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# The victimization-substance relationship: an examination of nonconsensual sexual experiences and post-assault substance use

Jessica Melillo

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**THE VICTIMIZATION-SUBSTANCE RELATIONSHIP:  
AN EXAMINATION OF NONCONSENSUAL SEXUAL EXPERIENCES  
AND POST-ASSAULT SUBSTANCE USE**

by  
Jessica L. Melillo

A Thesis

Submitted to the  
Department of Psychology  
College of Science and Mathematics  
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at  
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## **Dedication**

*This manuscript is dedicated to my father, Angelo Melillo, and my fiancée, Alexander Sprengle. This thesis process and academic experience would not have been possible without their unconditional support, patience, kindness, and love.*

## **Acknowledgements**

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## **Abstract**

Jessica L. Melillo

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AN EXAMINATION OF NONCONSENSUAL SEXUAL EXPERIENCES  
AND POST-ASSAULT SUBSTANCE USE**

2014

DJ Angelone, Ph.D.

Master of Arts in Clinical Mental Health Counseling

Women with nonconsensual sexual experience (NSE) history are at elevated risk of experiencing revictimization and engaging in post-NSE substance use. Though the risk of college women experiencing NSEs has been well-established, high school women have been mostly overlooked in the literature, especially in relation to revictimization pathways. Substance use post-high school NSE, post-college NSE, and post-revictimization were examined, with revictimization being defined as an NSE in high school and an NSE in college. Female college students (N = 195) completed measures that assessed degree of sexual victimization, quantity and frequency of alcohol consumption and illicit drug use, and substance-related consequences. It was hypothesized that revictimized women would report more alcohol use, illicit drug use, and related consequences than women without NSE history and those with single-NSE history. The employed MANCOVA model was significant; however, results only partially supported the hypotheses. Revictimized women endorsed more alcohol use, drug use, and related consequences than women in the control and high school NSE only groups. They were not significantly different across any of the dependent variables from women in the college NSE only group. Accessibility and availability of substances and beliefs of social acceptability may account for the limited differences. Temporality and/or treatment

intervention may have also played a role. Limitations, directions for future research, and implications for prevention and treatment intervention were discussed.

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## Chapter 1: Introduction

A nonconsensual sexual experience (NSE) may be defined as any type of unwanted oral, anal, or vaginal contact and/or intercourse in which the perpetrator has used force, intimidation, coercion, and/or other means (e.g., purposeful intoxication) to acquire sexual interaction (Peterson & Muehlenhard, 2011; Ross et al., 2010). Additionally, certain undesired advances such as verbal comments, leering, kissing or groping, nonpenetrative sexual contact, or any other behaviors that violate independently defined sexual boundaries may fall beneath the NSE umbrella (Franiuk, 2007; Ross et al., 2010). NSEs generally encompass sexual harassment, sexual coercion, sexual contact, attempted rape, and completed rape, as these unwanted sexual experiences are behaviors most frequently identified by victims (Abbey, Ross, McDuffie, & McAuslan, 1996; Testa, VanZile-Tamsen, Livingston, & Koss, 2004). Previous literature has consistently suggested that women are at the greatest risk of experiencing NSEs (Koss, 1990; Tjaden & Thoennes, 2000; Tjaden & Thoennes, 2006). Nearly 25% of American women have reported being sexually assaulted, with about 30% having experienced coercion and about 20% having experienced attempted or completed rape (Tjaden & Thoennes, 2006). About 80% of all sexual assault victims report that the experience occurred prior to age 25 (Black et al., 2011). Less severe behaviors, such as stalking and harassment (e.g., repeated phone calls, invasion of personal space, suggestive comments and/or remarks) have been reported, conversely, by up to 80% of women. Additionally, about 85% of women endorse enduring sexual harassment at work and/or school from as early as age of 12 (Black et al., 2011; Tjaden & Thoennes, 2006). Overall, these prevalence, when considering the broader, most subjective NSE definition stand to increase appreciably.

College women are particularly vulnerable to NSEs (Jozkowski & Peterson, 2013; Parks, Romosz, Bradizza, & Hsieh, 2008; Ross et al., 2010). Early research suggested that up to 50% of college women had experienced unwanted sexual experiences, including unwanted sexual contact, sexual coercion, attempted rape, and rape (Koss, Gidycz, & Wisniewski, 1987). More recent estimates have confirmed these rates (Abbey et al., 1996; Franiuk, 2007; Ross et al., 2010; Jozkowski & Peterson, 2013). Compared to same age, non-college peers and commuter students, college women, especially first year and residential students, are at heightened risk (Newbold, Mehta, Forbus, 2011; O'Malley & Johnston, 2002; Orchowski & Barnett, 2012). This may be accounted for by decreased parental monitoring, increased independence, significant life transition, and exposure to alcohol, drugs, and casual sex culture common to college environments (Bersamin et al., 2014; Franiuk, 2007; Ross et al., 2010). Risk-taking behavior is also more frequently seen in this population, as residential students have access to previously unavailable opportunities, closer proximity to peer groups, and limited supervision (Bersamin et al., 2014; Fromme, Corbin, & Kruse, 2008). Students living with their parents consume less alcohol, use less marijuana and other drugs, and report less suicidal ideation and mental health problems than residential college students (Newbold et al., 2011). Individuals aged 18 to 22 not enrolled in school also endorse less substance use than their peers attending college; this appears to be tied to employment and life responsibilities not common to residential college students (Orchowski & Barnett, 2012). Thus, these groups are less likely to experience NSEs than their counterparts attending and living on college campuses.

Though research has investigated and established NSE risk in college, many

women report that they experienced an NSE in high school or prior to age 18 (Krebs et al., 2009; Ross et al., 2010). In fact, the highest risk for victimization may occur in high school (Himelein, Vogel, & Wachowiak, 1995), with more than 50% of all victims of sexual assault being younger than 18 at the time of the incident (Tjaden & Thoennes, 2000). Despite the high school victimization literature being fairly limited, several reasons have been suggested as to why these women are at the greatest risk of experiencing NSEs. Adolescence and young adulthood are demarcated by acute physiological, psychological, emotional, and social growth, which collectively yield profound personal life change and transition (Himelein et al., 2009; Krebs et al., 2009). Unlike elementary and middle school students, high school students tend to have more freedom, greater interaction with peers and new peer groups, and increased accessibility to illegal substances (O'Malley & Johnston, 2002; Ross, et al., 2010). High school students also engage in more peer-implicated risk behavior (e.g., smoking marijuana, drinking alcohol) as a means of appearing socially competent and achieving "popularity" and acceptance (Barnett et al., 2013). These behaviors may be influenced by the presence of older individuals in new peer groups. Despite the substantial age gap, there is a greater likelihood in high school of interaction between older and younger students than in middle and elementary school. Research indicates that this contributes considerably to increased substance-related and sex-related risk-taking behavior in high school female students (Barnett et al., 2013; Smith, Wilson, Menn, & Pulczynski, 2014; Walsh, Fielder, Carey, & Carey, 2014). Additionally, though recent research has documented an alarming increase in substance use and risk-taking behavior amongst middle school students, high school students often engage in these behaviors at higher rates (King,

Fleming, Monahan, & Catalano, 2011). Thus, due to increased risk-taking behavior, exposure to new environments, peer groups, and substances, and greater involvement in experiences in which dangerous elements may be present, but neglected or unnoticed, high school women, are more vulnerable to experiencing an NSE than younger students (Himelein et al., 1995; King et al., 2011; Ross, et al., 2010). Therefore, though high school women are not as readily examined in the literature as college women, they are also at high risk of experiencing NSEs.

### **1.1 NSEs & Coping Behavior**

Experiencing an NSE has the potential to have deleterious psychological effects on victims, regardless of when they occur. The literature suggests that many women have enduring, adverse emotional responses to sexual trauma (Ross, et al., 2010) which may extend to difficulty with social and occupational functioning, physical and mental health problems, and overall decreased quality of life (Hedtke et al., 2008). Individuals may experience heightened anxiety and arousal, lack of sexual interest and satisfaction, depression, and general negative affect. Even when evaluated many years post-assault, victims of sexual assault qualified for more psychiatric diagnoses, such as major depressive disorder, alcohol abuse and dependence, drug abuse and dependence, and generalized anxiety disorder, than nonvictims (Hedtke, et al., 2008; Koss, 1990; Orchowski & Barnett, 2012).

These adverse consequences may be related to coping methodologies employed by victims. Coping is the management, processing, and/or organization of a stressful event after it occurs. A common response to a stressful life experience such as an NSE may be to avoid and/or reduce negative affect (Ullman & Peter-Hagene, 2014). Victims

may engage in a variety of techniques to accomplish this. Strategies such as cognitive restructuring, seeking social support, and openly expressing one's emotions are considered "adaptive." These particular strategies are often associated with fewer mental health diagnoses, better prognoses, and more successful recovery attempts and hence are more effective (Gutner, Monson, & Resick, 2006). Other strategies such as denial, disengagement, wishful thinking, and substance use, conversely, often thwart recovery and prevent full trauma processing. However, victims often tend toward these ineffective or maladaptive coping methods due to their immediate and "protective" effects (Ullman & Peter-Hagene, 2014); that is, maladaptive coping allows for experiential and emotional avoidance and minimization of and reprieve from negative affect (Najdowski & Ullman, 2011; Ullman & Peter-Hagene, 2014).

Substance use, in particular, has especially potent effects on the negative affect and difficult emotional consequences of NSEs. While there is support for the relationship between sexual trauma and post-trauma substance use (Najdowski & Ullman, 2011; Najdowski & Ullman, 2011; Ullman & Peter-Hagene, 2014); some researchers have argued that victims' substance use is wholly a function of PTSD symptomology (Dixon, Leen-Feldner, Ham, Feldner, & Lewis, 2009; Kaysen et al., 2013; Ullman & Peter-Hagene, 2014). Though NSEs, substance use, and PTSD are often concordantly implicated, post-assault experiences vary from survivor to survivor. Development of PTSD is a very possible consequence of experiencing an NSE; however, substance use, too, may occur post-assault without being linked to PTSD symptomology. Additionally, post-NSE substance use may be related more to coping behavior than to mental health diagnoses and/or avoidance (Gutner et al., 2006).



