza, Klein, Bonagura, Malloy, Giampino, & Addalli, 1991; Barkely, Fischer, Smallish, & Fletcher, 2004) family difficulties (Murphy & Barkley, 1996; Ingram, et al., 1999; Wilens et al., 2003) and substance abuse (Murphy & Barkley, 1996; Wilens, Biederman, Mick, Faraone, & Spencer, 1997; Barkley et al., 2004).

Studies that have focused primarily on college students with ADHD have also revealed many difficulties that these students may face. However, most of these studies have only focused on academic difficulties that students with ADHD may face. For example, in a study of 1,648 college freshman, those with ADHD reported significantly greater academic concerns and depressive symptoms than college freshman not reporting having the disorder (Rabiner et al., 2008). Similar results were found in another study of college students with students who had self-reported ADHD symptoms. These students also reported significantly more academic concerns such as having to work harder than others to get good grades, not performing well on timed tests, and having to read material over and over to understand it than students not reporting ADHD symptoms (Lewandowski, Lovett, Codding, & Gordon, 2008).

Other issues related to college adjustment and academics have also been reported in college populations with ADHD. Gudjonsson and colleagues (2009) found that college students with self-reported ADHD symptoms had poorer levels of satisfaction with school. DuPaul and colleagues (2009) with a sample of 1,209 college students also found difficulties associated with ADHD and college attendance. Specifically, college students with ADHD were less likely to attend classes and complete their college education than college students without ADHD (DuPaul et al., 2009). Overall, the research focusing on college students and academic performance presents consistent evidence of impairments related to ADHD.

College students with ADHD may have academic difficulties for several reasons. First, if the student has not been diagnosed with ADHD, but displays several of the symptoms the individual may not know how to handle their symptoms. Second, college students with ADHD may lack time management and other important skills used by many college students to achieve success in college (DuPaul et al., 2009). Several studies on adults with ADHD have linked the

disorder to poor academic achievement later in life (see Pary et al., 2002; Wilens et al., 2003; Murphy & Barkley, 1996). Third, college students with ADHD may suffer from lower cognitive abilities and have difficulty making friends lowering their overall satisfaction with the college experience. Finally, college students with ADHD may have other comorbid disorders that compound the difficulties that ADHD brings, rendering many students helpless to cope with normal issues of college life such as dating, making friends, and balancing academics (DuPaul et al., 2009).

Other than research focusing on college academic performance little published research was able to be located using samples of college students with ADHD. One exception is provided by Theriault and Holmberg (2001) who examined the correlation between college students with ADHD who were in romantic relationships and aggression in these relationships. This study revealed and interesting association between aggression and college student relationships. Specifically, college students with ADHD were significantly more likely to use aggressive tactics to deal with conflicts in their relationship than students without ADHD (Theriault & Holmberg, 2001). The results from this study suggest that college students with ADHD may have more serious problems in college than just academics and adjustment issues.

Another exception is study that examined the driving abilities of teens and adults with ADHD. This study reported that these individuals had several difficulties driving compared to teens and adults without ADHD. Specifically, individuals with ADHD had a higher number of citations for speeding, were more likely to have their licenses suspended or revoked, and four times as likely to be involved in an accident (Barkley, 2004).

Overall, the past research on college students with ADHD suggests they may face several difficulties including academic concerns, substance abuse, and social or relationship troubles.

However, much more work in this area is needed to better understand the range of problems students with ADHD in college may face. One issue that has been ignored in past college student studies is the potential link between ADHD and victimization. An important contribution of the current dissertation is to fill this gap in the ADHD college student literature by examining ADHD as a possible risk factor for sexual victimization and stalking.

College Students with ADHD and Victimization

A major focus of this dissertation is to examine that impact of ADHD on a college student's risk of sexual victimization and physical assault. No prior published research examining this relationship could be located, but there are several reasons why this relationship is hypothesized to exist. First, children with ADHD have been shown to be at a higher risk for experiencing victimization usually in the form of bullying and other forms of relational aggression (see Unnever & Cornell, 2003; Humphrey, et al., 2007; Wiener & Mak, 2008). Yet, this relationship between childhood ADHD and victimization has not been explored in adulthood. In other words, the finding that children with ADHD are at high risk for victimization has not been tested with adults who have ADHD to examine their possible risk level. Additionally, a high percentage of children with ADHD have symptoms that persist into adulthood. This then leads to the question; does their victimization risk persist as well? Specifically, is ADHD a risk factor victimization later in life as research suggests it is in childhood? Additionally, do college students with ADHD have an increased risk of experiencing sexual victimization and physical assault?

Second, the limited research focused on college students with ADHD suggests that they experience a number of problems with the majority of research focusing on academic problems. In addition to academic concerns, college students with ADHD may experience other difficulties

in college such as making friends, fitting in socially, and acceptance from their peers. In particular, the symptoms or deficits that ADHD produces may increase the risks of exposure and proximity to motivated offenders as well as decrease their guardianship capabilities and make them attractive targets.

Third, students with ADHD may have trouble sustaining attention, have poor inhibition and may be restless (Murphy & Barkley, 1996). These students may forget where they put their property or have poor perceptions of risk making them attractive targets and poor guardians for themselves and their property. For example, students with ADHD may not adequately perceive the need to provide guardianship for themselves, possibly entering into situations alone with strangers unaware of the possible dangers of sexual victimization. Further, students with ADHD may be away from their parents for the first time, losing the insulation provided by parental guidance and supervision. The college atmosphere often puts students into contact with hundreds to thousands of potential offenders and students with ADHD may have difficulties discerning between potential offenders and potential friends.

Further, the impulsive and inattentive nature of students with ADHD may increase their target attractiveness to both potential sexual and physical assault offenders. Additionally, college students with ADHD may be less likely to cope with the college experience due to social and cognitive deficits. College students with ADHD may engage in risky romantic relationships increasing their risk of being sexually victimized by their romantic partner. Studies on adults with ADHD suggest a number of negative outcomes related to relationships both social and romantic (Ingram, et al., 1999). Further, engaging in romantic relationships has been linked to an increased risk of sexual victimization (Fisher et al., 2002). Thus, ADHD may exacerbate a student's already high risk of sexual victimization.

Deficits in socialization may also predispose students with ADHD to situations where they come into contact with motivated offenders and are unable to concentrate or attend to their own safety putting them at increased risk of being sexually victimized or physically assaulted.

Finally, students with ADHD may have increased target congruence. As discussed earlier, target congruence refers to characteristics of individuals that align them with the motives, needs, and drives of a potential offender (Finkelhor & Asdigian, 1996). Thus, individuals with target congruence are seen as more vulnerable to offenders. Students with ADHD may possess characteristics of target congruence for offenders (target vulnerability, target gratifiability and target antagonism), increasing their risks of sexual victimization and physical assault. Students with ADHD may be more vulnerable to sexual offenders due to cognitive or social deficits and seen as easy targets or less capable of resisting victimization. Students with ADHD may also have increased target gratifiability, possessing characteristics such as aloofness or eagerness to make friends that the offender can manipulate for sexual or other gratifying purposes. Finally, students with ADHD may actually antagonize offenders. They may not recognize social cues that other students without ADHD pick up on, potentially angering offenders or "leading on" offenders resulting in physical assault or sexual victimization.

SUMMARY – ADHD RESEARCH AND COLLEGE STUDENTS

Overall, past research examining ADHD in college students is limited in its ability to explain the possible range of difficulties students might face. This is due to the fact that research on ADHD in adults according to DuPaul and colleagues (2009), in general, is still a very young field. The previous studies that have examined ADHD in college students have reported significant academic deficits and concerns (DuPaul et al., 2009). However, outside of a handful of studies little is known about the effects of ADHD on a student's experience while at college.

There is reason to believe that college students with ADHD may be at a higher risk for being sexually victimized or physically assaulted than their non-ADHD counterparts. Much of this argument comes from evidence that children with ADHD are at a higher risk of victimization and that college students in general experience high rates of victimization (Unnever & Cornell, 2003; Humphrey et al., 2007; Wiener & Mak, 2008). Further, the symptoms and deficits that accompany ADHD may exacerbate a student's risk for victimization. Students with ADHD may a lower perception of risk due to inattentiveness increasing their rate of victimization. Finally, students with ADHD may have increased target congruence with offenders further contributing to their risk of being sexual victimized or physical assaulted. This dissertation seeks to address if ADHD is a risk factor for victimization among college students and if college students with ADHD have higher prevalence rates of sexual victimization and physical assault compared to their non-ADHD peers.

CURRENT FOCUS

The focus of this dissertation is to 1) Estimate the prevalence of ADHD among a large national sample of college students, 2) To compare proportions of sexual victimization and physical assault between college students with ADHD with college students without ADHD, 3) To examine if ADHD is a salient risk factor in predicting victimization risk, and 4) To test the lifestyles/routine activities framework with the additional risk factor of ADHD in hopes of better understanding the factors that contribute to this risk. Specifically, it is hypothesized that students with ADHD will experience victimization at significantly higher proportions than students without ADHD. Additionally, when LRAT factors and demographics are controlled for statistically, ADHD will emerge as a significant predictor of sexual victimization and physical assault.

This research seeks to fill several gaps in the victimization as well as ADHD literature. First, victimization research on college students has largely relied on only looking at more traditional lifestyles and routine activities that could contribute to victimization risk (e.g., substance use, partying, nights out). This research has sometimes produced inconsistent or conflicting results on each factors influence.

Second, this lack of consensus suggests that other risk factors may play a role in explaining this risk. To this end, the current dissertation seeks to examine ADHD as one of the possible risk factors. If ADHD emerges as a significant risk factor once the lifestyles/routine activities variables are controlled for this suggest important implications for the framework and future victimization research.

Third, empirical research on adults with ADHD is still limited and a relatively new field of research compared to studies focusing on children with ADHD. Of the limited research that exists, significant negative outcomes spanning across the lives of adults have been reported (DuPaul et al., 2009). Even narrower is the research on college students with ADHD. These studies are restricted to examining academic outcomes and very few studies outside of this realm exist to date. One major contribution of this dissertation will be to examine how ADHD impacts victimization risks of college students. Several studies have suggested that children with ADHD are at an increased risk for victimization, (Unnever & Cornell, 2003; Humphrey, et al., 2007; Wiener & Mak, 2008) but no studies could be located that examine this risk in college students. A better understanding of the influence of ADHD on victimization risk can help inform policy and prevention for students dealing with the disorder and further clarify the overall picture of college student victimization.

CHAPTER 4: RESEARCH STRATEGY

In the previous section the following goals were outlined for this dissertation: 1) estimate the prevalence of ADHD among a large national sample of college students, 2) compare proportions of victimization between college students with ADHD with college students without ADHD, 3) examine if ADHD is a salient risk factor in predicting victimization risk, and 4) test the lifestyles/routine activities framework with the additional factor of ADHD to further the understanding of risk factors that contribute to college student sexual victimization and physical assault. This chapter will describe the secondary data used and the methods used to test the hypothesis that ADHD is a risk factor for sexual victimization and physical assault among college students. Descriptions of how the independent and dependent variables were operationalized will also be discussed. Finally, characteristics of the sample will also be presented in this chapter along with proposed statistical techniques including bivariate and multivariate analyses.

DATA AND SAMPLE

National College Health Assessment – II (NCHA – II)

The National College Health Assessment is a national survey of college students that the American College Health Association (ACHA) administers twice a year in the fall and spring. The National College Health Assessment was first administered in the spring of 2000 and included 28 institutions, with a sample of over 16,000 college students (ACHA, 2011). In 2008, the survey was redesigned to include more questions on different types of health-related behaviors. Re-titled the NCHA – II, the revised survey included updated information illegal drug use, contraceptive methods, and vaccines (ACHA, 2011). The current data are from the fall 2008 wave; it was the first wave of data collected after the survey redesign. The NCHA-II contains 65

questions, including information about the health habits, behaviors, perceptions, and victimizations that students may have experienced. A copy of this survey can be found in Appendix A.

The fall 2008 administration of the NCHA – II included 45 post-secondary schools. These schools self-selected in the survey and only the schools that used a random sampling technique or surveyed all students were included in the current data set. 40 post-secondary institutions met these criteria. Schools included in the current wave of data included 22 public institutions and 18 private institutions scattered across the Northeast, Midwest, South and Western parts of the United States. Campus enrollments ranged from approximately 2,500 students to over 20,000 students. The survey was administered to students in both paper and web survey format, with a 22% mean response rate for web administration and a 63% mean response rate for the paper administration. The overall mean response rate for the fall 2008 administration was 27%.

The low response rate for the online administration of the survey is a potential limitation of this study. However, other studies have consistently found lower response rates for web surveys (Fricker & Schonlau, 2002). To examine this issue, a variable measuring mode of administration (0 = paper, 1 = online) was added as a control variable. The addition of the control variable will allow for the examination of possible differences between individuals who took the survey online compared to those who completed the paper version.

Data from the NCHA –II is not publicly available and had to be requested from the ACHA program office. A proposal was submitted to the ACHA describing interest in the data, which variables would be used, and planned analyses. The proposal was also submitted to the University of Cincinnati Institutional Review Board (IRB) for university approval of a secondary

data source. Use and release of the fall 2008 NCHA – II data was approved by Mary Hoban, the director of the ACHA-NCHA program. Approval of secondary data used was also obtained by the University of Cincinnati IRB in June of 2009.

Sample Characteristics

The total sample size for the fall 2008 administration of the NCHA-II contained 26,685 students within 40 post-secondary institutions. For purposes of examining more traditional college students, the sample was limited to students aged 18-25 who were undergraduates (i.e., freshman, sophomore, junior, senior). The Department of Education (DOE) estimated that over 60% of students enrolled in post-secondary education in 2008 were between these ages (DOE, 2011). This reduced the overall sample size to 21,457. Table 4.1 summarizes the sample characteristics.

The majority of the sample was female (69.4%), white (70.7%), and enrolled full time (97.0%). Over half of the sample (56.3%) was underclassmen (i.e., freshman and sophomores). Further, the mean age of the sample was 19.6 years and most of the participants reported their sexual orientation as heterosexual (93.6%). The majority of students (81.1%) reported that they had not transferred to their current university in the past 12 months.

Table 4.1 Sample Characteristics

Sample characteristic	n	%
Gender		
Male	6534	30.6
Female	14816	69.4
Race		
White	15163	77.2
Non-white	6285	29.3
Enrollment status		
Full time	20640	97.0
Part time	643	3.0
Class status		
Freshman/sophomore	12091	56.3
Junior/senior	9366	43.7
Transfer in past 12 months		
Yes	17261	81.1
No	4017	18.9
Sexual 0rientation		
Heterosexual	19944	93.6
Other	1373	6.4
Mean age (S.D.)	19.6 (1.6)	---

DEPENDENT VARIABLES

This study employs three dependent variables: sexual victimization (unwanted sexual touching, rape) and physical assault. Participants were asked if they had experienced each type of

victimization in the past 12 months. Sexual victimization was operationalized with three survey items: 1) unwanted sexual touching, 2) attempted rape, and 3) completed rape (Q n.5). Each of these variables was measured as dichotomous variable (0 = non-victim, 1 = victim). From these three survey items, two variables were created, one to measure unwanted sexual touching and one to measure rape.

The unwanted sexual touching variable was created as a dichotomous variable with those who did not experience unwanted sexual touching coded as 0 (i.e., non-victims) and those who reported experiencing unwanted sexual touching coded as 1 (i.e., victims). Due to the limited number of victims across attempted and completed rape, these items were combined to create a composite variable of rape. Participants experiencing either attempted or completed rape were coded as 1, (i.e., victims) while participants who did not experience attempted or completed rape were coded as 0, (i.e., non-victims). Additionally, a factor analyses using principal components with a varimax rotation revealed that these two variables loaded on the same factor with a Cronbach's alpha of .78.