Accordingly, women with sexual assault histories report higher rates of alcohol use post-assault (Burnam et al, 1988; Corbin, Bernat, Calhoun, McNair, & Seals, 2001; Kilpatrick et al., 1997). Women with assault histories report drinking as a function of inhibiting negative affect and coping with difficult emotions more often than women without trauma exposure. Drinking as a means of coping is associated with greater use rates, especially in trauma populations (Corbin et al., 2001; Kaysen et al., 2013).

In comparison to alcohol, there is a dearth of literature regarding illicit drug use amongst college women with NSE history. However, drug use is often as widespread in the college context as alcohol use, and is equally implicated in risky sexual activity and NSE occurrence (Rostad, Silverman, & McDonald, 2014). As a group, college students are at greater risk of engaging in illicit and prescription drug use than their non-college peers due to accessibility, availability, and larger, more diverse peer networks. Recent research has reflected this, as illicit and prescription drug use by college students today is the highest it's been in the past 15 years (Johnston, O'Malley, Bachman, & Schulenberg, 2005; Johnston, O'Malley, Bachman, & Schulenberg, 2012). College women, especially those with NSE history, are particularly vulnerable to illicit and nonmedical prescription drug use, due to susceptibility to experiencing depression, anxiety, and adverse trauma-related reactions (Rostad et al., 2014). In fact, college women with stressful experiences within the past year often have higher rates of drug abuse and drug dependence than male students and same age, non-college peers (Johnston et al., 2005; Johnston et al., 2012). Several studies (Burnam et al., 1988; Kilpatrick et al., 1997) have supported this; increased stimulant and marijuana use post-assault have been reported by NSE victims in college. However, a wider spectrum of drugs (e.g., hallucinogens, depressants,

amphetamines) has been left mostly unexamined in relation to post-NSE use. Given that illicit and prescription drugs have similar effects to alcohol (e.g. experiential and emotional avoidance, numbing) and given the frequency of their use amongst college women, drug use was also examined as a potential consequence of experiencing an NSE. It was hoped that assessment of drug use would provide additional insight about factors contributing to the poorer prognosis, increased symptom severity, and overall greater life impairment reported by women coping maladaptively post-assault (Bedard-Gilligan et al., 2011), thus filling this observable gap in the literature. In addition, it was hoped that identifying another maladaptive post-assault behavior would illuminate future risks, such as revictimization.

## **1.2 Revictimization**

An individual is considered having been revictimized if she experienced childhood sexual abuse (CSA) and a subsequent sexual assault in adolescence or adulthood. CSA pertains to any sexual contact with a child younger than 14 perpetrated by an older adolescent, adult, and/or similarly aged peer through use of force, threat, or deceit. Sexual involvement with a child who is incapable of consenting by virtue of age, disability, or power differential is also considered CSA (Karakurt & Silver, 2014). This definition of revictimization has been the most widely used because research corroborates that individuals with CSA histories are two to three times more likely to be revictimized in adulthood than other women (Katz, May, Sorensen, & DelTosta, 2010). However, previous research has asserted that high school/adolescent sexual victimization, more so than CSA, is linked to greater likelihood of victimization in college, and may be predictive of first year collegiate victimization (Humphrey & White, 2000; Katz, et al.,

2010). In fact, female students having experienced sexual assault at and since age 14 are four times more likely to experience victimization in college than their peers without similar histories (Himelein et al., 1995; Humphrey & White, 2000; Miller, Markman, & Handley, 2007).

High school is characterized by increased peer pressure, availability of new substances, and lack of supervision. This may easily account for the 50% of women who have reported experiencing sexual aggression during high school (Himelein et al., 1995). Though entrance and commitment to college by NSE victims may imply resiliency, it does not remove these women from future risk; rather, the opposite has been suggested (Orchowski & Barnett, 2012). Inability to adequately assess risk, increased maladaptive coping, and difficulty recognizing and responding to dangerous situations may inadvertently place previously victimized women at risk of a second victimization (Testa et al., 2010).

### **1.3 Revictimization: An Alternative Definition**

The literature has consistently supported that victims of the traditional definition of revictimization (CSA and adult victimization) are at greatest risk of utilizing alcohol and drugs to cope. Several studies have found that the quantity and frequency of alcohol use of revictimized women is often indicative of alcohol dependence (Balsam, Lehavot, & Beadnell, 2011; Messman-Moore et al., 2013; Testa et al., 2010). Revictimized women are also more likely to report impaired psychosocial functioning, poorer outcomes, more trauma related symptoms, insufficient intervention attempts, and additional physical, sexual, and/or emotional victimizations (Najdowski & Ullman, 2001) than women with single-assault histories (Messman-Moore et al., 2013; Testa et al.,

2010). However, longitudinal research has suggested that revictimization, regardless of identified pathway, is often associated with more maladaptive coping strategies, as multiple traumas appear to require more effective and efficient coping methods (Humphrey & White, 2000; Najdowski & Ullman, 2001).

That said, several studies have found links between high school victimization and increased collegiate victimization vulnerability, with several suggesting high school victimization to be a better predictor of future victimization than CSA (Humphrey & White, 2000; Messman-Moore et al., 2013; Smith, White, & Holland, 2003; Testa et al., 2010). Yet, despite these findings, adolescence/high school is often overlooked within the context of revictimization and not often examined in the literature. Adolescent/high school victimization, in fact, is regularly grouped with CSA or adult victimization, preventing meaningful examination of this developmental period as a possibly important piece of revictimization puzzle (Bramsen et al., 2013). Thus, there is an absence of information about the impact of high school-collegiate revictimization, especially when compared to the wealth of information available about the traditional revictimization definition. Additionally, limited studies (Bramsen et al., 2013; Humphrey & White, 2000; Testa et al., 2010) have discussed the possible linear relationship among CSA, adolescent victimization, and adult victimization, leaving an open void in the literature. Research has established that the strongest perpetuating risk factor of adolescent/high school victimization is CSA (Bramsen et al., 2013; Humphrey & White, 2000; Katz et al., 2010); it has also been suggested that CSA and adolescent victimization are predictors of collegiate/adult victimization (Messman-Moore et al., 2013; Smith et al., 2003; Testa et al., 2010). It stands to reason then that the traditional revictimization definition may be

excluding high school/adolescent victimization as an important factor along the revictimization pathway and/or that other revictimization pathways exist in which adolescent/high school victimization plays a crucial role. Thus, as a starting point for future research, adolescent/high school victimization was identified as part of the revictimization pathway in this study; revictimization was defined to include high school first-time victims, or having experienced a sexual assault prior to college (between ages 14 – 17) and victimization during college (18 and older), to best understand the possible relationship that may exist between adolescent victimization and collegiate victimization. It was hoped that this would also help to acquire more information about adolescent/high school victimization's potential relationship to post-NSE consequences, especially in that post-NSE substance use is more immediate in adolescent/high school victimization than in CSA (Katz et al., 2010; Testa et al., 2010).

#### **1.4 NSEs and Substance Use: Questions of Directionality**

On the other hand, it is possible that a reciprocal relationship exists between NSEs and substance use such that substance use may act as both a causal factor to experiencing an NSE and as a consequence of experiencing an NSE. As previously mentioned, having a history of victimization is a risk factor for future victimization (Himelein et al., 1995; Humphrey & White, 2000; Miller et al., 2007); the pathways perpetuating this vulnerability remain unclear, though substance use has been implicated. It is well-documented in the literature that women with NSE history struggle to accurately assess risk and appraise dangerous situations and individuals, even without intoxication effects (Messman-Moore et al., 2013; Najdowski & Ullman, 2011). In addition, it is quite clear that adolescence and young adulthood are time periods characterized by the occurrence of

more novel, unsupervised situations in which dangerous elements may be overlooked and new opportunities may be taken without consideration of recourse (Parks et al., 2008); NSE victims might be more likely to pursue these experiences. Thus, increased substance use post-NSE coupled with diminished risk recognition appear to place a woman at risk of experiencing a second NSE, after which she may continue to engage in substance as a means of coping and/or because it is familiar. However, this reciprocal relationship has been continually debated with limited consensus, with the literature speaking to multiple potential pathways connecting substance use and NSEs (Gentile, Librizzi, & Martinetti, 2012; Larimer, Lydum, & Anderson, 1999; Ross et al., 2010; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1990). There is a possibility, though, that the pathways connecting these elements are not mutually exclusive; that is, they may be occurring simultaneously. For example, a woman with NSE history might not use substances post-NSE, but may experience a second NSE, prompting increase in substance use post-revictimization as a means of coping. This represents a different pathway than a woman with NSE history who did use substances post-NSE, which prompted her to experience a second NSE, and continue to use substances post-victimization. However, there remains overlap between these pathways in that both women experienced revictimization and then engaged in substance use. These examples illuminate that it might be difficult to tease out perpetuating and resultant elements within these pathways and harder, then, to conclude which element is a precursor or consequence. Additionally, previous studies have not appeared to highlight this possibility as a confounding factor. Thus, given this is one of the first studies acknowledging the potential mutual inclusivity of these pathways and element overlap, two time periods established as high risk for victimization and substance

use were chosen. It was believed that the directional pathway from high school to college would be an appropriate starting point in providing insight about substance use, NSEs, and related consequences, and would provide a solid foundation for future studies.

### **1.5 Purpose & Hypothesis**

The primary purpose of this study was to investigate the relationship between NSE history and consequential substance use in a sample of college women. Level and timing of NSE history may impact quantity, frequency, and type of substance use; thus, differences between single-NSE history in high school and college and multiple-NSE history were of particular interest. Identifying and understanding differences among groups could potentially highlight risk factors and important areas for intervention. This study additionally sought to fill the literature gap regarding the relationship between illicit drug use and NSEs, as there is a lack of research about illicit drugs as a consequence of NSEs, especially in understanding college populations.

For the current study, individuals were identified as either having never experienced an NSE, having experienced an NSE in only high school (ages 14 - 17), having experienced an NSE in only college (ages 18+), or having experienced NSEs in both high school and college (both 14 – 17 and 18+). These groups were meant to reflect the alternative definition of revictimization proposed in this study. It was expected that individuals reporting more than one NSE would report more alcohol use, more illicit drug use, and more alcohol- and drug-related consequences than those with different NSE histories, as revictimized individuals often require more efficient and effective means of coping (Bedard-Gilligan et al., 2011; Orchowski & Barnett, 2012). Moreover, this would

support that the proposed definition of revictimization yields similar results to the traditional definition in terms of substance use and related consequences.



## Chapter 2: Method

### 2.1 Participants

A total of 195 female undergraduates from a mid-sized state University in the northeastern United States completed the study. Research has consistently indicated that sexual assault in college-aged women is particularly prevalent when compared to other groups; thus, male students were excluded from sample (Abbey et al., 1996). The mean age of the participants at the time they completed the study was 19.18 ( $SD = 1.92$ , range 18-34). The majority of the participants identified themselves as Caucasian/Non-Hispanic (72.8%,  $N = 142$ ), followed by African American/Black (14.4%,  $N = 28$ ), Hispanic/Latina (8.2%,  $N = 16$ ), and Asian/Pacific Islander (4.6%,  $N = 9$ ). The races/ethnicities observed were representative of the university's population, with approximately 24% minority enrollment (Rowan University Profile, 2010). The majority of participants reported being exclusively heterosexual (89.2%,  $N = 124$ ) when asked to identify sexual orientation. More than half of the participants were first year students (55.9%,  $N = 109$ ), 21.5% were sophomores ( $N = 42$ ), 15.9% were juniors ( $N = 31$ ), and 6.7% were seniors ( $N = 13$ ) at the time of the survey. A total of 72.8% ( $N = 142$ ) had never received treatment due to psychological distress.

### 2.2 Measures

Students completed a battery of self-report measures to assess sexual experiences, alcohol and drug use, alcohol- and drug-related consequences, and PTSD symptoms. A short demographic survey assessing age, race, academic rank, sexual orientation, and previous treatment was also completed.

**Sexual assault experiences.** The original Sexual Experiences Survey (SES; Koss

& Oros, 1982; Koss et al., 1987) is a 10-item self-report measure aimed at identifying and classifying women's experiences of sexual contact and victimization through behaviorally specific questions; the measure was slightly modified to demonstrate the interests of this project. The modified items identified different behaviors respondents may have endured, ranging from verbal coercion to completed rape. An example item was: "Have you given in to sexual intercourse when you didn't want to because you were overwhelmed by a man's continual arguments and pressure?" Participants were asked to respond with "yes" or "no." If the respondent answered "yes" to an item, she was directed to a follow-up question which assessed age at which the experience occurred. A final item assessed victimization prior to age 14, as CSA history could be a potential confound. Participants were categorized post-hoc according to their responses. Participants were divided into one of four groups: control (no victimization); NSE in high school (between 14 and 17); NSE in college (from 18+); or NSEs in high school and college (revictimization). Evidence for reliability and validity of the SES has been well-established for the original measure, particularly for college-aged students. An internal consistency coefficient of .74 has been reported for women (Koss et al., 1987); similarly, the alpha level for the current sample was .71.

**Alcohol Use.** The Daily Drinking Questionnaire - Revised (DDQ-R; Collins, Parks, & Marlatt, 1985) was used to establish alcohol consumption patterns through use of a "time line follow-back" protocol (Utpala-Kumar & Deane, 2010). The participant was first prompted to identify, as accurately as possible, days of the week during which she consumed alcohol and the number of drinks she consumed on these days, during a "typical" week within the last 30 days. The participant identified the same information

for a “heaviest use” week within the last 30 days. Retrospective drinking calendar charts were provided to help participants recall necessary information. Scores were obtained by averaging use during a “typical” week and/or use during a “heaviest use” week over a month. A standard drink was defined as 1.5 ounces of hard liquor, 5 ounces of wine, or 12 ounces of beer. The DDQ-R has been found to have high reliability (Baer et al., 1992). It also has good convergent validity with other similar surveys, such as the Drinking Practices Questionnaire (Collins et al., 1985), and it has been used frequently with college populations (Corbin, McNair, & Carter, 1996).

**Drug Use.** The Daily Drug-Taking Questionnaire (DDTQ; Parks, 2001) is an unpublished measure that establishes patterns of specific drug use for “typical” and “heaviest use” weeks in the past 30 days. A modified version assessed 11 different drug categories, which included: marijuana, heroin, “powder” cocaine, “crack” cocaine, methamphetamine, amphetamine, ecstasy/club drugs, hallucinogens, inhalants, sedatives, and prescription drugs. Participants selected the drug they used most frequently. Similarly to the DDQ-R, the DDTQ used a retrospective calendar chart to assist with recall and to measure drug use during “typical” and “peak” weeks of use. Participants were prompted to be as accurate as possible regarding the quantity of drugs used. Different standards were used for different drug categories (e.g., marijuana quantity was to be indicated in grams, given the conversion “1 gram = 1 joint”; prescription drugs to be given in number of pills), but it was encouraged that participants enter as much detailed information as possible. There is limited research available regarding psychometric properties of the DDTQ; additionally, few studies have utilized it as a measure. PTSD and substance use-related studies with incarcerated populations have provided most information about the

questionnaire and the reasoning for its use (Bowen et al., 2006; Simpson et al., 2007).

**Alcohol- and drug-related consequences.** Alcohol-related consequences were measured by the Rutgers Alcohol Problem Index (RAPI; White & Labouvie, 1989), an 18-item measure frequently used with adolescents and college students. The RAPI utilizes a coding scale in which “0” signifies none, “1” signifies one to two times, “2” signifies three to five times, and “3” signifies more than five times. These numbers indicate how frequently respondent have suffered alcohol- and/or drug-related consequences within the last 30 days. Items provide examples of various alcohol- and drug-related consequences that could occur, such as “Not able to do your homework or study for a test,” “Got into fights with other people (friends, relatives, strangers),” and “Neglected your responsibilities.” Scores of 8 and above are believed to indicate a need for treatment in college students (Neal, Corbin, & Fromme, 2006). The RAPI is a reliable instrument for measuring both alcohol- and drug-related consequences. It has demonstrated good internal consistency across substance categories, good convergent validity with DSM-IV-TR diagnostic criteria for dependence and abuse, and strong measurement construct congruence (Ginzler, Garrett, Baer, & Peterson, 2007). The current study had an internal consistency coefficient of .85.

**PTSD symptom severity.** The Post-traumatic Stress Disorder (PTSD) Checklist – Civilian Version (PCL-C; Weathers, Litz, Herman, Huska, & Keane, 1993) is a 17-item measure used to assess the DSM-IV-TR symptoms of PTSD. The PCL-C is comprised of a list of problems that commonly succeed traumatic life experiences. In this study, participants were asked to respond to the PCL-C dependent upon their experiences with sexual victimization. Individuals without NSE history were to respond in accordance with

their most salient traumatic experience. A five-point Likert scale, ranging from 1 (Not at all) to 5 (Extremely), was used to assess how upsetting and/or “bothersome” the listed symptoms had been within the past 30 days. An example item was, “Repeated, disturbing memories, thoughts, or images of a stressful experience from the past?” A total score was calculated by totaling all of the items, yielding a score between 17 and 85. The PCL-C has well-established psychometric properties. It has internal consistency coefficients ranging between .94 and .97 (Blanchard, Jones-Alexander, Buckley, Forneris, 1996; Weathers et al., 1993); the current study had an internal consistency coefficient of .96. It also has good convergent validity with similar measures, such as the Mississippi PTSD Scale,  $r = .85$  and  $.93$  (Weathers et al., 1993). Information garnered from this measure was controlled for in the conducted analyses to account for the potential relationship between PTSD symptom severity and alcohol and drug use.

**Social Desirability.** The Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1991) is a 40-item measure used to identify the extent to which respondents exaggerate or distort answers as a means of preserving favorable self-presentation. Respondents were asked to indicate the truth of a statement on a 7-point Likert-type scale ranging from “not true” to “very true.” Sample items included, “My first impressions of people usually turn out to be right,” “I never swear,” and “I am a completely rational person.” The BIDR assesses two constructs: Impression Management, the denial of socially unacceptable characteristics, and Self-Deceptive Enhancement, enhanced, positively biased self-reporting. Both subscales were used in this sample. In accordance with the scoring manual, each item was given either a 0 or a 1, yielding a composite score between 0 and 20 for each subscale. The BIDR has sound psychometric properties; high

test-retest reliability (self-deception:  $r = .69$ ; impression management:  $r = .65$ ) and internal consistency (self-deception:  $r = .68-.80$ ; impression management:  $r = .68-.86$ ) have been reported (Paulhus, 1984); the present study exhibited similar internal consistency, with an alpha of .82. Given the sensitivity around sexual assault, alcohol and drug use, and alcohol- and drug-related consequences, it was necessary to account for the possibility of answer distortion and misrepresentation; thus, the BIDR was used as a control measure in the performed analyses. Two items were not used due to researcher error.

### **2.3 Procedure**

Approval to conduct the study was obtained from the Rowan University Institutional Review Board. Participants were female students recruited via SONA, the psychology department's electronic student participant pool. A written description of the survey was available to all participants. Those interested in participating were directed to Survey Monkey and provided with an informed consent. The informed consent detailed the nature of the study, how the data garnered from the study would be used, and psychological resources available given the student experienced any distress while completing the measures. Consent was obtained through participant indication that the terms of the study had been reviewed and accepted. Participants were then instructed to begin the anonymous online survey. Participants received identical surveys, with all items and measures in the following order: *SES*, *PCL-C*, *DDQ-R*, *DDTQ*, *RAPI*, *BIDR*, demographic information. Upon completion of the survey, participants were debriefed in writing and provided with appropriate resources. Psychology research credit was administered to students for their participation.

## Chapter 3: Results

### 3.1 Preliminary Analyses

#### NSE Groups & Frequencies

Data were collected from 195 women during fall 2013 through spring 2014. Forty percent of the sample reported experiencing an NSE in either high school (10.8%;  $N = 21$ ), college (12.3%;  $N = 24$ ), or both (16.4%;  $N = 32$ ). One hundred and sixteen (59.5%) women did not endorse any NSE experiences, and were used as a control. Only 1% ( $N = 2$ ) of the sample endorsed CSA as it was defined in this study; these participants were excluded from all analyses. NSE category frequencies can be found in Table 1.