Physical assault was operationalized using a single survey item coded as a dichotomous variable (0 = non-victim, 1 = victim) (Q n.5). For exact survey wording of each question see Appendix B. Descriptive statistics for each of the dependent variables can be found in Table 4.2.

Table 4.2 Dependent Variables Descriptive Statistics

Type of Victimization	Scale	Mean	S.D.	Range
Unwanted Sexual Touching	(0 = No, 1 = Yes)	.07	.27	0-1
Rape/Attempted Rape	(0 = No, 1 = Yes)	.03	.18	0-1
Physical Assault	(0 = No, 1 = Yes)	.05	.21	0-1

INDEPENDENT VARIABLES

Measures of the main concepts of the lifestyles/routine activities framework – proximity, exposure, target attractiveness, and guardianship – were constructed to test hypotheses estimating their relationship to sexual victimization and stalking risk. Demographic characteristics were also included as control variables. Three variables were operationalized to measure ADHD were included as independent variables. Each of these independent variables and their operationalization will be discussed below. Table 4.3 presents descriptive statistics for each lifestyle/routine activities variable. Exact wording of each survey item and responses can be found in Appendix C.

Exposure to Crime

The concept of exposure posits that individuals who are placed in high-risk situations or environments may have a higher risk of victimization. In past studies, exposure to crime has usually been measured as some form of activities away from the home (e.g., nights out). Hindelang and colleagues (1978) argued that individuals who spend more time away from home are at increased risk for victimization. In college studies, exposure is often operationalized as risk behaviors such as drug and alcohol use or partying behaviors (e.g., frequently partying, frequently getting drunk).

The concept of exposure was operationalized using five items that measuring partying or behaviors away from the home. These measures included 1) alcohol use (binge drinking), 2) marijuana use, 3) serious drug use 4) sorority/fraternity participation and 5) sports participation.

The alcohol use variable measuring binge drinking was constructed from a survey item asking participants if they had consumed five or more drinks in a sitting over the last two weeks

Table 4.3 Independent Variables by Lifestyles/Routine Activities Concept and Descriptive Statistics

Lifestyles/Routine Activities Variables	Scale	Mean	S.D.	Range
Exposure to High-risk Situations				
Binge Drinking	(0 = No, 1 = Yes)	.35	.48	0-1
Marijuana Use	(0 = No, 1 = Yes)	.16	.37	0-1
Serious Drug Use	(0 = No, 1 = Yes)	.14	.35	0-1
Sorority/Fraternity Participation	(0 = No, 1 = Yes)	.08	.27	0-1
Sports Participation	(0 = No, 1 = Yes)	.35	.48	0-1
Proximity to Offenders				
Housing Situation	(0 = On-campus, 1 = Off-campus	.63	.48	0-1
Employment	(0 = Employed, 1 = Unemployed)	.56	.50	0-1
Target attractiveness				
Relationship Status	(0 = Single, 1 = In a relationship)	.44	.50	0-1
Sexual Orientation	(0 = Heterosexual, 1 = Other)	.06	.25	0-1
Guardianship				
Received Protective Information on Injury, Sexual Assault, Violence	(0 = No, 1 = Yes)	.41	.49	0-1

(Q n.13). The original item had 12 response categories (don't drink, none, 1 time, 2 times, 3 times, 4 times, 5 times, 6 times, 7 times, 8 times, 9 times, 10 or more times) which was then used to construct a dichotomous variables measuring binge drinking. The National Institute on Alcohol Abuse and Alcoholism defines binge drinking as consuming five or more drinks in a sitting for males (NIAAA, 2011). Using this definition, a variable that operationalized binge drinking was created. Binge drinkers were categorized as those who reported they had drank

more than five drinks in a sitting at least once in the past two weeks.[1] The binge drinkers measure was coded as follows (0 = non-drinkers and non-binge drinkers, 1 = binge drinkers).

A dichotomous variable for marijuana use was constructed using an item that asked participants if they had used marijuana in the past 30 days (Q n.9). The original item had 8 response categories (Never used, Have used but not in the last 30 days, 1-2, days, 3-5 days, 6-9 days, 10-19 days, 20-29 days, and used daily). To capture any marijuana use, participants selecting "never used" were assigned a 0 and the remaining responses were assigned a 1. This variable is coded as: 0 = no marijuana use, 1 = any marijuana use.

A dichotomous variable representing serious drug use was created using the remaining items in a survey question asking participants about their drug and alcohol use (Q n.9). The items were factor analyzed using principal components with a varimax rotation and one factor emerged with a Cronbach's alpha of .87. Since alcohol and marijuana use were measured as separate variables, they were not included in this measure. Specifically, this measure was created to capture any use of the following drugs: cocaine, methamphetamines, other amphetamines, sedatives, hallucinogens, opiates, inhalants, MDMA, other club drugs, and other illegal drugs. Individuals indicating they used any of the drugs listed were coded as 1 = serious drug use, while those indicating they had not used any of the drugs listed were coded as 0 = no serious drug use.[2]

Marijuana was separated from the other forms of drug use because it is often thought of as less deviant behavior and different conceptually from other types of more "serious" drugs such as cocaine (Bachman, Johnson, & O'Malley, 1998). This separation will allow for the comparison between different types of drug use and their effect on victimization.

[1] The survey did not include a variable that measures 4 drinks for females and 5 drinks for males in a sitting, the standard definition of binge drinking, so this variable must be interpreted with some caution for females.
[2] Only those individuals who did not answer any of the drug questions were removed from analyses.

Sorority/fraternity membership was operationalized as a dichotomous variable measuring whether or not participants indicated they participated in a fraternity or sorority (Q n.59). Reponses were coded as follows: 0 = not in a sorority/fraternity, 1 = in a sorority/fraternity.

Sports participation was operationalized as a dichotomous variable measuring whether or not individuals were currently participating in sports (Q n.64). The original item had three types of sports (varsity, club sports, and intramurals). Individuals were coded as participating in sports if they answered "yes" to any of the types of sports participation options. Responses were coded as follows: 0 = no sports participation, 1 = sports participation).

Proximity to Crime

Proximity to crime refers to the physical space between an offender and a potential target. The measurement of proximity to crime in past studies has been measured in several different ways including living situation (i.e., on-campus or off-campus), proximity to a high-crime area, and employment. Similar to prior research, two measures of proximity to crime were operationalized 1) housing situation, and 2) employment.

Housing situation was coded as dichotomous variable (0 = living on-campus, 1 = living off-campus. Living on-campus included all of the following responses: campus residence hall, fraternity/sorority house, or other college/university housing (Q n.58). The following responses were coded as off-campus housing: parent/guardian's home, other off-campus housing, and other.

Employment was coded as a dichotomous variable (0 = employed, 1 = unemployed). Employment included participants who responded they were working for pay at least one hour per week (Q n.60). Students indicating they worked zero hours per week for pay were coded as unemployed.

Target Attractiveness

Target attractiveness refers to characteristics of an individual or object that make them desirable to a motivated offender. Target attractiveness has been measured in studies a number of different ways. Some studies use monetary measures such as amount of money spent on non-essentials or the presence of a VCR in the home. These studies are usually more focused on property crimes such as theft and burglary. College student studies often use measures of relationship status as predictors of target attractiveness. Students who are dating or are in relationships may be more attractive targets because victims of stalking and sexual victimization are often victimized by their romantic partners (Fisher et al., 2002). Similar to past research, two measures of target attractiveness were operationalized 1) relationship status and 2) sexual orientation.

A dichotomous variable to measure romantic relationship status was created out of an original item that had three responses; not in a romantic relationship, in a romantic relationship, but not living together, and in a romantic relationship and living together (Q n.56). Respondents answering not in a romantic relationship were assigned a 0 (i.e., single) while respondents answering in a romantic relationship, but not living together or in a romantic relationship, but living together were assigned a 1 (i.e., in a relationship). The relationship status variable was then coded as follows: 0 = single, 1 = in a relationship.

A dichotomous variable of sexual orientation was created using a survey item that originally had four responses: heterosexual, homosexual, bisexual, or unsure (Q n.48). Participants who responded that they were heterosexual were coded as a 0, while participants responding that they were homosexual, bisexual, or unsure were coded as 1. The sexual orientation variable was then coded as follows: 0 = heterosexual, 1 = non-heterosexual.

Guardianship

Guardianship refers to the ability of an individual or target to protect themselves from victimization. Guardianship has been measured in past studies on both physical (e.g., locks, alarms) and social (e.g., number of household members) levels. Unfortunately, the survey did not have many items that operationalized guardianship, but one measure was created. Guardianship was measured using three different survey items. These survey items asked the participant about different protective information they had received regarding sexual assault, violence, and injury prevention (Q n.2). The items were then used to create a dichotomous variable. Participants who indicated they had received any of the three types of protective information were coded as 1 = received prevention information.[3] Individuals who indicated they did not receive any of the three types of protective information were coded as 0 = did not receive prevention information.

Control Variables

Demographics

Past research has suggested that certain demographic variables such as sex, race, and student status variables (i.e., full or part-time status) may play a role in predicting college student victimization (Fisher et al., 1998; Fisher et al., 2000, 2002; Baum & Klaus, 2005; Krebs et al., 2007; Cass, 2007). In addition to independent variables described above, several demographics were also measured as control variables. Sex was measured as a dichotomous variable (male = 0, female = 1) (Q n.47). Race was also measured as a dichotomous variable (white = 0, non-white = 1)[4] (Q n.54). Age was measured as a continuous variable ranging from 18 to 25 with a mean age of 19.6 (Q n.46). There were also two individual student status characteristics included as demographic variables. These variables included enrollment status (0 = full-time, 1 = part-

[3] Only those individuals who did not answer any of the prevention information questions were removed from analyses.
[4] Only those individuals who did not answer any of the race questions were removed from analyses.

time) (Q n. 52), and if the student had transferred to their current college/university in the past 12 months (0 = no, 1, = yes) (Q n.53).

ADHD

ADHD is the risk factor of interest and was operationalized as three independent variables. It is hypothesized to influence risk of sexual victimization and physical assault among college students. Two of these variables are used to estimate the prevalence of ADHD and the third is used to examine if receiving treatment for ADHD effects risk. College students with ADHD are hypothesized to be impulsive, inattentive, and may perceived risks differently than their non-ADHD peers.

Multiple measures of ADHD were used to test for robustness of its effect across different multivariate models. The two variables measuring whether or not the individual has ADHD have a Cronbach's alpha of .82. In other words, regardless of the type of measurement, ADHD is expected to emerge as a significant risk factor for sexual victimization and physical assault. Past studies have been criticized for measuring ADHD using self-report measures (DuPaul et al., 2009). One strength of this study is the inclusion of both self-report and diagnoses variables to measure ADHD. Table 4.4 provides the descriptive statistics for the three measures of ADHD.

The first measure of ADHD was operationalized using a single-item measure asking participants if they had any of several disabilities or medical conditions including ADHD (Q n. 65). This was a self-report measure of ADHD. A dichotomous variable was created to measure individuals who reporting having ADHD. This variable was coded as follows: 0 = do not have ADHD, 1 = have ADHD.

The second and third measures of ADHD were operationalized through a single-item measure asking participants if they had been diagnosed with any of several medical conditions

including ADHD in the past 12 months and whether or not they were currently receiving treatment for their medical condition (Q n.31). Measurement through diagnosis is argued to be one of the most valid ways to measure the prevalence of ADHD (DuPaul et al., 2009). Two dichotomous variables were created to capture those who had been diagnosed in the past 12 months and those who were currently receiving treatment for their ADHD.

The second dichotomous variable representing individuals who had been diagnosed in the past 12 months was created using the six original response categories: no, yes diagnosed but not treated, yes treated with medication, yes treated with psychotherapy, yes treated with medication and psychotherapy, or yes other treatment. Individuals who responded "no" to the ADHD option were coded as 0 = not diagnosed in the past 12 months. Individuals who selected any of the other options (i.e., yes, treated with psychotherapy or yes, treated with medication) were coded as 1 = diagnosed in the past 12 months.

A third dichotomous variable was created to measure whether individuals who reported being diagnosed with ADHD in the past 12 months were receiving treatment for their ADHD. This variable was created using the same survey item asking participations if they had been diagnosed with any of several medical conditions and if they were receiving treatment. Participants who responded "no" to having been diagnosed with ADHD in the past 12 months were coded as 0 (i.e., not diagnosed with ADHD or being treated). Individuals who reported that they were diagnosed with ADHD, but not being treated were also coded as 0 (i.e., no treatment), while all other responses (i.e., yes, treated with psychotherapy or yes, treated with medication) were coded as 1 (i.e., receiving some form of treatment for ADHD).

Table 4.4 ADHD Measures and Descriptive Statistics

ADHD Measure	Scale	Mean	S.D.	Range
Have ADHD	(0 = No, 1 = Yes)	.05	.22	0-1
Diagnosed in Last 12 months	(0 = No, 1 = Yes)	.04	.19	0-1
Individuals Currently Receiving Treatment for ADHD who were Diagnosed in the Past 12 months	(0 = No, 1 = Yes)	.25	.44	0-1

STATISTICAL TECHNIQUES

Univariate and Bivariate Analyses

Univarite analyses will be presented in the form of frequencies and proportions to estimate the prevalence of ADHD in the sample. Prevalence estimates in the form of frequencies and proportions will also be calculated for each dependent variable. To assess the relationships between the independent and dependent variables bivariate analyses will be conducted. Z-tests for two proportions will be performed. Z-tests for two proportions will allow for the comparison of college students with and without ADHD and their respective sexual victimization and physical assault proportions. Z-tests estimate if there are significant differences of proportions between two independent groups. A p-value of .05 will be used to determined significance corresponding to a 95% confidence level. A confidence level of 95% allows for a 5% chance that the differences between two proportions are due to chance and not a real difference between the groups. These results from these analyses will be present in Chapter 5.

Multivariate Analyses

Each of the three dependent variables of interest – unwanted sexual touching, rape, and physical assault – were operationalized as dichotomous variables (0 = non-victim, 1 = victim).

Therefore, binary logistic regression which is designed to work with categorical data was used as the primary analytical technique. Logistic analyses for dichotomous dependent variables attempt to model the odds of an event occurring (i.e., victimization) and to estimate the impact of independent variables on these odds. Clustered variance was controlled for because the individuals are nested into 40 post-secondary schools. Further, Robust standard errors are used to reduce the chance of falsely rejecting the null hypothesis. Stata 11.2 was used to run all analyses because this statistical program allows for the control of clustered variance and uses robust standard errors.

Important coefficients in this statistical technique include log-odds (b an unstandardized regression coefficient), Exp (B), (odds ratios) and standard errors. Odds ratios are the most often used parameter because of their ease of interpretation (Hosmer & Lemeshow, 2000). Odds ratios represent the likelihood or probability of an event occurring. Odds ratios greater than one indicate that the odds of the dependent variable occurring increase when the independent variable increases. Likewise, odds ratios less than one indicate the likelihood of the dependent variable occurring decreases as the independent variable increases (Menard, 2002). For example, individuals who engage in risky types of activities such as drinking or drug use (independent variables) are hypothesized to have increased odds or probability of being victimized (dependent variable).

Binary logistic regression also produces several other statistics. Model fit statistics include -2 log-likelihood and chi-square. These statistics represent the "goodness of fit" of a model to the data or how well the model is predicting the independent variable (Menard, 2002). An estimate of explained variance or R^2 is also produced. The pseudo R^2 provides an estimate of the variation in the dependent explained by the independent variables. For all analyses, unless

otherwise noted, a p-value of less than .05 will be used to determine significance. In other words, the null hypothesis (i.e., no relationship between the independent and dependent variables) will be rejected at the .05 level.

SUMMARY

The purpose of this chapter was to present the methodological techniques used in this dissertation. The survey used to obtain the data was described along with the sample characteristics of the current study. The measurement of independent and dependent variables were also described along with descriptive statistics on these variables. Finally, a synopsis of the statistical techniques proposed was described. Chapter 5 will present the results from the proposed bivariate and multivariate analyses. Chapter 6 will provide a brief summary of the results along with conclusions, limitations, and future directions.