**Table 1.** *Nonconsensual Sexual Assault Categories* ( $N = 195$ ).

Categories	N	%
Control (No NSE)	116	59.5
CSA	2	1.0
High School NSE only	21	10.8
College NSE only	24	12.3
Revictimization (2 NSEs)	32	16.4
Total	195	100.0

#### Drug and Alcohol Use

Descriptive statistics/frequency analyses indicated that 82.1% ( $N = 160$ ) of participants did not endorse using illicit drugs. Approximately 18 % endorsed marijuana use, which was either reported in grams by the participants or converted to grams by the researcher. The conversion system used was such that one ounce of marijuana is equivalent to 30 joints and one gram of marijuana is equivalent to one joint (World Health Organization, 1997). This conversion system was offered in the survey

instructions and was used consistently by participants. Participants did not endorse use of any other illicit drugs, though 51.3% ( $N = 100$ ) endorsed alcohol use. See Table 2 for frequencies of alcohol and marijuana use across NSE history groups.

**Table 2.** *Substance Use by NSE Category.*

NSE Category	Substance	
	Alcohol	Illicit Drug/Marijuana
Control (N = 118)	42.4%	5.9%
High School NSE Only (N = 21)	59.3%	18.5%
College NSE Only (N = 24)	62.5%	26.9%
Revictimization (N = 32)	73.1%	37.5%

### 3.2 Final Analyses

Pearson's  $r$  correlations (see Table 3) were conducted to assess for significant relationships between PCL-C scores, BIDR scores, and alcohol use, drug use, and alcohol- and drug-related consequences. Correlation analyses revealed that alcohol use ( $r = .15, p < .05$ ), drug use ( $r = .21, p < .01$ ), and alcohol- and drug- related consequences ( $r = .47, p < .001$ ) were significantly, positively correlated with PTSD symptoms. No significant relationships were observed between the BIDR's impression management scale and the dependent variables; however, significant, negative correlations were found between the self-deception scale and alcohol use ( $r = -.24, p < .001$ ), drug use ( $r = -.22, p < .01$ ), and alcohol- and drug-related consequences ( $r = -.29, p < .001$ ).



**Table 3.** *Correlations between Substance Variables, PCL-C, and BIDR Scores.*

	(1)	(2)	(3)	(4)	(5)
1. Alcohol Use	-				
2. Drug Use	.28**	-			
3. Substance Consequences	.43**	.46**	-		
4. PCL-C Scores	.15*	.21**	.47**	-	
5. BIDR Self Deception Scale Score	-.24**	-.22**	-.29**	-.21**	-
6. BIDR Impression Management Scale Score	-.05	-.14	-.15	-.31**	-.43**

*Note.* \*  $p < .05$ ; \*\*  $p < .01$

PCL-C and self-deception management scores were entered as covariates into a multivariate analysis of covariance (MANCOVA) model. The MANCOVA analysis was used to assess between-group differences across NSE history groups (control/high school NSE/college NSE/victimization) in alcohol use, drug use, and alcohol- and drug- related consequences. The model was significant in that NSE history significantly impacted alcohol use, drug use, and alcohol- and drug-related consequences when adjusting for PTSD symptoms and social desirability,  $\lambda = .87$ ,  $F(9, 455) = 2.95$ ,  $p < .01$ ,  $\eta^2 = .05$ . However, though the full model was significant, suggested hypotheses were only partially supported and/or counter to expectations. Follow-up individual ANCOVA analyses were conducted to assess relationships between the independent variable and each dependent variable. Least Significant Difference (LSD) post-hoc tests were then examined to identify significant pairwise comparisons. ANCOVA values, LSD values, means, and standard deviations for alcohol use, drug use, and consequences by NSE history can be found in Table 4.

**Table 4.** Means and Standard Deviations by NSE Category.

Substance	NSE Group			
	Control	High School NSE Only	College NSE Only	Revictimization
Alcohol	16.3 (3) <sup>A</sup>	25.8 (8) <sup>A</sup>	45.5 (10) <sup>B</sup>	45.6 (10) <sup>B</sup>
Drugs	0.9 (.4) <sup>A</sup>	1.9 (1) <sup>A</sup>	10 (4) <sup>B</sup>	6.8 (3) <sup>AB</sup>
Consequences	1.3 (.2) <sup>A</sup>	2.7 (.7) <sup>A</sup>	4.8 (1) <sup>AB</sup>	6.5 (2) <sup>B</sup>

*Note.* Subscripts indicate differences at  $p < .05$ .

**Hypothesis 1: Alcohol Use.** Alcohol use differed significantly across groups,  $F(3, 189) = 4.93, p < .01$ , when adjusting for PTSD symptoms and social desirability. Revictimized women ( $M = 45.65, SD = 9.78$ ) endorsed significantly more alcohol use than individuals without NSE history ( $M = 16.34, SD = 2.62, p < .01$ ) and those who reported having experienced an NSE in only high school ( $M = 25.87, SD = 7.50, p < .05$ ). There were no significant differences in alcohol consumption between revictimized women and women who reported experiencing an NSE in only college, ( $M = 45.54, SD = 9.94, p = .88$ ); however, revictimized women drank more overall. Thus, the first hypothesis was only partially supported by the data (see Figure 1).

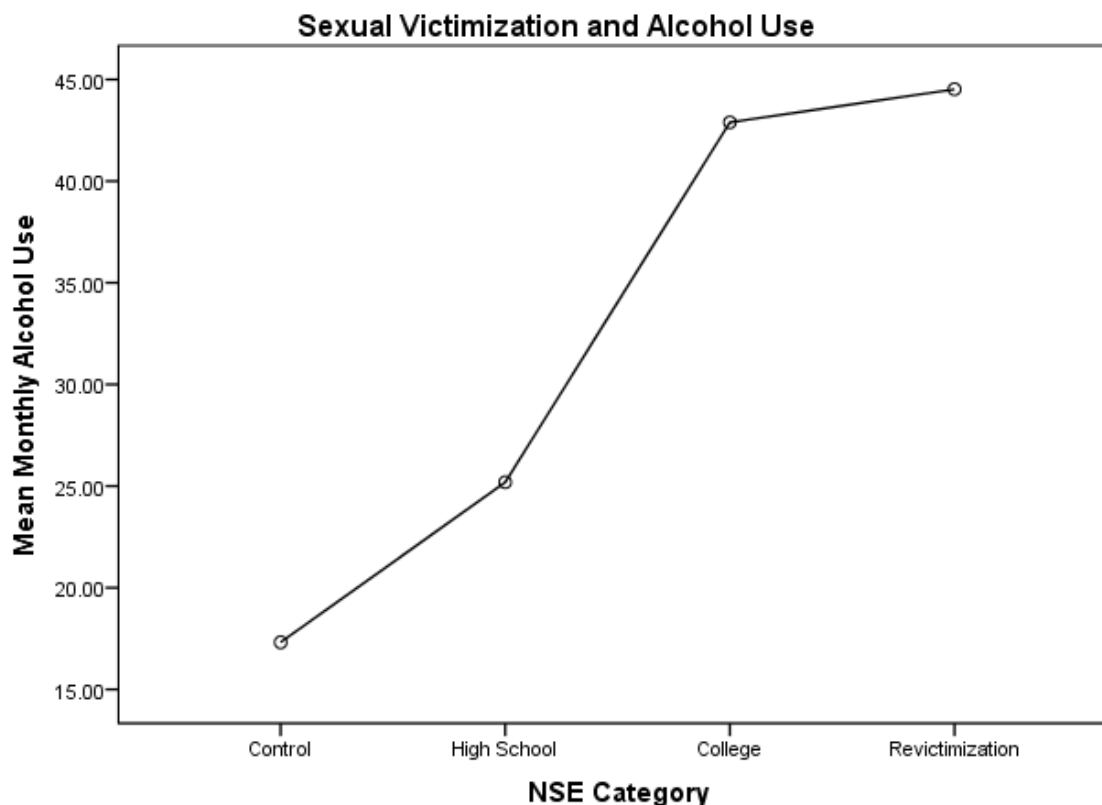


Figure 1. Average alcohol consumption across identified NSE categories.

**Hypothesis 2: Drug Use.** Marijuana use differed significantly across groups,  $F(3, 189) = 4.91, p < .01$ , when adjusting for the covariates. Women with only college NSEs ( $M = 9.23, SD = 1.88$ ) used significantly more marijuana than women without NSE history ( $M = 1.56, SD = .93, p < .001$ ) and women with an NSE in only high school ( $M = 1.29, SD = 1.84, p < .01$ ). Revictimized women and women with only college NSEs did not differ significantly ( $M = 5.22, SD = 2.14, p = .15$ ); however, women with only college NSEs used more marijuana overall. Thus, the second hypothesis was only partially supported by the data in that revictimized women used more marijuana than women in the control and NSE in only high school group, but not the NSE in only college group (see Figure 2).