CHAPTER 5: RESULTS

This chapter provides a discussion of the results from the analyses conducted to examine the relationship between ADHD and college student victimization. First, prevalence rates for ADHD will be presented for the total sample and broken down by males and females. Proportions of the total sample and males and females receiving treatment for ADHD will also be presented. Second, prevalence rates for the dependent variables, rape, unwanted sexual touching, and physical assault will be reported. Third, bivariate analyses including proportions tests comparing students with ADHD and students without ADHD and their respective victimization rates will be discussed. Finally, binary logistic regression models estimating the effects of the lifestyles/routine activities variables, demographic characteristics, and ADHD, on the dependent variables of unwanted sexual touching, rape, and physical assault will be reported and discussed. Overall, the goal of this chapter is to present the results from testing the hypothesis that students with ADHD will have a higher risk of sexual victimization and physical assault when compared to students without ADHD.

PREVALENCE OF ADHD

Few studies have examined the prevalence of ADHD among college students (for exceptions see Weydandt & DuPaul, 1996; DuPaul et al., 2009). Among the strengths of this study is its ability to estimate the prevalence of ADHD among a national sample of college students. Table 5.1 reports the prevalence of ADHD for each measure for the total sample. The first estimate of ADHD prevalence measures if participants have ever had any of the following conditions (i.e., disabilities) including ADHD. Overall, 5.1% of the sample reported they had ADHD. The second estimate of ADHD measures if participants had been diagnosed with ADHD in the past 12 months. This variable also measures whether or not participants were currently

receiving treatment for ADHD. Close to 4% of the sample reported they had been diagnosed with ADHD in the past 12 months. Nearly 3% of the total sample reported currently being treated for ADHD. Of only those students that had been diagnosed in the past 12 months, nearly three quarters reported they were currently receiving some form of treatment for their ADHD. The most common form of treatment currently being received was medication, with 75.6% of those with ADHD reporting this type of treatment.

Table 5.1 Prevalence Estimates by ADHD Measure for the Total Sample and Broken Down by Males and Females

	Total Sample		**Males**		**Females**		**Proportions Tests**
ADHD Measure	Yes n (%)	No n (%)	Yes n (%)	No n (%)	Yes n (%)	No n (%)	Z-Value
Have ADHD	1,089 (5.1)	20,216 (94.9)	424 (6.6)	6,053 (93.4)	653 (4.4)	14,074 (95.6)	6.4*
Diagnosed in Last 12 Months	780 (3.7)	20,509 (96.3)	282 (3.5)	6,189 (96.5)	495 (4.6)	14,220 (95.4)	3.7*
Currently Receiving Treatment for ADHD	582 (2.7)	20,707 (97.3)	206 (3.2)	6,265 (96.8)	374 (2.5)	14,341 (97.5)	2.6*

* $p < .05$

Male and Female Prevalence of ADHD

Males are often diagnosed with ADHD at higher rates the females (DuPaul et al., 2009). Table 5.1 also reports the prevalence for ADHD across the three measures broken down by

males and females. Consistent with the literature on ADHD, males reported they had ADHD at a higher rate (6.5%) than females (4.4%). Z-tests for proportions, a statistical technique that tests for significant differences in proportions, were performed. The difference between males and females was significant ($Z = 6.4$, $p < .05$). Males also reported at a higher percentage (4.6%) that they had been diagnosed with ADHD in the past 12 months compared to females (3.5%). This difference was also significant ($Z = 3.7$, $p < .05$). A little over 3% of males reported currently receiving treatment for their ADHD compared to 2.5% of females.

PREVALENCE OF SEXUAL VICTIMIZATION

Another aim of this study was to provide estimates of prevalence rates for sexual victimization**.** Table 5.2 illustrates the prevalence of sexual victimization among the total sample of college students and estimates for males and females. In the past 12 months, 8.6% of the total sample reported they had been a victim of any of the three types of sexual victimization. Sexual victimization included unwanted sexual touching, attempted rape, and completed rape. A little over 4% of men and 10.6% of women reported experiencing any of the three types of sexual victimization. This difference was significant ($Z = 15.0$, $p < .05$). Table 5.2 also reports proportions of victimization for each type of sexual victimization. The most commonly experienced type of sexual victimization across the total sample was sexual touching (7.8%), followed by attempted rape (3.0%), and completed rape (1.8%).

Similar patterns emerged for both males and females. Sexual touching was the most common victimization reported among males and females followed by attempted rape and completed rape. Over 9% of women experienced unwanted sexual touching compared to 4% of men ($Z = 13.6$, $p < .05$). Almost 4% of females reported an attempted rape compared to about

1% of men (Z = 11.9, p < .05). Finally, over 2% of females reported experiencing a completed rape compared to a little over a half percent of males (Z = 8.2, p < .05).

Table 5.2 Prevalence Estimates of Sexual Victimization for the Total Sample and Broken Down by Males and Females

	Total Sample		**Males**		**Females**		**Proportions Tests**
	Yes	No	Yes	No	Yes	No	Z-Value
Type of Victimization	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	
Any Type of Sexual Victimization	1,854 (8.6)	19,603 (91.4)	281 (4.3)	6,253 (95.7)	1,563 (10.6)	13,253 (89.5)	15.0*
Sexual Touching	1,667 (7.8)	19,719 (92.2)	262 (4.0)	6,249 (96.0)	1,395 (9.4)	13,373 (90.6)	13.6*
Attempted Rape	633 (3.0)	20,752 (97.0)	56 (.09)	6,451 (99.1)	573 (3.8)	14,198 (96.2)	11.9*
Completed Rape	383 (1.8)	20,986 (98.2)	43 (.06)	6,459 (99.4)	337 (2.3)	14,423 (97.7)	8.2*

* p < .05

PREVALENCE OF PHYSICAL ASSAULT

Table 5.3 illustrates the prevalence of physical assault among the total sample of college students and estimates broken down by males and females. Overall, 4.6% of the sample indicated they had been a victim of physical assault in the past 12 months. Over 6% of the males reported they had been victims of physical assault. Nearly 4% of females reported they had been victims

of physical assault in the past 12 months. The difference between male and female proportions of victimization was significant ($Z = 7.4$, $p < .05$).

Table 5.3 Prevalence Estimates of Physical Assault for the Total Sample and Broken Down by Males and Females

	Total Sample		Males		Females		Proportions Tests
Type of Victimization	Yes n (%)	No n (%)	Yes n (%)	No n (%)	Yes n (%)	No n (%)	Z-Value
Physical Assault	985 (4.6)	20,425 (95.4)	402 (6.2)	6,112 (93.8)	569 (3.9)	14,220 (96.0)	7.4*

* $p < .05$

BIVARIATE RESULTS

The major hypothesis of this study was that students with ADHD are victimized at significantly higher proportions than students without ADHD. Z-tests for proportions were performed to test if students with ADHD were sexually victimized and physically assaulted at significantly higher proportions than students without ADHD. To examine these differences, the measure asking students if they had ever been diagnosed with ADHD (see Q n.65 in Appendix A) was used. Table 5.4 reports the results for the bivarate analyses comparing students with ADHD and students without ADHD and their respective proportions of sexual victimization and physical assault. Due to the small number of victims, attempted rape and completed rape were collapsed into one rape category for all further analyses. In particular, a dummy variable that included both attempted and completed rape was created to measure rape victimization.

Individuals that reported being a victim of either attempted or completed rape were categorized as victims (1), while individuals who did not report being a victim of either attempted or completed rape were categorized as non-victims (0).

Sexual Victimization

Across the different types of sexual victimization, college students with ADHD experienced unwanted sexual touching and rape at higher proportions compared to college students without ADHD. As reported in table 5.4, close to 13% of students with ADHD reported they had experienced any type of sexual victimization compared to 8.4% of students without ADHD. This difference was significant ($Z = 4.9$, $p < .05$). A similar pattern is evident for both unwanted sexual touching and rape. Of the students with ADHD, 11% reported they had been victims of unwanted sexual touching compared to 7.6% of students without ADHD, a significant difference ($Z = 4.6$, $p < .05$). Twice as many students with ADHD experienced rape (6%) compared to students without ADHD (3.1%). Again, this difference between proportions was significant ($Z = 5.2$, $p < .05$).

Table 5.4 also presents the proportions of students with ADHD who had been victimized compared to their non-ADHD counterparts by gender. Of those females with ADHD, 16.5% reported experiencing any of the two types of sexual victimization (i.e., unwanted sexual touching, rape) compared to 10.3% of females without ADHD. This difference was significant ($Z = 5.0$, $p < .05$). Nearly 15% of female students with ADHD reported they had been sexually touched compared to about 9% of female students without ADHD. This difference was significant ($Z = 4.7$, $p < .05$). Further, almost 9% of female students with ADHD reported they had been raped compared to 4% of female students without ADHD. This difference in proportions was significant ($Z = 5.6$, $p < .05$).

Males with ADHD reported higher rates of sexual victimization compared to males without ADHD. Over 6% of males with ADHD reported they had experienced sexual victimization compared to a little over 4% of males without ADHD. This difference was significant ($Z = 2.1$, $p < .05$). Also significant, was the difference between males with ADHD who had experienced unwanted sexual touching (5.7%) compared to nearly 4% of males without ADHD ($Z = 1.7$, $p < .05$). Finally, close to 2% males with ADHD experienced rape compared to nearly 1% than males without ADHD. This difference in percentages was not statistically significant.

In summary, across the two different types of sexual victimization, students with ADHD experienced significantly higher proportions of victimization. This relationship was observed for the total sample and for males and females when examined separately. The only difference that was non-significant was between males with ADHD and males without ADHD who had been raped. The relationship between ADHD and victimization was also consistently found when sexual victimization was broken down into unwanted sexual touching and rape. These descriptive results suggest that ADHD may be an important risk factor in the prediction of college student sexual victimization.

Physical Assault

When proportions of students who experienced physical assault with ADHD are compared to students without ADHD, a pattern similar to the findings for sexual victimization emerged. As shown in table 5.5, students with ADHD were physically assaulted at higher proportions than students without ADHD. Nearly, 10% of students with ADHD reported they had been physically assaulted compared to 4.3% of students without ADHD ($Z = 8.4$, $p < .05$). The findings were similar for males and females who reported they had been physically

Table 5.4 Proportions Tests Comparing Students with and without ADHD across Types of Sexual Victimization for the Total Sample and Broken Down by Males and Females

	Total Sample Victims			Male Victims			Female Victims		
	With ADHD	**Without ADHD**	**Proportions Tests**	**With ADHD**	**Without ADHD**	**Proportions Tests**	**With ADHD**	**Without ADHD**	**Proportions Tests**
Type of Sexual Victimization	n (%)		Z-Value	n (%)		Z-Value	n (%)		Z-Value
Any Type of Sexual Victimization	139 (12.8)	1,699 (8.4)	4.9*	27 (6.4)	250 (4.1)	2.1*	108 (16.5)	1444 (10.3)	5.0*
Sexual Touching	124 (11.4)	1,529 (7.6)	4.6*	24 (5.7)	234 (3.9)	1.7*	96 (14.8)	1290 (9.2)	4.7*
Rape	65 (6.0)	621 (3.1)	5.2*	7 (1.7)	57 (0.9)	1.2	56 (8.6)	562 (4.0)	5.6*

* $p < .05$

Table 5.5 Proportions Tests Comparing Students with and without ADHD for Physical Assault for the Total Sample and by Males and Females

	Total Sample Victims			Male Victims			Female Victims		
	With ADHD	**Without ADHD**	**Proportions Tests**	**With ADHD**	**Without ADHD**	**Proportions Tests**	**With ADHD**	**Without ADHD**	**Proportions Tests**
Type of Victimization	n (%)		Z-value	n (%)		Z-value	n (%)		Z-value
Physical Assault	106 (9.8)	864 (4.3)	8.4*	48 (11.4)	347 (5.8)	4.6*	54 (8.3)	509 (3.6)	6.0*

* $p < .05$

assaulted. Over 11% of males with ADHD reported they had been physically assaulted compared to close to 6% of males without ADHD. This difference was significant ($Z = 4.6$, $p < .05$). Female students with ADHD experienced significantly higher rates of physical assault compared to female students without ADHD ($Z = 6.0$, $p < .05$). Specifically, over 8% of females with ADHD experienced physical assault compared to 3.6% of females without ADHD. Overall, students with ADHD reported significantly higher rates of physical assault compared to their non-ADHD counterparts.

SUMMARY OF BIVARIATE RESULTS

This section provided a comparison of students with ADHD to students without ADHD to examine if there were significant differences in those who reported being victimized. It was hypothesized that students with ADHD would experience significantly higher proportions of victimization when compared to students without ADHD. This hypothesis was supported for all three types of victimization. Students with ADHD experienced unwanted sexual touching, rape, and physical assault at significantly higher proportions than students without ADHD. This pattern was also evident when males and females were examined separately. Males with ADHD experienced victimization at significantly higher percentages then males without ADHD. Similarly, females with ADHD experienced higher percentages of victimization when compared to females without ADHD. The only difference that was non-significant was for male rape victims. A similar percentage of male students with ADHD experienced rape when compared to male students without ADHD.

MULTIVARIATE RESULTS

As discussed earlier, binary logistic regression was used to estimate the relationship between the independent (e.g., ADHD, lifestyles/routine activities, and demographic

characteristics) and dependent variables (e.g., unwanted sexual touching, rape, and physical assault). In addition to ADHD[5], the lifestyles/routine activities variables, and demographics, an interaction term was also included to examine the possible effect of gender and ADHD together. Interaction effects are important because they estimate the combined effects of two variables on the dependent variable. In this study, a significant interaction effect would indicate that the combination of gender and ADHD together effect victimization in a unique way suggesting that ADHD is related to victimization differently by gender. In other words, the relationship between ADHD and victimization risk may be mediated or moderated depending on gender.

Three models were estimated to predict each of the dependent variables: unwanted sexual touching, rape, and physical assault. Each model included ADHD (i.e., ever had ADHD), the lifestyles/routine activities variables, and demographic characteristics. Tables 5.6 and 5.7 present the results from each of these model estimations for unwanted sexual touching, rape, and physical assault respectively. These tables also include unstandardized regression coefficients (b), their respective standard errors (S.E.), adjusted odds ratios Exp(B), and significance values. Model fit statistics include -2 log likelihoods, model chi-squares, and pseudo R^2's. Adjusted odds ratios, Exp(B), will be discussed because they are easier to interpret than unstandardized regression coefficients. Adjusted odds ratios greater than one indicate that the odds of the dependent variable increase when the independent variable increases (Menard, 2002). For example, an adjusted odds ratio of 1.8 for ADHD would indicate that individuals who reported they had ADHD were 1.8 times as likely to experience a victimization than individuals that did not have ADHD. One the other hand, odds ratios less than 1 would indicate that as the

[5] Correlations and multicollinearity statistics were examined for all three of the ADHD variables indicating high correlations and possible multicollinearity. If multicollinearity is present it can be difficult to ascertain which independent variables are predicting the dependent variable due to high correlations between independent variables. For example, high correlations between the ADHD variables make it difficult to separate each variables effect on victimization. Therefore, only one ADHD variable (Q n.65) was used in all model estimations. Multicollinearity diagnostics and correlations can be found in Appendix D.

independent variable increases, the likelihood of the dependent variable occurring decreases. Each of the independent variables including ADHD, the lifestyles/routine activities variables, and demographic variables will be discussed separately in the following sections.

SEXUAL VICTIMIZATION

Effects of ADHD

Table 5.6 presents the results from a binary logistic regression model estimating the effects of ADHD, lifestyles/routine activities, and demographic characteristics on unwanted sexual touching. Unstandardized regression coefficients (b), standard errors (S.E.), and adjusted odds ratios, Exp(B) are presented in this table. As illustrated in Table 5.6, ADHD was a significant and positive predictor of unwanted sexual touching. College students who reported they had ADHD had a significantly higher risk of experiencing unwanted sexual touching than students without ADHD. Students with ADHD had 1.4 greater odds of being sexually touching than college students without ADHD. Compared to the other predictors, ADHD emerged as one of the stronger predictors of unwanted sexual touching. A stronger effect emerged when rape was examined. As indicated in Table 5.6, ADHD was also a significant and positive predictor of attempted rape or completed rape. Specifically, college students with ADHD had 1.8 greater odds of being raped than college students who reported they did not have ADHD.

Exposure to Risky Situations

Table 5.6 also presents the results for the lifestyles variables on unwanted sexual touching and rape. Consistent with past LRAT research, several of the variables measuring exposure to risky situations emerged as significant predictors of unwanted sexual touching. The activities of binge drinking, serious drug use, and marijuana use significantly increased the risk of a college student being sexually touched. Specifically, students who indicated they engaged in

binge drinking in the last two weeks had 1.6 increased odds of being sexually touched. Further, students who indicated they had used marijuana or other serious drugs in the past 30 days were at 1.4 and 1.8 greater odds, respectively, of experiencing unwanted sexual touching.

In addition to the drug and alcohol variables, two other measures of exposure to risky behaviors also were significantly related to unwanted sexual touching. Participation in a sorority or fraternity was significantly related to unwanted sexual touching increasing a students' risk by 1.3 times. This finding is consistent with some of the past literature that suggests sorority or fraternity participation is linked to sexual victimization risk (Mohler-Kuo et al., 2004; Krebs et al., 2007). Sports participation was also a significant predictor. Students who participated in sports had 1.2 increased odds of experiencing unwanted sexual touching. A similar finding emerged in Mustaine and Tewksbury's 2002 study of sexual assault. In summary, all of the measures of exposure to risky behaviors were found to be significantly related to experiencing unwanted sexual touching among college students.

Several of the exposure variables were also significantly related to having experienced rape. Binge drinking in the past two weeks increased the odds of being raped by 1.5 times while marijuana use increased the odds of victimization by 1.3 times. Serious drug use emerged as the strongest predictor of rape increasing a student's odds by twofold. Sorority or fraternity participation was also a significant and strong predictor increasing the odds of being raped by 1.7 times. Sports participation was not significantly related to being raped. Overall, these findings were consistent with past LRAT research suggesting that students who engage in risky behaviors such as binge drinking, drug use, or partying lifestyles are at increased risk for sexual victimization (Ullman et al., 1999; Fisher et al.,2000, 2002; Mustaine & Tewksbury, 2002; Mohler-Kuo et al., 2004; Krebs et al., 2007).

Proximity to Offenders

Both of the measures of proximity were found to be significantly related to unwanted sexual touching. In particular, students who lived off-campus increased their odds of being victims of unwanted sexual touching by 1.2 times.

Students who were unemployed were also at significant risk, increasing their odds by 1.2 times of being victimized. Neither of the measures of proximity, housing situation or employment, were found to be significantly related to a college students risk of experiencing rape.

Target Attractiveness

The two measures of target attractiveness were also significant predictors for unwanted sexual touching among college students. Students who reported their relationship status as single or not in any kind of relationship were more likely to be a victim of unwanted sexual touching. Sexual orientation, the second target attractiveness measure, was also significant. Students who reported they were not heterosexual (i.e., homosexual, bisexual, or unsure) were at 1.6 times greater risk of experiencing unwanted sexual touching. Neither relationship status nor sexual orientation was significantly related to a student's risk of experiencing rape.

Guardianship

The one measure of guardianship, whether or not a student reported receiving prevention information on sexual assault, physical violence, or injury prevention was a strong significant predictor of unwanted sexual touching. Specifically, students who reported they had received prevention information were at 1.9 times increased risk of being a victim of unwanted sexual

Table 5.6 Unstandardized Coefficients (with Standard Errors), and Adjusted Odds Ratios for ADHD, Lifestyles Variables, and Demographics on Unwanted Sexual Touching and Rape

Variable	Unwanted Sexual Touching		Rape	
	Coefficient (b) (S.E.)	Adjusted Odds Ratios Exp(B)	Coefficient (b) (S.E.)	Adjusted Odds Ratios Exp(B)
ADHD	.34* (.13)	1.40	.60* (.15)	1.82
Exposure to Risky Situations				
Binge Drinking	.45* (.07)	1.57	.43* (.09)	1.54
Marijuana Use	.33* (.07)	1.39	.26* (.09)	1.30
Serious Drug Use	.59* (.08)	1.81	.72* (.13)	2.06
Sorority/Fraternity participation	.22* (.11)	1.25	.51* (.15)	1.66
Sports Participation	.15* (.06)	1.16	.06 (.09)	1.07
Proximity to Offenders				
Off-campus Housing	.19* (.05)	1.21	.06 (.10)	1.06
Unemployed	.21* (.06)	1.24	-.04 (.08)	.96
Target Attractiveness				
In a Relationship	-.22* (.06)	.80	-.16 (.09)	.85
Non-heterosexual	.44* (.10)	1.56	.24 (.16)	1.27
Guardianship				
Received Prevention Information	.31* (.06)	1.37	.63* (.10)	1.87
Demographics				
Male	-1.08* (.08)	.34	-1.59* (.14)	.20
Non-white	.34* (.06)	1.41	.24* (.10)	1.27
Age	-.07* (.02)	.93	-.06* (.03)	.94
Enrollment Status	-.28 (.16)	.76	-.28 (.16)	.98
Transfer last 12 Months	-.01 (.07)	.98	.01 (.21)	1.01
Interaction Effect				
ADHD x Gender	-.08 (.28)	.92	-.22 (.26)	.80
Constant	-1.43		-2.41	
R^2	.06		.07	

* $p < .05$ (Model 1 Chi2: 1630.22, pseudo likelihood: -5201.33, Model 2 Chi2: 676.95, pseudo likelihood -2684.84)

touching. Receiving prevention information was also a significant predictor of rape. Students who had received victimization prevention information had 1.4 increased odds of being raped than students who did not received prevention information. These findings may seem counterintuitive, but are consistent with other past research findings that prevention efforts are positivity related to victimization (Fisher et al., 1998; Mustaine & Tewksbury, 1999).

Demographics

Several demographic variables also emerged as significant predictors for unwanted sexual touching. For unwanted sexual touching and rape, gender, race, and age were significant predictors. Specifically, students who were women, younger, and non-white were at an increased risk of experiencing unwanted sexual touching and rape.

Interaction Effect

To examine the possibility that the effect of ADHD on victimization is different for males and females, an interaction term was included in model estimation. The interaction of ADHD and gender was not significant for either unwanted sexual touching or rape. This result suggests that ADHD's effect on experiencing victimization is similar for both males and females.

SUMMARY OF RESULTS FOR UNWANTED SEXUAL TOUCHING AND RAPE

The main purpose of this section was to examine the effect of ADHD on risk of unwanted sexual touching and rape, controlling for lifestyles/routine activities factors and demographic characteristics. ADHD emerged as a significant predictor of unwanted sexual touching and rape. These findings provide support for considering ADHD as an important risk factor in the prediction of college student victimization. Further, ADHD was one of the strongest predictors in both models increasing a student's risk of victimization by 1.4 times for unwanted sexual touching and 1.8 times for rape. Finally, the lifestyles/routine activities theory was tested as a

secondary goal, generally finding support for the theory, especially the concepts of exposure and guardianship.

PHYSICAL ASSAULT

ADHD

The third model examined the risk physical assault among college students including ADHD, the lifestyles/routine activities variables, demographic characteristics, and an interaction between ADHD and gender. These results are presented in Table 5.7 including unstandardized coefficients (b), standard errors (S.E.), and adjusted odds ratios, Exp(B). Similar to the results for sexual victimization, ADHD emerged as a significant predictor for physical assault victimization. Specifically, college students who reported they had ADHD had 1.7 times the risk of experiencing a physical assault than students who did not have ADHD. Overall, across the types of victimization – sexual victimization and physical assault – ADHD was a significant and strong predictor consistent with the hypotheses discussed earlier.

Exposure to Risky Situations

Similar to the results for sexual touching and rape, several of the exposure variables were significantly related to a student's risk of being physically assaulted. As shown in Table 5.7, binge drinking, marijuana use, and serious drug use emerged as significant predictors of physical assault. Specifically, students who reported they had engaged in binge drinking in the past two weeks were at 1.5 times the risk of experiencing a physical assault. Students who used marijuana in the past 30 days were at 1.4 times the risk, and students who used serious drugs in the past 30 days were over two times the risk being physically assaulted compared to students who did not report serious drug use. Sports participation and whether the student was a member of a

fraternity or sorority were not significant predictors of physical assault. Overall, most of the exposure variables were significant in predicting physical assault victimization.

Proximity to Offenders

Only one of the variables measuring proximity was significantly related to physical assault victimization. Specifically, students who lived on-campus were at an increased risk of experiencing a physical assault compared to students that lived off-campus.

Target Attractiveness

Only one of the target attractiveness variables emerged as significantly related to physical assault risk. Students who reported their sexual orientations as other (i.e., homosexual, bisexual, or unsure) increased their odds of experiencing physical assault by 1.4 times compared to students who reported they were heterosexual. Relationship status was not a significant predictor of physical assault victimization.

Guardianship

The measure of guardianship, receiving information on sexual assault, physical violence, or injury prevention was a significant predictor of physical assault. Similar to the relationship with sexual victimization, students who reported they had received one of these types of information were at an increased risk of experiencing a physical assault. The risk of experiencing physical assault was increased by 1.3 times for students with ADHD compared to students without ADHD.

Table 5.7 Unstandardized Coefficients (with Standard Errors), and Adjusted Odds Ratios for ADHD, Lifestyles Variables, and Demographics on Physical Assault

Variable	Physical Assault	
	Coefficient (b) (S.E.)	Adjusted Odds Ratios Exp(B)
ADHD	.55*	1.74
	(.16)	
Exposure to Risky Situations		
Binge Drinking	.43*	1.54
	(.07)	
Marijuana Use	.32*	1.38
	(.10)	
Serious Drug Use	.73*	2.07
	(.10)	
Sorority/Fraternity Participation	.17	1.20
	(.13)	
Sports Participation	.12	1.12
	(.09)	
Proximity to Offenders		
Off-campus Housing	-.17*	.84
	(.08)	
Unemployed	.11	1.11
	(.07)	
Target Attractiveness		
In a Relationship	.14	1.15
	(.07)	
Non-heterosexual	.34*	1.41
	(.12)	
Guardianship		
Received Prevention Information	.28*	1.32
	(.09)	
Demographics		
Male	.40*	1.49
	(.07)	
Non-white	.30*	1.35
	(.09)	
Age	-.01	.99
	(.02)	
Enrollment Status	.01	1.01
	(.23)	
Transfer last 12 Months	.01	1.01
	(.07)	
Interaction Effect		
ADHD x Gender	-.10	.90
	(.26)	
Constant	-3.26	
R^2	.05	

* $p < .05$ (Chi2: 547.64, pseudo likelihood: -3521.25)

Demographics

Only two of the demographic characteristics emerged as significant predictors for physical assault. Specifically, students who were male and non-white were at an increased risk of being physically assaulted. The finding that males are at a higher risk for physical assault is not surprising considering their rates of physical assault were significantly higher than females. None of the other demographic variables including age, enrollment status, or if the student had transferred in the past 12 months were significantly related to physical assault risk.

Interaction Effect

Similar to the findings for unwanted sexual touching and rape, the interaction of ADHD and gender was insignificant in predicting physical assault victimization. This result suggests similar effects of ADHD on physical assault for both genders. In other words, the effect of ADHD on physical assault is not significantly different for males and females.

SUMMARY OF RESULTS FOR PHYSICAL ASSAULT

This section tested the hypothesis that students with ADHD would have a higher risk of victimization than students without ADHD even when lifestyles/routine activities factors and demographic characteristics were controlled for statistically. These hypotheses were supported. ADHD was a significant predictor of college student physical assault victimization. Overall, students who reported they had ADHD were 1.7 times more likely to be physically assaulted than students without ADHD. The lifestyles/routine activities framework also received general support, especially for the measures of exposure and guardianship.

SUMMARY OF RESULTS

Overall, several important points can be gleaned from examining the effect of ADHD on sexual victimization and physical assault. First, with only one exception (rape for males),

students with ADHD experienced significantly higher proportions of victimization compared to students without ADHD. Second, this relationship was found for all three types of victimization including unwanted sexual touching, rape, and physical assault across the total sample. Third, when males and females were examined separately a similar pattern emerged. Regardless of how the sample was analyzed, students with ADHD experienced significantly higher proportions of victimization compared to students without ADHD. These descriptive results suggest that students with ADHD may be at higher risk for victimization when compared to students without ADHD.

To further test this relationship, multivariate models for each dependent variable (i.e., unwanted sexual touching, rape, and physical assault) that controlled for lifestyles/routine activities variables and demographic characteristics were estimated. These analyses were preformed to see if ADHD emerged as a significant predictor of unwanted sexual touching, rape, and physical assault once other predictors were controlled for statistically. As hypothesized, ADHD emerged as a significant predictor of college student victimization. Further, ADHD was significant for all three types of victimization and was one of the strongest predictors of unwanted sexual touching, rape, and physical assault. Interestingly, the interaction term of ADHD and gender was not significant in any of the models. This finding suggests that the effect of ADHD on victimization does not vary by gender for unwanted sexual touching, rape, and physical assault.

In addition to the findings that ADHD was a significant predictor for all three types of victimization, several of the lifestyles/routine activities variables were also significant predictors. For all three types of victimization, risky behaviors such as drug and alcohol use were strong predictors lending support to the exposure variables. The proximity variables of housing and

employment were significant in predicting unwanted sexual touching and physical assault. The effects of target attractiveness as measured by relationship status and sexual orientation were mixed, with sexual orientation predicting unwanted sexual touching and physical assault and relationship status only being related to unwanted sexual touching. Guardianship was significant for both unwanted sexual touching and physical assault, but not rape. Finally, gender and race were the most consistent demographic characteristics across models significantly predicting all three types of victimization.

Chapter 6 provides the conclusion for this dissertation. In this chapter, a brief summary of the results will be presented. Further, ADHD will be discussed as a theoretical extension of the lifestyles/routine activities framework, and implications for college student victimization risk will be examined. Chapter 6 will also discuss the limitations of the data and possible future directions for research. Finally, overall conclusions from the study will be discussed.

CHAPTER 6: DISCUSSION

This chapter provides a summary of the main foci of this dissertation which was to examine the relationship between ADHD and college student victimization. In order to examine this relationship, several research questions were set forward. First, what is the extent of physical assault and sexual victimization in the form of unwanted sexual touching and rape among a national sample of college students? Second, what is the extent of ADHD among a national sample of college students? Third, do college students with ADHD experience victimization at significantly higher proportions than students without ADHD? Finally, is ADHD a significant predictor of victimization once lifestyles/routine activities variables and demographic characteristics are controlled for statistically? The implications for the future of college student victimization research also will be discussed along with a proposed extension to the lifestyles/routine activities framework. The end of this chapter will discuss limitations of the study, future directions, and conclusions.

SUMMARY OF RESULTS

Extent of Victimization

One goal of this study was to estimate prevalence rates of sexual victimization and physical assault among a national sample of college students. Few studies of sexual victimization have included males, often only focusing on female sexual victimization. One contribution of this dissertation was to examine prevalence rates of sexual victimization not only for females, but also for males and across the total sample of college students. These estimates provide an important extension to the field of college student sexual victimization. Few studies have examined sexual victimization among males (for exceptions, see Fisher et al., 1998; Cass, 2007). Overall, 8.6% of the sample of college students reported they had been a victim of unwanted

sexual touching, attempted rape, or completed rape. Unwanted sexual touching was the most commonly experienced form of sexual victimization among the sample with nearly 8% of students reporting this type of victimization. Attempted rape was the second most common form of sexual victimization experienced by students followed by rape as the least common type of sexual victimization experienced by the sample. Specifically, 3% of the sample reported an attempted rape and nearly 2% reported being raped. These results are comparable to past studies finding rape proportions between 2% and 10% percent (Koss et al., 1987; Fisher et al., 2000; Mohler-Kuo et al., 2004; Krebs et al., 2007; Kilpatrick et al, 2007). Females experienced sexual victimization at significantly higher rates than males. Over 10 ½% of females reported experiencing one of the types of sexual victimization compared to 4.3% of males. Females consistently experienced each type of sexual victimization (i.e., unwanted sexual touching, rape) at significantly higher proportions than males.