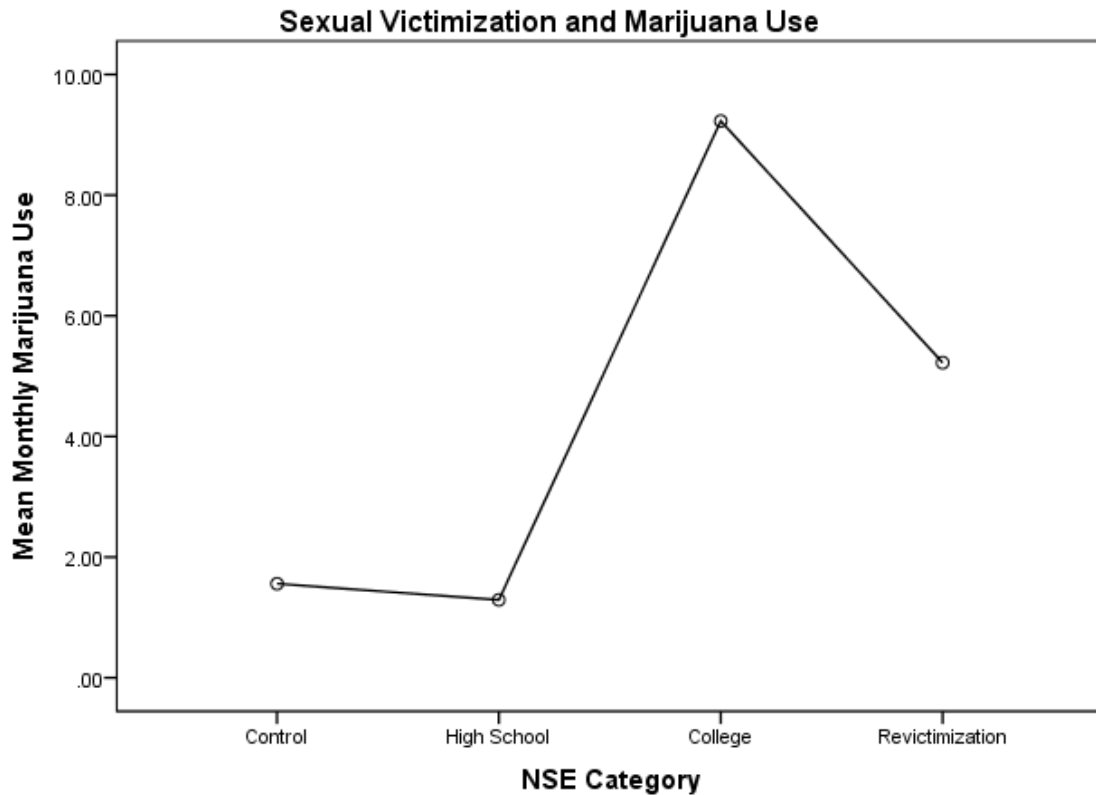
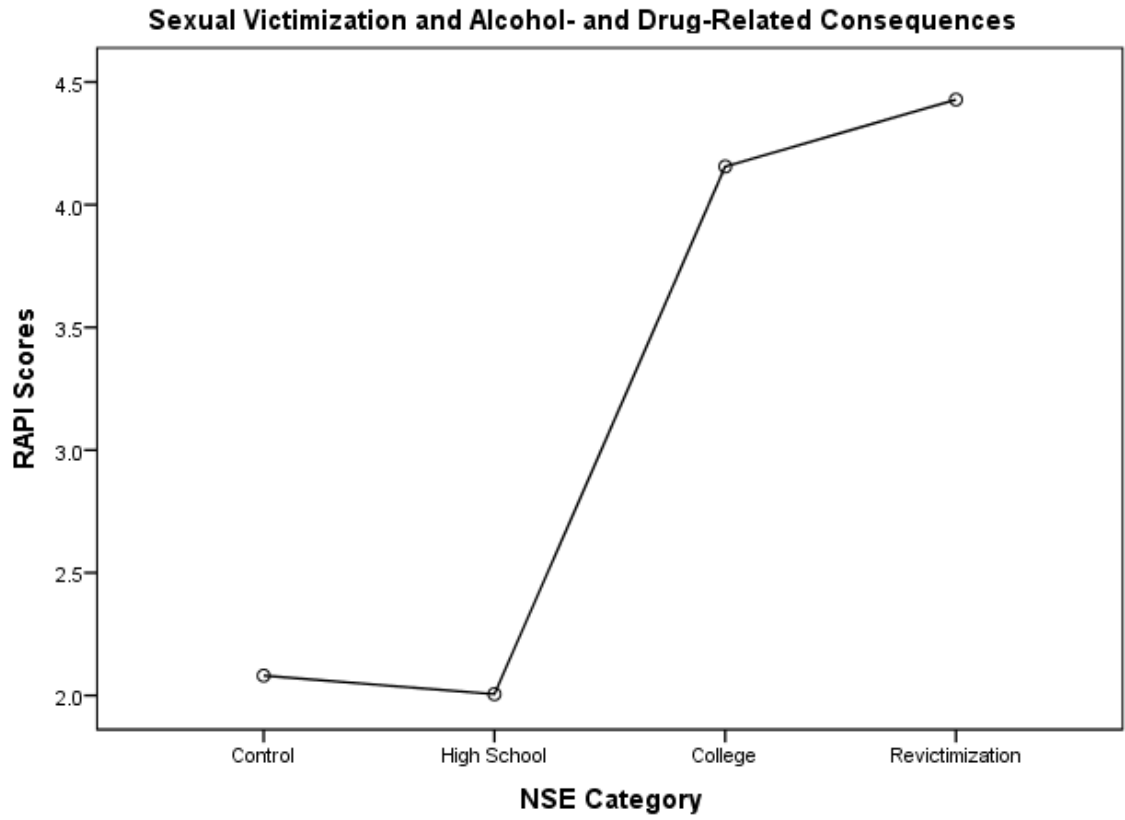


Figure 2. Average marijuana use across identified NSE categories.

**Hypothesis 3: Alcohol- and Drug-Related Consequences.** Alcohol- and drug-related consequences differed significantly across groups,  $F(3, 189) = 3.23, p < .05$ , when adjusting for covariates. As hypothesized, revictimized women ( $M = 4.43, SD = .90$ ) reported significantly more alcohol- and drug-related consequences than women without NSE history ( $M = 2.08, SD = .39, p < .05$ ) and women who reported having experienced an NSE in high school ( $M = 2.00, SD = .77, p < .05$ ). However, there were no significant differences in alcohol- and drug-related consequences between revictimized women and women who reported experiencing an NSE in college, ( $M = 4.16, SD = .79, p = .82$ ), though revictimized women experienced more consequences overall. Thus, the third hypothesis was only partially supported by the data (See Figure 3).



*Figure 3.* Average alcohol- and drug-related consequences across NSE categories.

## **Chapter 4: Discussion**

The aim of this study was to examine the impact of NSE history on alcohol use, illicit drug use, and alcohol- and drug-related consequences, while using an alternative definition of revictimization. To date, few studies have observed adolescent and/or high school victimization within the context of revictimization (Humphrey & White, 2000; Testa et al., 2010). However, given high school/adolescence is a time of transition, growth, and risk (Himelein et al., 1995; Krebs et al. 2009; Ross et al., 2010), examining this particular developmental period is crucial to understanding the elements that perpetuate victimization and subsequent substance use. In addition, this study was among the first to examine illicit drug use, in regard to sexual assault, especially in comparison to alcohol use. This study was also novel in that it sought to capture the full spectrum of sexual assault experiences defined as nonconsensual sexual experiences especially given that this construct has been sparingly used across the literature (Himelein et al., 1995; Peterson & Muehlenhard, 2011; Ross et al., 2010)

In accord with previous research, it was anticipated that revictimized women would report more alcohol use, drug use, and related consequences than women without NSE history and women with single NSE history (Humphrey & White, 2000; Najdowski & Ullman, 2001). However, though revictimized women endorsed more alcohol use, drug use, and related consequences than women in the control and high school NSE only groups, they were not significantly different across any of the dependent variables from women in the college NSE only group. Rather, these two groups were more similar than different. There are several possible explanations for these findings.

The transition to college has been well-documented as a particularly high-risk time for substance use (Barnett et al., 2013; Chiauzzi, DasMahapatra, & Black, 2013). Students tend to increase their drug and alcohol use within their first year of college and/or initiate alcohol and drug use (Chiauzzi et al., 2013); this is particularly relevant for this sample, as more than half of the participants were first year students ( $N = 109$ ). College women are especially vulnerable to initiating and/or increasing substance use in their first year. Though statistics have remained mostly stagnant for male college students, substance use, particularly binge drinking, among female college students has escalated steadily within the past 60 years (White & Hingson, 2013). Thus, it appears that, regardless of NSE occurrence, college women are using more substances than their same age, non-college peers. Differences were noted, however, as women with NSEs in college drank more, used more drugs, and suffered more consequences than college women without NSEs and those with NSEs in high school.

The college environment and youth substance use culture may play roles in increased substance use among college women. Research has found that campuses with mostly Caucasian students and limited minority group enrollment report the most alcohol consumption, binge drinking, and illicit drug use; Rowan University's demographics align with this finding, as the population is predominantly Caucasian. Additionally, students with access to cheap drink specials, off-campus drinking opportunities, and substance use experiences common to "college town" life tend to use substances with more frequency and in larger quantities (Chiauzzi et al., 2013; White & Hingson, 2013). A popular bar among Rowan University students is approximately between two to ten minutes walking distance, at most, from any point on campus. They regularly offer cheap

drink specials, “beer pong” tournaments, and sports-related drinking events to students. Anecdotally, Rowan University students have engaged in binge drinking at this bar, often with peer support and without consequence and/or intervention; a large percentage of students visit this bar regularly throughout their college careers at Rowan. Thus, access and availability appear to contribute significantly to substance use trends among college students.

Social acceptability also seems to influence substance use, especially among female college students (Barnett et al., 2013; Walsh et al., 2014). Individuals at the highest risk of initiating and/or increasing substance use appear to be those interested in “fitting in” and/or being accepted by peers. It has been well-documented in the literature that peer groups tend to influence substance use, especially in the college environment (Fromme et al., 2008). College students often gravitate toward individuals they perceive as similar to themselves and adapt to social norms within these groups accordingly. These peer dynamics are particularly relevant to substance use in that substance use frequently “spreads” among friends, as it is viewed as acceptable, normative, and necessary (Barnett et al., 2013). Again, this may be particularly relevant to the current sample, as it was comprised of mostly first year students. Social transition during this first year is a time of high stress for many students, particularly women, and may lend itself to involvement and adjustment to undesirable peer groups and social situations (White & Hingson, 2013). Anecdotally, first year female students at Rowan University have endorsed difficulty adjusting, often engaging with undesirable peer groups as a means of establishing peer relationships and avoiding loneliness. Female students have also endorsed substance use as a means of appearing socially proficient and “normal” and as a



means of maintaining peer group relationships, despite being disinterested in the activity; thus, interest in social acceptability appears to have influenced college women's substance use in this sample. In fact, many college students believe that the majority of their peers are using substances, which leads to increased substance use to "keep up," "fit in," and/or be perceived as socially competent. This may also account for increases in substance use between high school and college. However, approximately 25-30% of students do not drink upon entering college and 85% do not use illicit drugs (Elliot, Carey, & Vanable, 2014; Parks et al., 2008). Therefore, it could be argued that women entering college and women in college are at the greatest risk of initiating and/or increasing substance use due to accessibility, availability, peer influences, and beliefs of social acceptability.