Outside of sexual victimization, few studies have examined other types of victimization among college students (for exceptions, see Fisher et al., 1998; Mustaine & Tewksbury, 1998; Reyns & Henson, 2009). A second major contribution of this dissertation was to examine the prevalence of physical assault among a national sample of college students. Overall, 4.6% of the sample of college students reported being a victim of physical assault in the past 12 months. Contrary to the results for sexual victimization, males experienced physical assault at significantly higher rates than females. Over 6% of males reported a physical assault compared to nearly 4% of females. These results are consistent was past studies finding that victimization among college students is not a rare event and is an important social domain of study.

Extent of ADHD

Another main goal of this dissertation was to provide an estimate of the extent of ADHD among a national sample of college students. Until more recently, ADHD was thought of only as a childhood disorder and was virtually ignored by researchers once the child reached adulthood (Greydanus et al., 2007; DuPaul et al., 2009). As a result, the vast majority of ADHD research is focused on children with very few studies examining adults and even fewer studies focusing specifically on college students. To help fill this gap in the literature, the prevalence of ADHD among college students was estimated using a national sample of college students.

Over 5% of the sample self-reported they had ADHD. This is consistent with past research estimating ranges from 2 to 8% of the college population (Weyandt & DuPaul, 2006). Men reported having ADHD at significantly higher rates than women. Specifically, 6.6% of males reporting having ADHD compared to 4.4% of females. This finding is also consistent with past research. Males are disproportionately diagnosed with ADHD compared to females (Greydanus et al., 2007). The data also contained a measure of ADHD diagnosis in the past 12 months. Close to 4% of the sample reported they had been diagnosed with ADHD in the past 12 months. Again, males were diagnosed at higher rates than females. Of those that had been diagnosed in the past 12 months, over 75% reported they were receiving medication as treatment. This finding is consistent with past researching finding that medication is the most commonly used treatment for ADHD (Pary et al., 2002).

The estimation of ADHD among a national sample of college students provides a contribution to the field of college student research. Few studies have specifically examined the prevalence of ADHD using a college specific sample (for exceptions, see Weyandt & DuPaul, 2006, Rabiner et al., 2008; DuPaul et al., 2009). Further, past studies have often had poor

measures of ADHD (i.e., self-reports or medication use). While the current study contains measures of self-report and medication use, it also contains a diagnosis measure which was not often utilized in past studies. Further, past studies commonly rely on only one measure of ADHD; this study employs three measures of ADHD (i.e., self-report, medication use, diagnosis in the past 12 months).

Finally, past studies often have very small sample sizes or were only focused on one type of college student (e.g., freshman; see Weydandt & DuPaul, 2006). The current study sought to fill this gap with a large national sample of over 21,000 college students. The large sample and multiple measures allow for different types of prevalence estimates providing support that ADHD is not only a childhood disorder, but is also a significant problem that continues into young adulthood.

ADHD and College Student Victimization

Aside from estimating the prevalence of ADHD among a college student population, another major focus of this dissertation was to test the hypothesis that college students with ADHD experience victimization at higher percentages than students without ADHD. Past research focusing on children with ADHD suggests they are at an increased risk for experiencing victimization, especially in the form of bullying (Unnever & Cornell, 2003; Humphrey et al., 2007; Wiener & Mak, 2008; Cuevas et al., 2009). However, no research could be located using leading electronic search databases including Criminal Justice Abstracts, Academic search complete, and PsycINFO that examined this risk among college students or young adults. Research existing on adults with ADHD suggests a number of other negative outcomes associated with the disorder including relationship difficulties, unemployment, substance abuse, family difficulties, and social deficits (Murphy & Barkley 1996; Wilens et al., 1997; Ingram et

al., 1999; Young et al., 2003). To fill this gap in college victimization and ADHD research, the proportions of victimization among students with ADHD and without ADHD were compared.

The hypothesis that college students with ADHD would be victimized at higher percentages than students without ADHD was supported for all three types of victimization. A significantly larger percentage of students with ADHD experienced unwanted sexual touching, rape, and physical assault, when compared to students without ADHD. Nearly 13% of students with ADHD reported being a victim of some type of sexual victimization compared to 8.4% of students without ADHD. Some of the differences in percentages of victimization were large. For example, nearly twice as many students with ADHD reported being raped than students without ADHD. Further, over 11% of students reported being a victim of unwanted sexual touching compared to 6.7% of students without ADHD. All of these differences in proportions were statistically significant with p-values less than .05.

For the most part, this pattern also emerged when males and females were examined separately. Aside from rape, males with ADHD reported significantly higher rates of sexual victimization than males without ADHD. For females, students with ADHD experienced significantly higher rates of victimization for all types of sexual victimization compared to students without ADHD. For example, 16.5% of females with ADHD reported they had been a victim of either unwanted sexual touching or rape, compared to 10.3% of females without ADHD.

Students with ADHD were also hypothesized to be victims of physical assault at higher proportions than students without ADHD. The results from proportions test support this hypothesis. Nearly 10% of students with ADHD reported being victims of physical assault compared to 4.3% of students without ADHD. These differences in percentages were also

significant for both males and females. Overall, students with ADHD were physically assaulted at significantly higher rates than students without ADHD.

The results from this study provide support for the hypothesis that ADHD is an important risk factor in predicting college student victimization. In some cases (i.e., rape and physical assault), the proportions of victimization for students with ADHD were nearly twice as high as students without ADHD. No other past research could be located that examined the relationship between ADHD and college student victimization. These results imply that future college student victimization research needs to consider ADHD as an important risk factor. Students with ADHD experienced victimization at significantly higher rates than students without ADHD suggesting that researchers, policy makers, and campus administrators should recognize ADHD as an important condition to consider for victimization research and prevention efforts.

ADHD and Lifestyles/Routine Activities Theory

While the bivariate results suggested a relationship between ADHD victimization, multivariate analyses were needed to rigorously test this relationship. Specifically, it was hypothesized that the relationship between ADHD and victimization would be significant once lifestyles/routine activities variables and demographic characteristics were statistically controlled for. Measures for exposure, proximity, target attractiveness, and guardianship were used to test the lifestyles/routine activities theory. Multivariate analyses also included demographic characteristics and a measure of ADHD. A summary of these findings can be found in Table 6.1.

The hypothesis that ADHD is a significant predictor of college student victimization was supported. As illustrated in Table 6.1, ADHD was a significant predictor for all three types of victimization including unwanted sexual touching, rape, and physical assault. All of these models included measures of LRAT predictors and demographic characteristics. Additionally,

ADHD emerged as one of the strongest predictors in each model. For example, ADHD was the second strongest predictor for physical assault. These results lend further support to the hypothesis that ADHD is an important risk factor in the prediction of college student victimization even once multivariate analyses are estimated with other theoretically important predictors included.

While the main goal of this study was to test the hypothesis whether ADHD is a significant predictor of college student victimization, the lifestyles/routine activities theory was also tested. The lifestyles/routine activities framework posits that individuals who are exposed to risky situations, in close proximity with motivated offenders, who make attractive targets and lack guardianship, are at increased risk for being victimized (Hindelang et al., 1978; Cohen & Felson, 1979). It is important to note that the theory generally received support consistent with past research. Specifically, individuals who engaged in risky behaviors such as partying (i.e., drug and alcohol use) and activities away from home (i.e., living on-campus) were at increased risk of being victimized (Fisher et al., 1998; Mustaine & Tewskbury, 2002; Fisher et al., 2000, Mohler-Kuo et al., 2004). A more detailed discussion of the LRAT results will be presented below while a summary of findings can be found in Table 6.1.

Exposure, the first concept of the lifestyles/routine activities theory, hypothesizes that individuals who live riskier lifestyles including partying, drinking, and drug use will be at increased risk of victimization. In this study, exposure was measured through binge drinking, drug use, fraternity/sorority participation, and sports participation. As shown in Table 6.1, the exposure variables of drinking and drug use in particular consistently emerged as strong predictors across the three types of victimization. For example, students who reported using serious drugs in the past 30 days had twice the risk of experiencing unwanted sexual touching

than students who did not use drugs. The exposure measure of fraternity or sorority participation also received some support, emerging as a significant predictor of unwanted sexual touching and rape. Sports participation was a significant predictor only of unwanted sexual touching. Overall, the exposure variables received support across the three types of victimization, thus providing further support for the notion that students who live riskier lifestyles are at increased risk for victimization.

Table 6.1 Summary of ADHD, Lifestyles/Routine Activities, and Demographic Characteristics Findings for Sexual Victimization and Physical Assault

Independent Variables	Unwanted Sexual Touching	Rape	Physical Assault
ADHD	ADHD (+)	ADHD (+)	ADHD (+)
Exposure to Risky Situations	Binge Drinking (+) Marijuana Use(+) Serious Drug Use (+) Sorority/Fraternity Participation (+) Sports Participation (+)	Binge Drinking (+) Marijuana Use(+) Serious Drug Use (+) Sorority/Fraternity Participation (+)	Binge Drinking (+) Marijuana Use(+) Serious Drug Use (+)
Proximity to Offenders	Housing Situation (+) Employment (+)		Housing Situation (-)
Target Attractiveness	Relationship Status (-) Sexual Orientation (+)		Sexual Orientation (+)
Guardianship	Received Prevention Information (+)	Received Prevention Information (+)	Received Prevention Information (+)
Demographics	Gender (-) Race (+) Age (-)	Gender (-) Race (+) Age (-)	Gender (+) Race (+)
Interaction Effect	Non-significant	Non-significant	Non-significant

The lifestyles/routine activities framework also posits that individuals who are in close proximity (i.e., physical space) to motivated offenders will have an increased risk of victimization. In this study, proximity was measured by two variables. The first variable measured the type of housing the student had (i.e., on-campus, off-campus), whereas the second measured whether the student was employed. As shown in Table 6.1, support emerged for the proximity variables as predictors of unwanted sexual touching, rape, and physical assault. Whether a student reported living on-campus or off-campus was a significant predictor of unwanted sexual touching and physical assault. However, these relationships were in the opposite direction when predicting victimization risk. Students who lived off-campus were at an increased risk of experiencing unwanted sexual touching while students who lived on-campus were at an increased risk for physical assault. These results suggest that unwanted sexual touching and physical assault have different opportunity structures that increase or decrease risk. One explanation for this difference is that students who live on-campus (especially males) may have small living spaces that provoke hostile situations that then lead to assault. Many dorms are male or female-only and very large possibly increasing the opportunity for contact with motivated offenders (see Fisher et al., 1998).

The second proximity measure, employment, was a significant predictor only of unwanted sexual touching. Students who were unemployed had an increased risk of unwanted sexual touching. The proximity variables received less support across the three types of victimization compared to the exposure variables. Even so, they still were consistent with past research suggesting students who were in proximity of motivated offenders have an increases risk of victimization (Fisher et al., 2000; Mustaine & Tewksbury, 2002).

The lifestyles/routine activities framework posits that individuals who are attractive targets or are seen as vulnerable to motivated offenders will be victimized at higher rates. In this study, target attractiveness was measured using relationship status and sexual orientation. The two target attractiveness variables, summarized in Table 6.1, received mixed support across the three types of victimization. Relationship status was significantly related only to unwanted sexual touching. Students who were single or reported they were not in any type of relationship had an increased risk of being sexually touched. Sexual orientation was significant predictor of both unwanted sexual touching and physical assault. For both types of victimization, students who reported they were something other than heterosexual (i.e., homosexual, bisexual, or unsure) were at an increased risk of being victimized. Overall, the target attractiveness variables received less support compared to the exposure and proximity variables.

Finally, guardianship is the last lifestyles/routine activities concept hypothesized to be a predictor of college student victimization. Specifically, individuals who lack any type of guardianship are hypothesized to be at increased risk for victimization. One measure of guardianship was created that asked students whether they had received information on violence, injury, or sexual assault prevention. Guardianship was a significant predictor of all three types of victimization. For each type of victimization, students who reported they had received prevention information were at an increased risk for being victimized. The measure of guardianship was one of the strongest predictors of rape after serious drug use. These findings may seem counterintuitive, but they are consistent with past research that has reported that prevention efforts are positivity related to victimization (Fisher et al., 1998; Mustaine & Tewksbury, 1999; Tseloni et al., 2004). An issue with temporal ordering may account for this finding. Students who have already been victimized may have received prevention information after their victimization

to possibly avoid future incidents. Longitudinal data may help to sort out the temporal relationship between guardianship and victimization.

Table 6.1, shows that some of the demographic variables received support while others were not significant predictors for any of the types of victimization. Gender and race were significant predictors for all three types of victimization. Females and those who were non-white were at an increased risk of experiencing unwanted sexual touching and rape. Past research consistently finds that females are at a greater risk of experiencing sexual victimization when compared to males (Cass, 2007). Males and those who were non-white were at increased risk of being physically assaulted. This finding is also consistent with past research, suggesting that males are at increased risk for physical victimization when compared to females (Baum & Klaus, 2005).

Students who were younger were at increased risk for unwanted sexual touching and rape in the past 12 months. Enrollment status and whether the student had transferred to the school in the past 12 months were not significant predictors of any of the types of victimization.

An interaction term was included in all three statistical models to examine the combined effects (if any) of ADHD and gender on victimization. A significant interaction term would have suggested that the effect of ADHD on victimization is dependent on gender. However, the interaction term of ADHD and gender was not significant across any of the models. This suggests that the effect of ADHD on sexual victimization and physical assault does not differ by gender. In other words, the effect of ADHD on victimization does not change based on the gender of the participant. Further, this finding suggests that regardless of gender, individuals with ADHD are at a higher risk of being victimized.

In summary, ADHD was consistently found to be a strong predictor of college student victimization. This relationship was found for all three types of victimization included in this study. Additionally, the lifestyles/routine activities theory was generally supported. The exposure variables received the most support across the three types of victimization (i.e., drug use, binge drinking). Support for proximity was also found, followed by somewhat mixed support for the target attractiveness variables. Guardianship was supported across the three models; however, there was only one measure of this concept. Overall, the lifestyles/routine activities factors predicted unwanted sexual touching, most consistently followed by physical assault. Support for the theory in predicting rape was somewhat less, but still generally emerged. Specifically, ADHD, the exposure variables (except sports participation), and guardianship were significant predictors of rape, but the concepts of proximity and target attractiveness were not significantly related to rape risk.

Another contribution of this dissertation is the support for the utility of the lifestyles/routine activities framework in predicting college student victimization. This dissertation serves as another test of the framework using a national sample of college students to predict victimization. It adds further support to the importance of the lifestyles/routine activities framework in the prediction of sexual victimization. This dissertation also tests the framework with another type of victimization, physical assault, suggesting the applicability of the framework to other types of victimization outside of sexual victimization.

Extending the Lifestyles/Routine Activities Framework

The lifestyles/routine activities framework has been the dominant perspective in the field of victimology research. It has been applied across a number of different populations (i.e., college students, high schools students), a number of different domains (i.e., campuses, schools,

workplaces) and a number of different types of victimization (i.e., burglary, robbery, sexual victimization, and stalking). While support for the LRAT framework has been found in a number of studies, not all elements of the theory have been equally supported. For example, research is more consistent in finding support for the exposure and proximity elements (Mustaine & Tewksbury 1998; 1999, Fisher et al., 2000; 2002), with less support for target attractiveness and guardianship (Fisher et al., 1998). This sometimes mixed support for the theory has led some researchers to argue for refinement of the theory.