Substance use, peer-influenced behavior, social transition, and accessibility support the existence of a "red zone" – a period of time during a woman's first year of college during which she is especially vulnerable to sexual assault (Kimble, Neacsiu, Flack, & Horner, 2008). In particular, a commonly reported consequence of increased alcohol consumption and illicit drug use is experiencing an NSE (Parks et al., 2008; Testa et al., 2007). As aforementioned, alcohol and illicit drugs compromise an individual's ability to adequately assess a dangerous situation and make accordant decisions (Messman-Moore et al., 2013; Najdowski & Ullman, 2011; Testa et al., 2010). Additionally, substance use increases the likelihood of risky sex occurring, which could potentially escalate to assault due to delayed risk cue recognition and/or incapacitation by the victim (Bersamin et al., 2014; Peterson & Muehlenhard, 2011; Walsh et al., 2014). Thus, pre-NSE substance use may play a significant role in perpetuating and/or causing

NSEs to occur. In this sample, in particular, women who experienced an NSE in college may have been engaging in high rates of substance use prior to their NSE, thus increasing their vulnerability and risk. Pre-NSE substance use may also be implicated in post-NSE substance use in that individuals using substances regularly pre-NSE may continue to use and/or increase their use post-NSE. Substance use may persist as it is familiar, socially acceptable and relevant, and already integral to their coping repertoires. Thus, women drinking and using drugs heavily prior to their NSE in this sample may have continued to use at high rates and/or increased their use post-NSE. This may explain the lack of differences observed between the college NSE group and revictimized group in this sample.

Given the cross-sectional nature of the present study, pre-NSE substance use was not assessed; this could be remedied by implementation of a longitudinal design. Longitudinal data would also prevent complications inherent to retrospective data often used in cross-sectional designs. Again, pre-NSE substance use is of particular importance when examining NSEs and revictimization, as it has been identified as a notable risk factor. Additionally, examination of pre-NSE substance use and accordant post-NSE substance use may provide key insights about the alleged reciprocal relationship between NSEs and substance use and potentially resolve disputes regarding directionality. It may also offer further support for the alternative definition of revictimization hypothesized in this study, as high school/adolescent victimization is not often investigated when examining traditional revictimization pathways.

Future research aiming to utilize a longitudinal design should examine high school and college substance use at multiple time periods. Individuals using substances

and engaging in risky behaviors in high school are often at the highest risk of experiencing an NSE, continuing to use substances and engage in risky behaviors post-NSE and/or in college, and experience negative alcohol- and drug-related consequences, such as revictimization (Fromme et al., 2008; Himelein et al., 1995; Testa et al., 2010). Early intervention may be especially important; identification of high school students using substances and/or engaging in significant risk-taking behaviors may allow for NSE prevention, implementation of more appropriate coping strategies, and moderation of substance use. Additionally, identifying individuals having already experienced an NSE may allow for interventions aimed at preventing revictimization and maladaptive coping behaviors post-NSE. Assessing substance use at multiple time periods along the high school-collegiate pathway may afford researchers opportunities for notable prevention methods, education, and post-NSE treatment intervention.

There are several other possible explanations for similarities between the revictimized and college NSE only groups worth noting. Again, pre-NSE substance use was not assessed and/or controlled for in this study; thus, this element may have served as a confounding factor. Time since assault might have also played a significant role and could potentially explain similarities between the revictimization and college NSE groups. The amount of time since an NSE is directly linked to level of substance use (McCauley, Kilpatrick, Walsh, Resnick, 2013); consequences may have been reflective of temporal loading, such that recency of assault provokes maladaptive coping. Thus, individuals in both groups may have reported similar quantities of substance use due to close proximity of the NSE. However, though first year students accounted for the majority of the sample, not all participants experienced their NSE within the last year,

which would not support this explanation. This should be more closely examined in future studies and controlled for accordingly.

Conversely, time since assault might also account for significant differences observed between the two single NSE history groups. Research has established that both adolescent and collegiate victimization are associated with increased alcohol and illicit drug use (Champion et al., 2004; Testa et al., 2010); thus, it was anticipated that the two groups would not differ significantly. However, the opposite was observed, as women in the high school NSE only group used significantly less alcohol and illicit drugs than women in the college NSE only group, and reported significantly fewer related consequences. Given time since assault is a relevant factor to post-NSE substance use (McCauley et al., 2013), it may account for the significant differences observed; that is, women in the high school NSE group may have reported less substance use and consequences due to more time between their NSE experience and the study than women in the college NSE group. Moreover, women in the high school NSE group may have received psychological treatment prior to entering college and/or post-NSE, accounting for trauma reconciliation, decreased substance use, and positive adjustment to college.

Treatment history was not controlled for in this project, as approximately 75% of the sample reported never receiving psychological treatment (e.g., individual counseling with a psychologist, social worker, etc.) However, the treatment received by 25% of the sample might explain the observed significant differences between the single NSE groups; that is, women in the high school only NSE group may have received psychological treatment post-NSE due to time between the NSE and the start of college, whereas women in the college NSE only group might not have been afforded a similar

opportunity post-NSE. Though college women are often targeted in sexual assault and substance-related prevention programs, psychological treatment, which occurs post-NSE, has a notably different impact than these efforts that should be mentioned. Women in both groups may have attended prevention efforts held on campus; however, research has not found these efforts to be as effective as desired and/or anticipated (Parks et al., 2008a). Additionally, prevention efforts aimed toward victimization, in particular, do not necessarily deter NSEs from occurring, regardless of positive responses (Parks et al., 2008b). Alternatively, psychological treatment, especially empirically validated treatments, have been found to be effective in prompting trauma reconciliation, empowering victims, implementing adaptive coping skills, and reducing maladaptive post-trauma responses, such as alcohol and drug use (Dixon et al., 2009). Thus, though women in the college NSE only group may have attended and/or responded to campus-organized prevention programs, it may not have been enough to prevent post-NSE maladaptive behaviors; conversely, women in the high school only NSE group, regardless of prevention program attendance, could have been influenced by pre-college psychological treatment that allowed for them to employ healthier coping strategies. It would be crucial, then, for treatment to be examined in future studies, as it may illuminate individuals at greatest risk of revictimization and identify protective factors and appropriate interventions. Future studies should also adjust for treatment history, as failing to do so may falsely inflate alcohol use, drug use, and related consequences. It would also be useful to adjust for prevention efforts; however, lack of uniformity in content, delivery, and response, especially in comparison to empirically validated treatments, may preclude their involvement.

The present study aimed to fill the noticeable illicit drugs gap that exists in the sexual assault literature; however, marijuana was the only drug identified as being used by participants in this study. Marijuana is the most frequently used drug among college students after alcohol (Chiauzzi et al., 2013; Fromme et al., 2008), with 13-15% of college students reporting past month use, 25-32% reporting past year use, and 30-36% reporting having attempted use at some point in their lives (Johnston et al., 2005; Johnston et al., 2012; O'Malley & Johnston, 2002). Data for this study were consistent with these findings, albeit slightly higher than anticipated, in that 18% reported past month use. Additionally, marijuana use is the type of drug use most often initiated within the first year of college. College students between the ages of 18-21 use marijuana at higher rates than 18-21 year olds not enrolled in college. Increased independence, accessibility and availability, and peer influences and pressure appear to be linked to marijuana use initiation and/or increase (Elliot et al., 2014; Johnston et al., 2012). Again, as the sample was predominantly comprised of first year students, high rates of marijuana use, especially in comparison to same age, non-college peers, are congruent with previous research.

Furthermore, the drug assessment measure utilized in this study did not allow for selection of multiple drug categories. Participants were asked to identify the drug they used with the most frequency; thus, the full range of their illicit drug use may not have been accounted for. As marijuana is the drug most often used and reported by college students, this may explain why it was the only illicit drug endorsed by participants. Hallucinogens, opioids, and stimulants are also endorsed among college students; however, they are often used more sparingly than marijuana and/or alcohol (Johnston et

al, 2012). Nonmedical use of prescription medications has also risen substantially within the last few decades among college students; however, it appears use of prescription medications is somewhat stigmatized and viewed as more “frightening” and/or “unappealing” than use of other drugs (Fromme et al., 2008; Johnston et al., 2012; O’Malley & Johnston, 2002). This may support endorsement of only marijuana by participants, as it is viewed as a more socially acceptable, fairly innocuous drug. Additionally, its current decriminalized status in the U. S. has decreased fear of reporting due to potential legal consequences; other drug categories (e.g., hallucinogens, opioids, stimulants) do not share this status and most remain illegal throughout the country (Chiauzzi et al., 2013; Elliot et al., 2014). Future studies should utilize either a modified version of the DDTQ or an alternative drug assessment measure that allows for identification of all illicit drugs used by participants. This would continue to fill the observable illicit drug use gap in the sexual assault literature.

Although several limitations have already been identified, others should be noted. The participants were part of a college convenience sample and the racial/ethnic and sexual orientations observed were in accordance with the University’s demographics. However, these demographics are not necessarily representative of the racial/ethnicities and sexual orientations observed in the larger body of sexual assault literature, as it asserts that women at the highest risk of experiencing NSEs are bisexual and American Indian/Alaskan and/or multiracial, respectively (Long, Ullman, Long, Mason, & Starzynski, 2007). Given the sample was predominantly Caucasian and heterosexual, differences might not have been accounted for by this sample.