As discussed in Chapter 2, two extensions to the lifestyles/routine activities framework have been proposed. First, Schreck (1999) argued that low self-control was an important risk factor in predicting victimization. This extension has subsequently received support from past research (see Schreck, Wright, & Miller, 2002; Schreck & Fisher, 2004; Schreck, Stewart, & Fisher, 2006). Second, and more pertinent to this dissertation, is the extension proposed by Finkelhor and Asdigian (1996), which adds to the lifestyles/routine activities framework the concept of target congruence.

Finkelhor and Asdigian (1996) asserted that individuals who possess the characteristic of target congruence would be more likely to be victimized. Target congruence consists of the three concepts of target vulnerability, target gratifiability, and target antagonism. Specifically, individuals who possess characteristics that make them more vulnerable to, pleasing to, or antagonistic to offenders will be more likely to be victimized (Finkelhor &Asdigian, 1996). As discussed earlier in Chapter 4, ADHD was hypothesized to be a possible characteristic that could increase an individual's target congruence.

The findings from this study lend support for the concept of target congruence in terms of ADHD increasing this risk. Students with ADHD may be seen as more vulnerable by offenders

to victimization because of their inattentiveness or inability to perceive risk compared to students without ADHD. ADHD was a strong predictor of both types of sexual victimization. A possible explanation for this relationship is that students with ADHD appear inattentive and aloof to potential motivated offenders, thus allowing them to be perceived as easy or vulnerable targets. Studies on college students with ADHD often find that difficulty concentrating is an important issue expressed by students with the disorder (Rabiner et al., 2008). Further, students with ADHD report a host of other academic issues that often lead to poor grades and school attendance (Lewandowski et al., 2008). Difficulties concentrating combined with academic issues may increase the odds of students with ADHD being perceived by other students as unusual or detached. As a result, this perception may increase their vulnerability to offenders for sexual victimization or physical assault.

Further, students with ADHD may be eager to engage in relationships with people, not stopping to fully assess the person or perceive possible danger. Past research has suggested a number of social and cognitive deficits are associated with ADHD (Shea & Wiener, 2003). Children with ADHD often have trouble starting and maintaining friendships. For adults, research suggests that they may have relationship and marital difficulties resulting from social and cognitive deficits (Murphy & Barkley, 1996; Wilens et al., 2003). To compensate for these deficiencies, students may take chances to form friendships and relationships with people. This characteristic may appear very attractive to motivated sexual offenders who take advantage of this vulnerability. Additionally, motivated offenders may seek out opportunities to befriend or engage in relationships with students with ADHD because of their perceived vulnerability and inability to protect themselves against victimization. In other words, students with ADHD may have fewer friends and may be seen as easy targets. Research on children supports this notion,

finding that children with ADHD are often ostracized by their peers and may have very few friendships to insulate them from victimization (Unnever & Cornell, 2003).

Target congruence can also be applied to explaining the relationship between ADHD and physical assault. While social and cognitive deficits may make it difficult for individuals with ADHD to sustain relationships, these deficits may also antagonize offenders. Students with ADHD may provoke offenders, unknowingly leading to a physical assault. Research has suggested that children with ADHD are perceived by their peers as "different," displaying a range of behaviors that are unusual and distracting (Humphrey et al., 2007). These behaviors may provoke their peers to victimize them. Similarly, college students could be perceived in comparable ways, behaving differently in class or in social settings. Thus, their personality differences and perceived unusual behavior that led them to be bullied as children may also lead to assault as college students.

The finding that ADHD is a significant risk factor in predicting sexual victimization and physical assault of college students further indicates that the lifestyles/routine activities framework may be overlooking important predictors of victimization. More recently, researchers such as Schreck (1999) and Finkelhor and Asdigian (1996) have sought to extend the lifestyles/routine activities framework examining other possible predictors of victimization. The major contribution of this study was the inclusion of ADHD as a possible risk factor in the prediction of college student victimization. ADHD, a factor outside of those traditionally examined by the lifestyles/routine activities framework, was found to be a significant predictor of sexual victimization and physical assault among a national sample of college students. Further, researchers who only consider the traditional LRAT factors may hinder their ability to accurately predict victimization. Results from this study suggest that expanding the

lifestyles/routine activities framework to examine other possible predictors like ADHD may improve prediction and further the understanding of victimization opportunities.

PREVENTING COLLEGE STUDENT VICTIMIZATION

The prevention of college student victimization or victimization in general has always been an important goal in crime prevention research. Researchers have sought to identify important risk factors of victimization in hopes of better understanding the opportunities for victimization occurrence. If opportunities for victimization can accurately be identified, then prevention efforts can be developed to reduce these opportunities. Opportunity reduction is a main goal for the prevention of victimization. In other words, if the opportunity to offend is not present, then victimization cannot occur.

Cohen and Felson (1979) argued that the lack of one of the three main elements of crime (i.e., a motivated offender, an attractive target, or lack of capable guardianship) was sufficient enough to prevent a crime from occurring. Thus, prevention efforts have often focused on increasing guardianship or decreasing target attractiveness. For example, Fisher and colleagues (1998) argued that simply asking another student to watch over someone's property could reduce the risk of theft. Further, educating students about the possible risk factors of victimization may reduce their target attractiveness and increase their efforts to provide guardianship for themselves and others. In terms of preventing students with ADHD from being victimized, prevent efforts could also focus on reducing target attractiveness and increasing guardianship for these students.

Some effort has also been aimed at reducing the motivation of offenders. These types of strategies take the burden of prevention off of the victim and focus on the actual offender. Cass (2007) argued that this strategy may be particularly successfully at preventing rape, which is seen as culturally accepted by some males. Referred to as "male peer support," this culture of

acceptance may particularly flourish in fraternity settings where females are seen as objects of sexual pleasure (Schwartz & DeKesredy, 1997). Prevention efforts could focus on educating males about the consequences of sexual victimization and dispelling rape myths. While few programs targeting prospective offenders have been employed (Cass, 2007), one program targeting male fraternity members showed promise in changing behavior intent through an empathy-based rape prevention program. Specifically, male fraternity members who participated in the program significantly lowered their intent to commit sexual assault after completion of the program (Foubert & Newberry, 2006).

The findings from this dissertation also suggest other prevention strategies may be needed. Traditional prevention efforts have focused on reducing opportunities by focusing on motivated offenders, attractive targets, and guardianship. This study also suggests that ADHD is an important risk factor in the prediction of sexual victimization and physical assault. Thus, prevention efforts may be more successful if focused on factors beyond the traditional LRAT factors. For example, this study found that ADHD was a strong predictor of college student behavior. Thus, it can be argued that prevention efforts should acknowledge ADHD as a risk factor. As discussed earlier, students with ADHD may be more vulnerable to motivated offenders, may lack guardianship from others or the ability to protect themselves, and may be seen as attractive targets. Further, students with ADHD may actually provoke offenders without knowing. Prevention efforts specifically targeting the perceived vulnerabilities of students with ADHD may prove to be successful in the reduction of victimization.

One possible prevention effort would be to better educate both students with and without ADHD on the disorder. In the past, ADHD was seen as primarily a childhood disorder and had been largely ignored in adulthood (DuPaul et al., 2009). More recently, ADHD has been

acknowledged as a disorder that continues throughout the lifespan and can have significant adverse effects on adult life. Relationship problems, divorce, substance abuse, unemployment, and criminal behavior have all been liked to ADHD in adulthood (Murphy & Barkely, 1996; Weiss & Murray, 2003; Wilens et al., 2003; Barkley et al., 2004; Kessler et al., 2006). Additionally, this study has also linked ADHD to victimization. College students with ADHD were at a significantly increased risk of being sexually victimized and physically assaulted when compared to students without ADHD. Educating students on the continuation of ADHD into adulthood may encourage students who are feeling inattentive, hyperactive, and impulsive at college to seek help. Medication and counseling have been shown to significantly decrease the adverse side effects of ADHD including substance abuse and issues with concentration (Biederman et al., 1999; Wender, et al., 2001; Wilens et al., 2003; Wilens & Biederman, 2006). By seeking help, students with ADHD may reduce their risk of being victimized through the better understanding of their disorder. For example, students who recognize and seek treatment for their ADHD may increase their risk perception, decreasing their chances of engaging in risky situations they may have engaged in prior to seeking treatment. However, the results from this dissertation suggest that individuals taking medication for their ADHD still have an increased risk of victimization, so a combination of medication and counseling may be more successful at reducing victimization risk.

Finally, educating students who have already been diagnosed with ADHD on their increased risk of victimization may also prove to be a successful prevention effort. Just as efforts are focused on increasing student awareness of guarding their property and avoiding risky situations, efforts to educate students with ADHD about their increased risk could be undertaken. Education on victimization risk could be incorporated into their treatment, teaching students with

ADHD how to perceive risky situations, be aware of their surroundings, and the importance of guardianship. Other avenues that could be explored include educating college advisors to recognize possible signs of ADHD and encouraging students to talk to their advisors if they are having academic difficulties. Pamphlets containing symptoms of ADHD and information on disability services that the college or university provides could be included in freshman orientation packets or posted on bulletin boards around the campus.

Further, many colleges and universities offer learning communities for freshman incoming into the school. The goal of these learning communities is often to get students to know one another and encourage diligent academic performance. These communities could be targeted with information on disability services and provided resources to seek help for ADHD. Additionally, a student website could be constructed where students having difficulties with college could visit to find information on disability services, women's services, and campus victimization services. This website could contain information on the link between ADHD and victimization and provide resources for students who have ADHD, think they might have ADHD, or have been victimized. Students without ADHD could also be educated about the risk of victimization, and encouraged to provide guardianship for students with ADHD. Guardianship from others to prevent victimization has received empirical support in a recent study (Coker et al., 2011).

Finally, partnerships could be established between campus disabilities services and women's' centers to highlight prevention and the overlap between disabilities and victimization. As shown in this study, campuses provide many opportunities for victimization and individuals with ADHD are at high risk for victimization. Thus, it may prove fruitful for campuses to recognize this overlap and build prevention efforts based on this relationship. Efforts to

recognize the relationship between campus opportunities, ADHD, and victimization may increase awareness to possible motivated offenders and help students with ADHD understand why they might be at increased risk for victimization.

LIMITATIONS

As with all research studies, this dissertation has limitations that must be acknowledged. Two are most important[6]: 1) the low response rate for the online administration of the survey and 2) issues with generalizability and external validity. First, the response rate for the online administration of the survey was very low (22% mean response) compared to 63% mean response rate for the paper administration. In other words, the response rate for individuals who took the online version of the survey was much lower than the individuals who completed the survey in paper format. However, a low response rate for online surveys is not uncommon (Dillman, Phelps, Tortora, Swift, Kohrell, Berck et al., 2009). Fricker and Schonlau (2002) conducted a literature search of studies using web administration finding only modest responses rates across studies. Further, it is also not uncommon for the response rate of online surveys to be lower than a paper format (Dillman et al., 2009). While not uncommon, the low response rate for this study is a limitation that needs to be considered.

To further examine this issue, a variable measuring mode of administration was added to the regression models. This variable was a dichotomous variable (0 = paper, 1 = online), examining if there were differences between those individuals who completed the survey online and in paper format. If significant, this variable would indicate that individuals who took the survey online were statistically different from those who took the survey in paper format. Mode

[6] Another possible limitation was the relatively low pseudo R^2 or explained variance. This could be due to data limitations or measurement issues with the LRAT variables. However, this is not an uncommon finding in other studies testing elements of criminological theory (Weisburd & Piquero, 2008).

of administration was only statistically significant in one model, physical assault ($p = .03$). Thus, results from this model should be interpreted with caution.

The second limitation of this study is the possibility that the results of this study are not generalizable outside of this particular student population. To investigate this issue, student demographics were examined from the Digest of Education's website to compare demographics of students in this study to all college students attending two-year or four-year colleges. For example, the percentage of females in this study was compared to the percentage of females attending two-year or four-year institutions of higher education according to the Digest of Education. Similarities would indicate that the current study population is representative of all college students attending two-year or four-year schools. Demographics that are more representative would indicate that the findings from this study are generalizable outside of this study's population.

While some differences emerged in the areas of housing and enrollment status in particular, other demographics were similar and more representative. The results from this study may be more applicable to more traditional student populations (i.e., full-time 4-year students). Although this is a limitation of this study, it is important to note that the results for the lifestyles/routine activities framework were consistent with past research. These findings suggest that generalizbility may not be an issue, but the findings should still be interpreted with some caution.

Finally, another possible issue with generalizability pertains to the sample itself. Specifically, a national sample of college students was used to estimate the prevalence of ADHD among young adult college students. It could be that this population of young adult college students with ADHD is different from the rest of the young adult population with ADHD. In

other words, students with ADHD may be a higher achieving group (i.e., academically, socially), and not representative of the rest of the young adult population with ADHD. Thus, the comparison of college students with ADHD to non-college students of the same age group with ADHD should be made with caution.

FUTURE RESEARCH

The major goal of this study was to examine ADHD as a possible risk factor for college student sexual victimization and physical assault. The support for this initial relationship allows for the possibility of further research aimed at better understanding the nature of this relationship. One potential future direction is to examine the relationship between lifestyles and ADHD among college students. Specifically, the relationship between ADHD and victimization may be mediated by lifestyles factors.

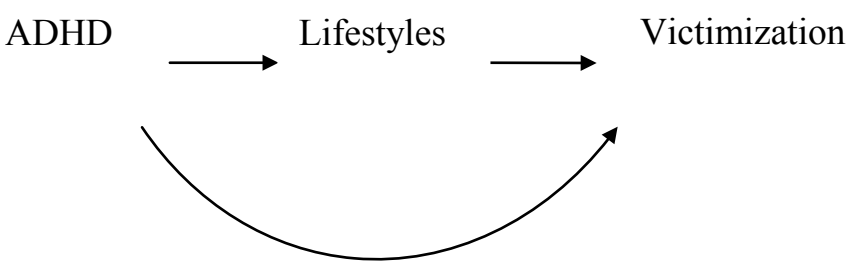
Several studies focusing on adults and ADHD have linked the disorder to later substance abuse, suggesting that college students with ADHD may also be more likely to engage in drug and alcohol use (Mannuzza et al., 1991; Murphy & Barkley, 1996; Wilens et al., 2003; Barkley et al., 2004). These behaviors may be a result of ADHD symptoms or as a coping mechanism to deal with some of the deficits they may have in making friends or socializing. It may be that students with ADHD are also at increased risk for substance abuse issues. This tendency to use drugs and alcohol may increase their exposure to offenders and also increase their target attractiveness for sexual victimization and physical assault.

Further, students with ADHD may more readily expose themselves to situations were offenders are present and may not perceive the situations as risky unlike their non-ADHD peers. For example, students with ADHD may try to "impress" new potential friends through partying frequently, participating in Greek organizations, or joining school organizations such as sports.

All of these activities have been linked to increasing the risk of sexual victimization (Fisher et al., 1998; Mustaine & Tewksbury, 2002; Mohler-Kuo et al., 2004). College students with ADHD may act impulsively, undertaking risky behaviors such as drinking and drug use. They may binge drink or use drugs excessively to fit in or make friends. Both of these behaviors have been linked to sexual victimization and physical assault in several past studies (Mustaine & Tewksbury, 1999, 2002; Fisher et al., 2000, 2002; Krebs et al., 2007, Klipatrick et al., 2007).

A future research endeavor could be to unpack this relationship. One possible hypothesis is that the influence of ADHD on victimization may be mediated by lifestyles/routine activities. Students with ADHD may already be living more risky lifestyles in addition to their condition. Figure 6.1 illustrates this possible relationship between ADHD and victimization. If this relationship exists, it has implications for prevention and future victimization research. First, prevention efforts may also be targeted to reducing drug and alcohol use among students with ADHD. Second, the combination of risky behaviors such as drinking and drug use and ADHD may further exacerbate the already high risk of victimization among college students. Future research should focus on examining the relationship between risky lifestyles and ADHD and its impact on college student victimization.

Figure 6.1 Hypothesized Mediating Relationship between ADHD and Victimization



CONCLUSION

The results from this study suggest that ADHD is an important risk factor in the prediction of sexual victimization and physical assault among college students. Students with ADHD had significantly higher rates of victimization across the three types. Additionally, this relationship remained significant once lifestyles/routine activities factors and demographic characteristic were controlled for statistically. Future research using the LRAT framework may benefit from the examination of other factors such ADHD to improve the prediction of victimization among college students. Further, researchers who do not consider ADHD risk may be overlooking an important predictor of college student victimization. Overall, college student victimization remains a significant problem warranting further research and prevention efforts.

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APPENDICES

Appendix A: Sample ACHA NCHA-II survey, Fall 2008

ACHA NCHA II

American College Health Association **National College Health Assessment**

Instructions:

The following questions ask about various aspects of your health.

To answer the questions, fill in the oval that corresponds to your response.

Select only one response unless instructed otherwise.

Use a No. 2 pencil or blue or black ink pen only. Do not use pens with ink that soaks through the paper. CORRECT: ● INCORRECT: ∅ ⊗ ⬭ ⊙

This survey is completely voluntary. You may choose not to participate or not to answer any specific question. You may skip any question you are not comfortable in answering.

Please make no marks of any kind on the survey which could identify you individually.

Composite data will then be shared with your campus for use in health promotion activities.

Thank you for taking the time and thought to complete this survey. We appreciate your participation!

American College Health Association

National College Health Assessment

PAGE ONE

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SERIAL #

Health, Health Education and Safety

1. How would you describe your general health?

○ Excellent ○ Very good ○ Good ○ Fair ○ Poor ○ Don't know

(Please mark the appropriate column for each question to the right)	2. Have you received information on the following topics from your college or university?		3. Are you interested in receiving information on the following topics from your college or university?	
	No	Yes	No	Yes
Alcohol and other drug use	○	○	○	○
Cold/Flu/Sore throat	○	○	○	○
Depression/Anxiety	○	○	○	○
Eating disorders	○	○	○	○
Grief and loss	○	○	○	○
How to help others in distress	○	○	○	○
Injury prevention	○	○	○	○
Nutrition	○	○	○	○
Physical activity	○	○	○	○
Pregnancy prevention	○	○	○	○
Problem use of Internet/computer games	○	○	○	○
Relationship difficulties	○	○	○	○
Sexual assault/Relationship violence prevention	○	○	○	○
Sexually transmitted disease/infection (STD/I) prevention	○	○	○	○
Sleep difficulties	○	○	○	○
Stress reduction	○	○	○	○
Suicide prevention	○	○	○	○
Tobacco use	○	○	○	○
Violence prevention	○	○	○	○

4. Within the **last 12 months**, how often did you:

(Please mark the appropriate column for each row)

	Always	Most of the time	Sometimes	Rarely	Never	N/A, did not do this activity within the **last 12 months**
Wear a seatbelt when you rode in a car?	○	○	○	○	○	○
Wear a helmet when you rode a bicycle?	○	○	○	○	○	○
Wear a helmet when you rode a motorcycle?	○	○	○	○	○	○
Wear a helmet when you were inline skating?	○	○	○	○	○	○

5. Within the **last 12 months**:

(Please mark the appropriate column for each row)

	Yes	No
Were you in a physical fight?	○	○
Were you physically assaulted (do not include sexual assault)?	○	○
Were you verbally threatened?	○	○
Were you sexually touched without your consent?	○	○
Was sexual penetration attempted (vaginal, anal, oral) without your consent?	○	○
Were you sexually penetrated (vaginal, anal, oral) without your consent?	○	○
Were you a victim of stalking (e.g., waiting for you outside your classroom, residence, or office; repeated emails/phone calls)?	○	○

6. Within the **last 12 months**, have you been in an intimate (coupled/partnered) relationship that was:

(Please mark the appropriate column for each row)

	Yes	No
Emotionally abusive? (e.g., called derogatory names, yelled at, ridiculed)	○	○
Physically abusive? (e.g., kicked, slapped, punched)	○	○
Sexually abusive? (e.g., forced to have sex when you didn't want it, forced to perform or have an unwanted sexual act performed on you)	○	○

7. How safe do you feel:

(Please mark the appropriate column for each row)

	Very safe	Somewhat safe	Somewhat unsafe	Not safe at all
On this campus (daytime)?	○	○	○	○
On this campus (nighttime)?	○	○	○	○
In the community surrounding this school (daytime)?	○	○	○	○
In the community surrounding this school (nighttime)?	○	○	○	○

Alcohol, Tobacco, and Drugs

8. Within the **last 30 days**, on how many days did you use:

(Please mark the appropriate column for each row)

	Never used	Have used, but not in **last 30 days**	1-2 days	3-5 days	6-9 days	10-19 days	20-29 days	Used daily
Cigarettes	○	○	○	○	○	○	○	○
Tobacco from a water pipe (hookah)	○	○	○	○	○	○	○	○
Cigars, little cigars, clove cigarettes	○	○	○	○	○	○	○	○
Smokeless tobacco	○	○	○	○	○	○	○	○
Alcohol (beer, wine, liquor)	○	○	○	○	○	○	○	○
Marijuana (pot, weed, hashish, hash oil)	○	○	○	○	○	○	○	○
Cocaine (crack, rock, freebase)	○	○	○	○	○	○	○	○
Methamphetamine (crystal meth, ice, crank)	○	○	○	○	○	○	○	○
Other amphetamines (diet pills, bennies)	○	○	○	○	○	○	○	○
Sedatives (downers, ludes)	○	○	○	○	○	○	○	○
Hallucinogens (LSD, PCP)	○	○	○	○	○	○	○	○
Anabolic steroids (Testosterone)	○	○	○	○	○	○	○	○
Opiates (heroin, smack)	○	○	○	○	○	○	○	○
Inhalants (glue, solvents, gas)	○	○	○	○	○	○	○	○
MDMA (Ecstacy)	○	○	○	○	○	○	○	○
Other club drugs (GHB, Ketamine, Rohypnol)	○	○	○	○	○	○	○	○
Other illegal drugs	○	○	○	○	○	○	○	○

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9. Within the **last 30 days**, how often do you think **the typical student at your school** used:

(State your best estimate; Please mark the appropriate column for each row)

	Never used	Have used, but not in **last 30 days**	1-2 days	3-5 days	6-9 days	10-19 days	20-29 days	Used daily
Cigarettes	○	○	○	○	○	○	○	○
Tobacco from a water pipe (hookah)	○	○	○	○	○	○	○	○
Cigars, little cigars, clove cigarettes	○	○	○	○	○	○	○	○
Smokeless tobacco	○	○	○	○	○	○	○	○
Alcohol (beer, wine, liquor)	○	○	○	○	○	○	○	○
Marijuana (pot, weed, hashish, hash oil)	○	○	○	○	○	○	○	○
Cocaine (crack, rock, freebase)	○	○	○	○	○	○	○	○
Methamphetamine (crystal meth, ice, crank)	○	○	○	○	○	○	○	○
Other amphetamines (diet pills, bennies)	○	○	○	○	○	○	○	○
Sedatives (downers, ludes)	○	○	○	○	○	○	○	○
Hallucinogens (LSD, PCP)	○	○	○	○	○	○	○	○
Anabolic steroids (Testosterone)	○	○	○	○	○	○	○	○
Opiates (heroin, smack)	○	○	○	○	○	○	○	○
Inhalants (glue, solvents, gas)	○	○	○	○	○	○	○	○
MDMA (Ecstacy)	○	○	○	○	○	○	○	○
Other club drugs (GHB, Ketamine, Rohypnol)	○	○	○	○	○	○	○	○
Other illegal drugs	○	○	○	○	○	○	○	○

One drink of alcohol is defined as a 12 oz. can or bottle of beer or wine cooler, a 4 oz. glass of wine, or a shot of liquor straight or in a mixed drink.

10. The **last time** you "partied"/socialized how many **drinks of alcohol** did you have? (If you did not drink alcohol, please enter 00. If less than 10, enter 01, 02, 03, etc.)

DRINKS ○○ ○○ ①① ②② ③③ ④④ ⑤⑤ ⑥⑥ ⑦⑦ ⑧⑧ ⑨⑨

11. The **last time** you "partied"/socialized over how many **hours** did you drink alcohol? (If you did not drink alcohol, please enter 00. If less than 10, enter 01, 02, 03, etc.)

HOURS ○○ ○○ ①① ②② ③③ ④④ ⑤⑤ ⑥⑥ ⑦⑦ ⑧⑧ ⑨⑨

12. How many **drinks of alcohol** do you think **the typical student at your school** had the **last time** he/she "partied"/socialized? (If you think the typical student at your school does not drink alcohol, please enter 00. If less than 10, enter 01, 02, 03, etc.)

DRINKS ○○ ○○ ①① ②② ③③ ④④ ⑤⑤ ⑥⑥ ⑦⑦ ⑧⑧ ⑨⑨

13. Over the **last two weeks**, how many times have you had five or more drinks of alcohol at a sitting?

- ○ N/A, don't drink
- ○ None
- ○ 1 time
- ○ 2 times
- ○ 3 times
- ○ 4 times
- ○ 5 times
- ○ 6 times
- ○ 7 times
- ○ 8 times
- ○ 9 times
- ○ 10 or more times

14. Within the **last 30 days**, did you:

(Please mark the appropriate column for each row)

	Yes	No	N/A, don't drink	N/A, don't drive
Drive after drinking any alcohol at all	○	○	○	○
Drive after drinking five or more drinks of alcohol	○	○	○	○

15. During the **last 12 months**, when you "partied"/socialized, how often did you:

(Please mark the appropriate column for each row)

	N/A, don't drink	Never	Rarely	Sometimes	Most of the time	Always
Alternate non-alcoholic with alcoholic beverages	○	○	○	○	○	○
Avoid drinking games	○	○	○	○	○	○
Choose not to drink alcohol	○	○	○	○	○	○
Determine, in advance, not to exceed a set number of drinks	○	○	○	○	○	○
Eat before and/or during drinking	○	○	○	○	○	○
Have a friend let you know when you have had enough	○	○	○	○	○	○
Keep track of how many drinks you were having	○	○	○	○	○	○
Pace your drinks to 1 or fewer per hour	○	○	○	○	○	○
Stay with the same group of friends the entire time you were drinking	○	○	○	○	○	○
Stick with only one kind of alcohol when drinking	○	○	○	○	○	○
Use a designated driver	○	○	○	○	○	○

16. Within the **last 12 months**, have you experienced any of the following **as a consequence of your drinking**?

(Please mark the appropriate column for each row)

	N/A, don't drink	No	Yes
Did something you later regretted	○	○	○
Forgot where you were or what you did	○	○	○
Got in trouble with the police	○	○	○
Had sex with someone **without giving** your consent	○	○	○
Had sex with someone **without getting** their consent	○	○	○
Had unprotected sex	○	○	○
Physically injured yourself	○	○	○
Physically injured another person	○	○	○
Seriously considered suicide	○	○	○

17. Within the **last 30 days**, what **percent** of students at your school used:
State your best estimate. (If less than 10, please enter 00, 01, 02, etc.)

Cigarettes % Used	Alcohol % Used	Marijuana % Used
00 01 02 03 04 05 06 07 08 09	00 01 02 03 04 05 06 07 08 09	00 01 02 03 04 05 06 07 08 09

18. Within the **last 12 months**, have you taken any of the following **prescription drugs** that were not prescribed to you?

(Please mark the appropriate column for each row)

	No	Yes
Antidepressants (e.g., Celexa, Lexapro, Prozac, Wellbutrin, Zoloft)	○	○
Erectile dysfunction drugs (e.g., Viagra, Cialis, Levitra)	○	○
Pain killers (e.g., OxyContin, Vicodin, Codeine)	○	○
Sedatives (e.g., Xanax, Valium)	○	○
Stimulants (e.g., Ritalin, Adderall)	○	○

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SERIAL #

Sex Behavior and Contraception

19. Within the **last 12 months**, with how many partners have you had oral sex, vaginal intercourse, or anal intercourse? (If you did not have a sex partner within the last 12 months, please enter 00. If less than 10, enter 01, 02, 03, etc.) →

PARTNERS

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

20. Within **last 12 months**, did you have sexual partner(s) who were:

(Please mark the appropriate column for each row)

	Yes	No
Female	○	○
Male	○	○
Transgender	○	○

21. Within the **last 30 days**, did you have:

(Please mark the appropriate column for each row)

	Yes	No, have done this sexual activity in the past but not in the **last 30 days**	No, have never done this sexual activity
Oral sex?	○	○	○
Vaginal intercourse?	○	○	○
Anal intercourse?	○	○	○

22. Within the **last 30 days**, how often did you or your partner(s) use a condom or other protective barrier (e.g., male condom, female condom, dam, glove) during:

(Please mark the appropriate column for each row)

	Have not done this sexual activity during the **last 30 days**	N/A, never did this sexual activity	CONDOM/ BARRIER USE: Never	Rarely	Sometimes	Most of the time	Always
Oral sex?	○	○	○	○	○	○	○
Vaginal intercourse?	○	○	○	○	○	○	○
Anal intercourse?	○	○	○	○	○	○	○

23A. Did you or your partner use a method of birth control to prevent pregnancy **the last time** you had vaginal intercourse?