In addition, risk by type of assault has been found to differ across races/ethnicities and sexual orientations. African American women appear to be at the highest risk of experiencing physically forced sexual assault while Caucasian women appear to be at the highest risk of experiencing sexual assault while under the influence of alcohol and/or drugs (Mohler-Kuo, Dowdall, Koss, & Wechsler, 2004). Lesbian and bisexual women, too, tend to experience more physically forced assault than heterosexual women, while bisexual women, overall, have been found to be at the highest risk of experiencing completed rape (Long et al., 2007). Without a random sample and/or a larger percentage of each race/ethnicity and sexual orientation represented, it is impossible to say whether the present sample is demonstrative of the larger population. Future studies should seek to examine more diverse samples, with a focus upon identifying assault types common to certain groups. This may provide necessary insight about groups at particular risk of experiencing sexual assault and certain types of assault. These samples may be more readily available through recruitment at rape crisis centers and/or community health centers.

Despite the acknowledged limitations, this study is a unique contribution to the sexual assault literature with significant implications. This study is among the first to have highlighted several elements often overlooked in the research, specifically the NSE construct, illicit drug use, and high school-collegiate revictimization. Examination of these components in greater depth is essential to achieving a better understanding of what may place an individual at increased risk of experiencing an NSE and engaging in substance use. However, this study provided a beginning foundation for future studies aimed toward continuing to fill these observable literature gaps. Further investigation of



the substance-NSE relationship and the potential reciprocal connection between them should be of considerable interest, as it may provide important insights that may inform future educational and/or systemic approaches and treatment methods. Early interventions in high school and the first year of college may prevent the occurrence of revictimization, allow for implementation of adaptive coping methods, and prompt trauma reconciliation; thus, educational advances, prevention efforts, systemic interventions, and therapeutic approaches should target these populations for maximum impact.

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## Appendix A

### Demographics

How old are you?

Please indicate the response that corresponds to your race/ethnicity:

Caucasian/Non-Hispanic

African American/Black

Hispanic/Latina

Native American

Asian/Pacific Islander

Other (please specify)

Are you a part-time or full-time student?

Yes

No

If you answered “yes” to the previous question, what is your academic rank?

Freshman/First year

Sophomore

Junior

Senior

Graduate student

Please select the choice below that best describes your sexual orientation:

Exclusively heterosexual

Equally heterosexual and homosexual

Exclusively homosexual

Have you ever been in treatment (e.g., counseling) for a psychological issue before?

Yes

No

Appendix B  
SES

1. Have you ever been fondled, kissed, or touched sexually when you didn't want to because you were overwhelmed by a man's continual arguments and pressure?

Yes

No

If you answered "yes" to the previous question, when did the experience occur?

Never

Between the ages of 14 and 17

From ages 18+

Both between 14 and 17 and from ages 18+

Please select the statement that best describes your relationship to the person who committed the action:

I did not know the person at all

I knew the person by association, but we were not close friends

I knew the person because we were friends

I knew the person because we had dated previously, but did not have sexual contact

I knew the person because we had dated previously, and had a prior sexual relationship

I knew the person because we had previously be in a long term relationship (i.e., over a year)

I know the person because we are currently in a long term relationship (i.e., over a year)

Other (please specify)

If you ingested alcohol and/or drugs prior to the event, please select the statement that best describes how you felt at the time of the experience:

I had ingested no alcohol and/or drugs

I was slightly intoxicated

I was moderately intoxicated

I was extremely intoxicated

Please specify the substances used:

2. Have you ever been fondled, kissed, or touched inappropriately when you didn't want to because a man used his position of authority (boss, teacher, camp counselor, supervisor) to make you?

Yes

No

If you answered "yes" to the previous question, when did the experience occur?

Never

Between the ages of 14 and 17

From ages 18+  
Both between 14 and 17 and from ages 18+

Please select the statement that best describes your relationship to the person who committed the action:

- I did not know the person at all
- I knew the person by association, but we were not close friends
- I knew the person because we were friends
- I knew the person because we had dated previously, but did not have sexual contact
- I knew the person because we had dated previously, and had a prior sexual relationship
- I knew the person because we had previously be in a long term relationship (i.e., over a year)
- I know the person because we are currently in a long term relationship (i.e., over a year)
- Other (please specify)

If you ingested alcohol and/or drugs prior to the event, please select the statement that best describes how you felt at the time of the experience:

- I had ingested no alcohol and/or drugs
- I was slightly intoxicated
- I was moderately intoxicated
- I was extremely intoxicated
- Please specify the substances used:

3. Have you ever been fondled, kissed, or touched sexually when you didn't want to be because a man threatened or used some degree of physical force (twisting your arm, holding you down, etc.) to make you?
- Yes
  - No

If you answered "yes" to the previous question, when did the experience occur?

- Never
- Between the ages of 14 and 17
- From ages 18+
- Both between 14 and 17 and from ages 18+

Please select the statement that best describes your relationship to the person who committed the action:

- I did not know the person at all
- I knew the person by association, but we were not close friends
- I knew the person because we were friends
- I knew the person because we had dated previously, but did not have sexual contact

I knew the person because we had dated previously, and had a prior sexual relationship

I knew the person because we had previously be in a long term relationship (i.e., over a year)

I know the person because we are currently in a long term relationship (i.e., over a year)

Other (please specify)

If you ingested alcohol and/or drugs prior to the event, please select the statement that best describes how you felt at the time of the experience:

I had ingested no alcohol and/or drugs

I was slightly intoxicated

I was moderately intoxicated

I was extremely intoxicated

Please specify the substances used:

4. Have you ever given into sexual intercourse when you didn't want to because you were overwhelmed by a man's continual arguments and pressure?

Yes

No

If you answered "yes" to the previous question, when did the experience occur?

Never

Between the ages of 14 and 17

From ages 18+

Both between 14 and 17 and from ages 18+

Please select the statement that best describes your relationship to the person who committed the action:

I did not know the person at all

I knew the person by association, but we were not close friends

I knew the person because we were friends

I knew the person because we had dated previously, but did not have sexual contact

I knew the person because we had dated previously, and had a prior sexual relationship

I knew the person because we had previously be in a long term relationship (i.e., over a year)

I know the person because we are currently in a long term relationship (i.e., over a year)

Other (please specify)

If you ingested alcohol and/or drugs prior to the event, please select the statement that best describes how you felt at the time of the experience:

I had ingested no alcohol and/or drugs

I was slightly intoxicated

I was moderately intoxicated  
I was extremely intoxicated  
Please specify the substances used:

5. Have you ever had sexual intercourse when you didn't want to because a man used his position of authority (boss, teacher, camp counselor, supervisor) to make you?  
Yes  
No

If you answered "yes" to the previous question, when did the experience occur?

Never  
Between the ages of 14 and 17  
From ages 18+  
Both between 14 and 17 and from ages 18+

Please select the statement that best describes your relationship to the person who committed the action:

I did not know the person at all  
I knew the person by association, but we were not close friends  
I knew the person because we were friends  
I knew the person because we had dated previously, but did not have sexual contact  
I knew the person because we had dated previously, and had a prior sexual relationship  
I knew the person because we had previously be in a long term relationship (i.e., over a year)  
I know the person because we are currently in a long term relationship (i.e., over a year)  
Other (please specify)

If you ingested alcohol and/or drugs prior to the event, please select the statement that best describes how you felt at the time of the experience:

I had ingested no alcohol and/or drugs  
I was slightly intoxicated  
I was moderately intoxicated  
I was extremely intoxicated  
Please specify the substances used:

6. Have you had a man attempt to insert his penis (but intercourse did not occur) when you didn't want him to by threatening or using some degree of physical force (twisting your arm, holding you down, etc.)?  
Yes  
No

If you answered "yes" to the previous question, when did the experience occur?

- Never
- Between the ages of 14 and 17
- From ages 18+
- Both between 14 and 17 and from ages 18+

Please select the statement that best describes your relationship to the person who committed the action:

- I did not know the person at all
- I knew the person by association, but we were not close friends
- I knew the person because we were friends
- I knew the person because we had dated previously, but did not have sexual contact
- I knew the person because we had dated previously, and had a prior sexual relationship
- I knew the person because we had previously be in a long term relationship (i.e., over a year)
- I know the person because we are currently in a long term relationship (i.e., over a year)
- Other (please specify)

If you ingested alcohol and/or drugs prior to the event, please select the statement that best describes how you felt at the time of the experience:

- I had ingested no alcohol and/or drugs
- I was slightly intoxicated
- I was moderately intoxicated
- I was extremely intoxicated
- Please specify the substances used:

7. Have you had sexual intercourse when you didn't want to because a man threatened or used some degree of physical force (twisting your arm, holding you down, etc.) to make you?

If you answered "yes" to the previous question, when did the experience occur?

- Never
- Between the ages of 14 and 17
- From ages 18+
- Both between 14 and 17 and from ages 18+

Please select the statement that best describes your relationship to the person who committed the action:

- I did not know the person at all
- I knew the person by association, but we were not close friends
- I knew the person because we were friends
- I knew the person because we had dated previously, but did not have sexual contact

I knew the person because we had dated previously, and had a prior sexual relationship

I knew the person because we had previously be in a long term relationship (i.e., over a year)

I know the person because we are currently in a long term relationship (i.e., over a year)

Other (please specify)

If you ingested alcohol and/or drugs prior to the event, please select the statement that best describes how you felt at the time of the experience:

I had ingested no alcohol and/or drugs

I was slightly intoxicated

I was moderately intoxicated

I was extremely intoxicated

Please specify the substances used:

8. Have you had sex acts (anal or oral intercourse or penetration by objects other than the penis) when you didn't want to because a man threatened or used some degree of physical force (twisting your arm, holding you down, etc.) to make you?

Yes

No

If you answered "yes" to the previous question, when did the experience occur?

Never

Between the ages of 14 and 17

From ages 18+

Both between 14 and 17 and from ages 18+

Please select the statement that best describes your relationship to the person who committed the action:

I did not know the person at all

I knew the person by association, but we were not close friends

I knew the person because we were friends

I knew the person because we had dated previously, but did not have sexual contact

I knew the person because we had dated previously, and had a prior sexual relationship

I knew the person because we had previously be in a long term relationship (i.e., over a year)

I know the person because we are currently in a long term relationship (i.e., over a year)

Other (please specify)

If you ingested alcohol and/or drugs prior to the event, please select the statement that best describes how you felt at the time of the experience:

I had ingested no alcohol and/or drugs



I was slightly intoxicated

I was moderately intoxicated

I was extremely intoxicated

Please specify the substances used:

9. Before the age of 14, were you ever forced by an adult to engage in sexual acts (i.e., kissing, fondling, oral sex, intercourse) when you didn't want to?