- ○ Yes (continue to item 23B)
- ○ N/A, have not had vaginal intercourse (skip to item 24)
- ○ No, have not had vaginal intercourse that could result in a pregnancy (skip to item 24)
- ○ No, did not want to prevent pregnancy (skip to item 24)
- ○ No, did not use any birth control method (skip to item 24)
- ○ Don't know (skip to item 24)

23B. Please indicate whether or not you or your partner used each of the following methods of birth control to prevent pregnancy **the last time** you had vaginal intercourse. (Please mark the appropriate column for each row)

	Yes	No		Yes	No
Birth control pills (monthly or extended cycle)	○	○	Diaphragm or cervical cap	○	○
Birth control shots	○	○	Contraceptive sponge	○	○
Birth control implants	○	○	Spermicide (e.g., foam, jelly, cream)	○	○
Birth control patch	○	○	Fertility awareness (e.g., calendar, mucous, basal body temperature)	○	○
Vaginal ring	○	○	Withdrawal	○	○
Intrauterine device (IUD)	○	○	Sterilization (e.g., hysterectomy, tubes tied, or vasectomy)	○	○
Male condom	○	○	Other method	○	○
Female condom	○	○			

24. Within the **last 12 months**, have you or your partner(s) used emergency contraception ("morning after pill")?

- ○ N/A, have not had vaginal intercourse in the **last 12 months**
- ○ No
- ○ Yes
- ○ Don't know

25. Within the **last 12 months**, have you or your partner(s) become pregnant?

- ○ N/A, have not had vaginal intercourse in the **last 12 months**
- ○ No
- ○ Yes, unintentionally
- ○ Yes, intentionally
- ○ Don't know

Weight, Nutrition, and Exercise

26. How do you describe your weight?

- ○ Very underweight
- ○ Slightly underweight
- ○ About the right weight
- ○ Slightly overweight
- ○ Very overweight

27. Are you trying to do any of the following about your weight?

- ○ I am not trying to do anything about my weight
- ○ Stay the same weight
- ○ Lose weight
- ○ Gain weight

28. How many servings of fruits and vegetables do you usually have **per day**?
(1 serving = 1 medium piece of fruit; 1/2 cup fresh, frozen, or canned fruits/vegetables; 3/4 cup fruit/vegetable juice; 1 cup salad greens; or 1/4 cup dried fruit)

○ 0 servings per day ○ 1–2 servings per day ○ 3–4 servings per day ○ 5 or more servings per day

29. On how many of the **past 7 days** did you:

(Please mark the appropriate column for each row)

	0 days	1 day	2 days	3 days	4 days	5 days	6 days	7 days
Do **moderate-intensity** cardio or aerobic exercise (caused a noticeable increase in heart rate, such as a brisk walk) for at least **30 minutes?**	○	○	○	○	○	○	○	○
Do **vigorous-intensity** cardio or aerobic exercise (caused large increases in breathing or heart rate, such as jogging) for at least **20 minutes?**	○	○	○	○	○	○	○	○
Do 8-10 strength training exercises (such as resistance weight machines) for 8-12 repetitions each?	○	○	○	○	○	○	○	○

Mental Health

30. Have you ever:

(Please mark the appropriate column for each row)

	Yes, in the **last 12 months**	Yes, in the **last 30 days**	Yes, in the **last 2 weeks**	No, not in **last 12 months**	No, never
Felt things were hopeless	○	○	○	○	○
Felt overwhelmed by all you had to do	○	○	○	○	○
Felt exhausted (not from physical activity)	○	○	○	○	○
Felt very lonely	○	○	○	○	○
Felt very sad	○	○	○	○	○
Felt so depressed that it was difficult to function	○	○	○	○	○
Felt overwhelming anxiety	○	○	○	○	○
Felt overwhelming anger	○	○	○	○	○
Intentionally cut, burned, bruised, or otherwise injured yourself	○	○	○	○	○
Seriously considered suicide	○	○	○	○	○
Attempted suicide	○	○	○	○	○

31. Within the **last 12 months**, have you been diagnosed or treated **by a professional** for any of the following?

(Please mark the appropriate column for each row)

	Yes, other treatment	Yes, treated with medication and psychotherapy	Yes, treated with psychotherapy	Yes, treated with medication	Yes, diagnosed but not treated	No
Anorexia	○	○	○	○	○	○
Anxiety	○	○	○	○	○	○
Attention Deficit and Hyperactivity Disorder (ADHD)	○	○	○	○	○	○
Bipolar Disorder	○	○	○	○	○	○
Bulimia	○	○	○	○	○	○
Depression	○	○	○	○	○	○
Insomnia	○	○	○	○	○	○
Other sleep disorder	○	○	○	○	○	○
Obsessive Compulsive Disorder (OCD)	○	○	○	○	○	○
Panic attacks	○	○	○	○	○	○
Phobia	○	○	○	○	○	○
Schizophrenia	○	○	○	○	○	○
Substance abuse or addiction (alcohol or other drugs)	○	○	○	○	○	○
Other addiction (e.g., gambling, internet, sexual)	○	○	○	○	○	○
Other mental health condition	○	○	○	○	○	○

32. Have you ever been diagnosed with depression? ○ No ○ Yes

33. Within the **last 12 months**, have any of the following been traumatic or very difficult for you to handle?

(Please mark the appropriate column for each row)

	Yes	No
Academics	○	○
Career-related issue	○	○
Death of a family member or friend	○	○
Family problems	○	○
Intimate relationships	○	○
Other social relationships	○	○
Finances	○	○
Health problem of a family member or partner	○	○
Personal appearance	○	○
Personal health issue	○	○
Sleep difficulties	○	○
Other	○	○

34. Have you ever received psychological or mental health services from any of the following?

(Please mark the appropriate column for each row)

	Yes	No
Counselor/Therapist/Psychologist	○	○
Psychiatrist	○	○
Other medical provider (e.g., physician, nurse practitioner)	○	○
Minister/Priest/Rabbi/Other clergy	○	○

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35. Have you ever received psychological or mental health services from your **current** college/university's Counseling or Health Service?
○ No ○ Yes

36. If in the future you were having a personal problem that was really bothering you, would you consider seeking help from a mental health professional?
○ No ○ Yes

37. Within the **last 12 months**, how would you rate the overall level of stress you have experienced?
○ No stress
○ Less than average stress
○ Average stress
○ More than average stress
○ Tremendous stress

Physical Health

38. Within the **last 30 days**, did you do any of the following?

(Please mark the appropriate column for each row)

	Yes	No
Exercise to lose weight	○	○
Diet to lose weight	○	○
Vomit or take laxatives to lose weight	○	○
Take diet pills to lose weight	○	○

39. Have you:

(Please mark the appropriate column for each row)

	Don't know	Yes	No
Had a dental exam and cleaning in the **last 12 months**?	○	○	○
(Males) Performed testicular self exam in the **last 30 days**?	○	○	○
(Females) Performed breast self exam in the **last 30 days**?	○	○	○
(Females) Had a routine gynecological exam in the **last 12 months**?	○	○	○
Used sunscreen regularly with sun exposure?	○	○	○
Ever been tested for Human Immunodeficiency Virus (HIV) infection?	○	○	○

40. Have you received the following vaccinations (shots)?

(Please mark the appropriate column for each row)

	Don't know	Yes	No
Hepatitis B	○	○	○
Human Papillomavirus/HPV (cervical cancer vaccine)	○	○	○
Influenza (the flu) in the **last 12 months** (shot or nasal mist)	○	○	○
Measles, Mumps, Rubella	○	○	○
Meningococcal disease (meningococcal meningitis)	○	○	○
Varicella (chicken pox)	○	○	○

41. Within the **last 12 months**, have you been diagnosed or treated **by a professional** for any of the following?

(Please mark the appropriate column for each row)

	Yes	No		Yes	No
Allergies	○	○	High blood pressure	○	○
Asthma	○	○	High cholesterol	○	○
Back pain	○	○	Human Immunodeficiency Virus (HIV)	○	○
Broken bone/Fracture/Sprain	○	○	Irritable Bowel Syndrome (IBS)	○	○
Bronchitis	○	○	Migraine headache	○	○
Chlamydia	○	○	Mononucleosis	○	○
Diabetes	○	○	Pelvic Inflammatory Disease (PID)	○	○
Ear infection	○	○	Repetitive stress injury (e.g., carpal tunnel syndrome)	○	○
Endometriosis	○	○	Sinus infection	○	○
Genital herpes	○	○	Strep throat	○	○
Genital warts/Human Papillomavirus (HPV)	○	○	Tuberculosis	○	○
Gonorrhea	○	○	Urinary tract infection	○	○
Hepatitis B or C	○	○			

42. On how many of the **past 7 days** did you get enough sleep so that you felt rested when you woke up in the morning?

○ 0 days ○ 1 day ○ 2 days ○ 3 days ○ 4 days ○ 5 days ○ 6 days ○ 7 days

43. People sometimes feel sleepy during the daytime. In the **past 7 days**, how much of a problem have you had with sleepiness (feeling sleepy, struggling to stay awake) during your daytime activities?

○ No problem at all
○ A little problem
○ More than a little problem
○ A big problem
○ A very big problem

44. In the **past 7 days**, how often have you:

(Please mark the appropriate column for each row)

	0 days	1 day	2 days	3 days	4 days	5 days	6 days	7 days
Awakened too early in the morning and couldn't get back to sleep?	○	○	○	○	○	○	○	○
Felt tired, dragged out, or sleepy during the day?	○	○	○	○	○	○	○	○
Gone to bed because you just could not stay awake any longer?	○	○	○	○	○	○	○	○
Had an extremely hard time falling asleep?	○	○	○	○	○	○	○	○

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Impediments to Academic Performance

(Please select the most serious outcome for each item below)

45. Within the **last 12 months**, have any of the following affected your academic performance?

	Significant disruption in thesis, dissertation, research, or practicum work	Received an incomplete or dropped the course	Received a lower grade in the course	Received a lower grade on an exam or important project	I have experienced this issue but my academics have not been affected	This did not happen to me/not applicable
Alcohol use	○	○	○	○	○	○
Allergies	○	○	○	○	○	○
Anxiety	○	○	○	○	○	○
Assault (physical)	○	○	○	○	○	○
Assault (sexual)	○	○	○	○	○	○
Attention Deficit and Hyperactivity Disorder (ADHD)	○	○	○	○	○	○
Cold/Flu/Sore throat	○	○	○	○	○	○
Concern for a troubled friend or family member	○	○	○	○	○	○
Chronic health problem or serious illness (e.g., diabetes, asthma, cancer)	○	○	○	○	○	○
Chronic pain	○	○	○	○	○	○
Death of a friend or family member	○	○	○	○	○	○
Depression	○	○	○	○	○	○
Discrimination (e.g., homophobia, racism, sexism)	○	○	○	○	○	○
Drug use	○	○	○	○	○	○
Eating disorder/problem	○	○	○	○	○	○
Finances	○	○	○	○	○	○
Gambling	○	○	○	○	○	○
Homesickness	○	○	○	○	○	○
Injury (fracture, sprain, strain, cut)	○	○	○	○	○	○
Internet use/computer games	○	○	○	○	○	○
Learning disability	○	○	○	○	○	○
Participation in extracurricular activities (e.g., campus clubs, organizations, athletics)	○	○	○	○	○	○
Pregnancy (yours or your partner's)	○	○	○	○	○	○
Relationship difficulties	○	○	○	○	○	○
Roommate difficulties	○	○	○	○	○	○
Sexually transmitted disease/infection (STD/I)	○	○	○	○	○	○
Sinus infection/Ear infection/Bronchitis/Strep throat	○	○	○	○	○	○
Sleep difficulties	○	○	○	○	○	○
Stress	○	○	○	○	○	○
Work	○	○	○	○	○	○
Other (please specify _____)	○	○	○	○	○	○

Demographic Characteristics

46. How old are you? → Years

47. What is your gender?
- ○ Female
- ○ Male
- ○ Transgender

48. What is your sexual orientation?
- ○ Heterosexual
- ○ Gay/Lesbian
- ○ Bisexual
- ○ Unsure

49. What is your height in feet and inches? → Ft. / Inch (HEIGHT)

50. What is your weight in pounds? → Pounds (WEIGHT)

51. What is your year in school?
- 1st year undergraduate
- 2nd year undergraduate
- 3rd year undergraduate
- 4th year undergraduate
- 5th year or more undergraduate
- Graduate or professional
- Not seeking a degree
- Other

52. What is your enrollment status?
- Full-time
- Part-time
- Other

53. Have you transferred to this college or university within the **last 12 months**?
- No
- Yes

54. How do you usually describe yourself? *(Mark all that apply)*
- White, non Hispanic (includes Middle Eastern)
- Black, non Hispanic
- Hispanic or Latino/a
- Asian or Pacific Islander
- American Indian, Alaskan Native, or Native Hawaiian
- Biracial or Multiracial
- Other

55. Are you an international student?
- No
- Yes

56. What is your relationship status?
- Not in a relationship
- In a relationship but not living together
- In a relationship and living together

57. What is your marital status?
- Single
- Married/Partnered
- Separated
- Divorced
- Other

58. Where do you currently live?
- Campus residence hall
- Fraternity or sorority house
- Other college/university housing
- Parent/guardian's home
- Other off-campus housing
- Other

59. Are you a member of a **social** fraternity or sorority? (e.g., National Interfraternity Conference, National Panhellenic Conference, National Pan-Hellenic Council, National Association of Latino Fraternal Organizations)
- No
- Yes

60. How many hours a week do you **work for pay**?
- 0 hours
- 1–9 hours
- 10–19 hours
- 20–29 hours
- 30–39 hours
- 40 hours
- More than 40 hours

61. How many hours a week do you **volunteer**?
- 0 hours
- 1–9 hours
- 10–19 hours
- 20–29 hours
- 30–39 hours
- 40 hours
- More than 40 hours

62. What is your primary source of health insurance?
- My college/university sponsored plan
- My parents' plan
- Another plan
- I don't have health insurance
- I am not sure if I have health insurance

63. What is your approximate cumulative grade average?
- A
- B
- C
- D/F
- N/A

64. Within the **last 12 months**, have you participated in organized college athletics at any of the following levels?

(Please mark the appropriate column for each row)	Yes	No
Varsity	○	○
Club sports	○	○
Intramurals	○	○

65. Do you have any of the following disabilities or medical conditions?

(Please mark the appropriate column for each row)	Yes	No
Attention Deficit and Hyperactivity Disorder (ADHD)	○	○
Chronic illness (e.g., cancer, diabetes, auto-immune disorders)	○	○
Deaf/Hard of hearing	○	○
Learning disability	○	○
Mobility/Dexterity disability	○	○
Partially sighted/Blind	○	○
Psychiatric condition	○	○
Speech or language disorder	○	○
Other disability	○	○

THANK YOU FOR COMPLETING THIS SURVEY

PLEASE DO NOT WRITE IN THIS AREA

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Appendix B. Dependent Variables, Survey Items

Variable[1] *Survey item*[2]	Summary statistics		
	Mean	S.D.	Range
Sexual Victimization (3 items)			
Sexual Touching *Were you sexually touched without your consent?*	.08	.27	0-1
Attempted Rape *Was sexual penetration attempted (vaginal, anal, oral) without your consent?*	.03	.17	0-1
Completed Rape *Were you sexually penetrated (vaginal, anal, oral) without your consent?*	.02	.13	0-1
Stalking (1 item) *Were you a victim of stalking (e.g., waiting for you outside your classroom, residence, or office; repeated emails/phone calls)?*			

[1] This series of survey questions began with: "Within the last 12 months…"
[2] Each survey item had a dichotomous response; respondents could either answer no (0) or yes (1).

Appendix C. Independent Variables and Demographics, Survey Items

Variable
Survey item
Responses

Lifestyles/routine activities variables

Binge drinking
Over the last two weeks, how many times have you had five or more drinks of alcohol in a sitting?
N/A, don't drink, none, 1 time, 2 times, 3 times, 4 times, 5 times, 6 times, 7 times, 8 times, 9 times, 10 or more times

Drug use
Within the last 30 days, on how many days did you use cigarettes, tobacco from a water pipe, cigars, smokeless tobacco, alcohol, marijuana, cocaine, methamphetamines, other amphetamines, sedatives, hallucinogens, steroids, opiates, inhalants, MDMA, other club drugs, other illegal drugs?

Housing
Where do you currently live?
Campus residence hall, fraternity or sorority house, other college/university housing, parent/guardian's home, other off-campus housing, other

Sorority or fraternity participation
Are you a member of a social fraternity or sorority?
No, yes

Sports participation
Within the last 12 months, have you participated in organized college athletics at any of the following levels?
Varsity, club sports, intramurals

Relationship status
What is your relationship status?
Not in a relationship, in a relationship but not living together, in a relationship and living together

Sexual orientation
What is your sexual orientation?
Heterosexual, gay/lesbian, bisexual, unsure

Party protective measures
During the last 12 months, when you "partied"/socialized, how often did you: Alternate non-alcoholic with alcoholic beverages, avoid drinking games, choose not to drink alcohol, determined in advance not to exceed a certain number of drinks, eat before and/or during drinking, have a friend let you know when you have had enough, keep track of how many drinks you were having, pace your drinks to 1 or fewer per hour, stay with the same group of friend the entire time you were drinking, stick with only one kind of alcohol when drinking, used a designated driver
N/A don't drink, never, rarely, sometimes, most of the time, always

Demographics

Gender

What is your gender?

Male, female, transgender

Race

How would you usually describe yourself?

White non-Hispanic, black non-Hispanic, Hispanic or Latino/a, Asian or pacific islander, American Indian Alaska native or native Hawaiian, biracial or multiracial, other

Enrollment status

What is your enrollment status?

Full-time, part-time

Class status

What is your year in school?

1st year undergraduate, 2nd year undergraduate, 3rd year undergraduate, 4th year undergraduate, 5th year or more undergraduate

Transfer student

Have you transferred to this college or university within the last 12 months?

No, yes

Appendix D. Collinearity Diagnostics Comparing ADHD Measures

Ever Been Diagnosed with ADHD	Tolerance	VIF
Diagnosed in Last 12 Months	0.50	1.98
Currently Receiving Treatment for ADHD	0.58	1.72