Yes

No

Appendix C  
PCL-C

**Instructions:** Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. **Pease keep in mind your responses from the previous questionnaire as you answer the following statements.** Read each one carefully, then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past year.

	Not at all	A little bit	Moderately	Quite a bit	Extremely
1) Repeated, disturbing memories, thoughts, or images of a stressful experience from the past?	1	2	3	4	5
2) Repeated, disturbing dreams of a stressful experience from the past?	1	2	3	4	5
3) Suddenly acting or feeling as if a stressful experience were happening again (as if you were reliving it)?	1	2	3	4	5
4) Feeling very upset when something reminded you of a stressful experience from the past?	1	2	3	4	5
5) Having physical reactions (e.g., heart pounding, trouble breathing, sweating) when something reminded you of a stressful experience from the past?	1	2	3	4	5
6) Avoiding thinking about or talking about a stressful experience from the past or avoiding having feelings related to it?	1	2	3	4	5
7) Avoiding activities or situations because they reminded you of a stressful experience from the past?	1	2	3	4	5
8) Trouble remembering important parts of a stressful experience from the past?	1	2	3	4	5
9) Loss of interest in activities that you used to enjoy?	1	2	3	4	5
10) Feeling distant or cut off from other people?	1	2	3	4	5
11) Feeling emotionally numb or being unable to have loving feelings for those close to you?	1	2	3	4	5
12) Feeling as if your future will somehow be cut short?	1	2	3	4	5

13) Trouble falling or staying asleep?	1	2	3	4	5
14) Feeling irritable or having angry outbursts?	1	2	3	4	5
15) Having difficulty concentrating?	1	2	3	4	5
16) Being super-alert or watchful or on guard?	1	2	3	4	5
17) Feeling jumpy or easily startled?	1	2	3	4	5

Appendix D  
**DDQ-R**

Think of a **TYPICAL WEEK** in the **LAST 30 DAYS**. (Where did you live? What were your regular weekly activities? Where you working or going to school?)

Try to remember, as accurately as you can, how much and for how long you **TYPICALLY** drank in a week during that **30 DAY period**.

**PLEASE NOTE:**

- One Standard Drink = 12 ounces of beer (5% alcohol)
- = two 8 ounce glass of draft
- = one pint of draft
- = 1.5 ounces liquor
- = 5 ounces table wine
- = 3.5 ounces port sherry

**Beer**

- 1 pint (17 oz / 500 ml) = 1.5 standard drinks
- 1 large can (25 oz / 750 ml) = 2 standard drinks
- 1 king can (32 oz / 950 ml) = 2.7 standard drinks

**Wine**

- 1 bottle (25 oz / 750 ml) = 5 standard drinks
- 1 bottle (40 oz / 1.41 l) = 8 standard drinks

**Hard Liquor / Spirits**

- 1 mickey (12 oz / 355 ml) = 8 standard drinks
- 1 bottle (25 oz / 750 ml) = 17 standard drinks
- 1 bottle (40 oz / 1.14 l) = 27 standard drinks

For each day of the week, fill in the number of standard drinks **TYPICALLY** consumed on that day [in the first set of boxes] and the **TYPICAL** number of hours you drank that day [in the second set of boxes].

Number of drinks (Please enter a number between 0 and 100):

- Monday: \_\_\_\_\_
- Tuesday: \_\_\_\_\_
- Wednesday: \_\_\_\_\_
- Thursday: \_\_\_\_\_
- Friday: \_\_\_\_\_
- Saturday: \_\_\_\_\_
- Sunday: \_\_\_\_\_

Number of hours drinking (Please enter a number between 0 and 100):

- Monday: \_\_\_\_\_
- Tuesday: \_\_\_\_\_

Wednesday: \_\_\_\_\_  
Thursday: \_\_\_\_\_  
Friday: \_\_\_\_\_  
Saturday: \_\_\_\_\_  
Sunday: \_\_\_\_\_

Appendix E  
DDTQ

Try to remember, as accurately as you can, which drug you used the **MOST** frequently in the **LAST 30 DAYS**. Select your response from the drop down list.

- I don't use drugs
- Marijuana/Cannabis
- Heroin
- "Powder" Cocaine
- "Crack" Cocaine
- Amphetamines (Speed)
- Methamphetamines (Meth)
- Ecstasy/Club Drugs
- Hallucinogens (e.g., LSD, Mushrooms, Acid)
- Inhalants
- Sedatives/Tranquilizers (e.g., Ketamine)
- Prescription Drugs (e.g., Xanax, Oxycontin)
- Others (Please Specify)

Try to remember, as accurately as you can, on which days of the week and for how long, you used the drug you selected above.

Enter the total amount of the selected drug you used during a **TYPICAL WEEK** in the **LAST 30 DAYS** on each day you used and/or were intoxicated. Please try to be as accurate as possible.

For example, if you indicated marijuana, use the following conversion:

marijuana (pot) 1 ounce = 30 joints

1 gram = 1 joint.

If you indicated pills, identify the number of pills taken.

If possible, use grams and milligrams to provide the most exact information.

Monday: \_\_\_\_\_

Tuesday: \_\_\_\_\_

Wednesday: \_\_\_\_\_

Thursday: \_\_\_\_\_

Friday: \_\_\_\_\_

Saturday: \_\_\_\_\_

Sunday: \_\_\_\_\_

Enter the number of hours you used that drug and/or were intoxicated during a **TYPICAL WEEK** during the **LAST 30 DAYS**.

Monday: \_\_\_\_\_

Tuesday: \_\_\_\_\_

Wednesday: \_\_\_\_\_

Thursday: \_\_\_\_\_

Friday: \_\_\_\_\_

Saturday: \_\_\_\_\_

Sunday: \_\_\_\_\_

Appendix F  
**RAPI (18-item version)**

Different things happen to people while they are drinking ALCOHOL or doing DRUGS or because of their ALCOHOL drinking or DRUG use. Several of these things are listed below. Indicate how many times each of these things happened to you **WITHIN THE LAST 6 MONTHS.**

Use the following code:

0 = None

1 = 1-2 times

2 = 3-5 times

3 = More than 5 times

**HOW MANY TIMES HAS THIS HAPPENED TO YOU WHILE YOU WERE DRINKING OR DOING DRUGS OR BECAUSE OF YOUR DRINKING OR DRUG USE DURING THE LAST SIX MONTHS?**

0 1 2 3 Not able to do your homework or study for a test

0 1 2 3 Got into fights with other people (friends, relatives, strangers)

0 1 2 3 Missed out on other things because you spent too much money on alcohol or drugs

0 1 2 3 Went to work or school high or drunk

0 1 2 3 Caused shame or embarrassment to someone

0 1 2 3 Neglected your responsibilities

0 1 2 3 Friends or relatives avoided you

0 1 2 3 Felt that you needed more alcohol or drugs than you used to in order to get the same effect

0 1 2 3 Tried to control your drinking or drug use (tried to drink/use drugs only at certain times of the day or in certain places, that is, tried to change your pattern of drinking/drug use)

0 1 2 3 Had withdrawal symptoms, that is, felt sick because you stopped or cut down on drinking/drug use

0 1 2 3 Noticed a change in your personality

0 1 2 3 Felt that you had a problem with alcohol or drugs

0 1 2 3 Missed a day (or part of a day) of school or work

0 1 2 3 Suddenly found yourself in a place that you could not remember getting to

0 1 2 3 Passed out or fainted suddenly

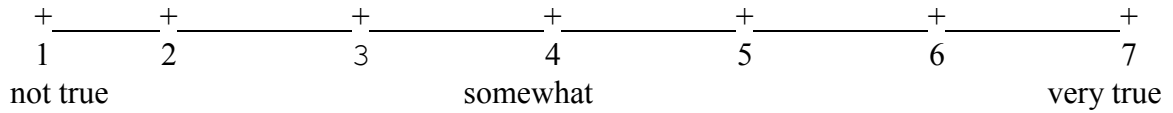
0 1 2 3 Kept drinking or using drugs when you promised yourself not to

0 1 2 3 Felt physically or psychologically dependent on alcohol or drugs

0 1 2 3 Was told by a friend, neighbor or relative to stop or cut down drinking or drug use

Appendix G  
**BIDR**

Using the scale below as a guide, write a number beside each statement to indicate how true it is.



- \_\_\_ 1. My first impressions of people usually turn out to be right.
- \_\_\_ 2. It would be hard for me to break any of my bad habits.
- \_\_\_ 3. I don't care to know what other people really think of me.
- \_\_\_ 4. I have not always been honest with myself.
- \_\_\_ 5. I always know why I like things.
- \_\_\_ 6. When my emotions are aroused, it biases my thinking.
- \_\_\_ 7. Once I've made up my mind, other people can seldom change my opinion.
- \_\_\_ 8. I am not a safe driver when I exceed the speed limit.
- \_\_\_ 9. I am fully in control of my own fate.
- \_\_\_ 10. It's hard for me to shut off a disturbing thought.
- \_\_\_ 11. I never regret my decisions.
- \_\_\_ 12. I sometimes lose out on things because I can't make up my mind soon enough.
- \_\_\_ 13. The reason I vote is because my vote can make a difference.
- \_\_\_ 14. My parents were not always fair when they punished me.
- \_\_\_ 15. I am a completely rational person.
- \_\_\_ 16. I rarely appreciate criticism.
- \_\_\_ 17. I am very confident of my judgments
- \_\_\_ 18. I have sometimes doubted my ability as a lover.



- \_\_\_ 19. It's all right with me if some people happen to dislike me.
- \_\_\_ 20. I don't always know the reasons why I do the things I do.
- \_\_\_ 21. I sometimes tell lies if I have to.
- \_\_\_ 22. I never cover up my mistakes.
- \_\_\_ 23. There have been occasions when I have taken advantage of someone.
- \_\_\_ 24. I never swear.
- \_\_\_ 25. I sometimes try to get even rather than forgive and forget.
- \_\_\_ 26. I always obey laws, even if I'm unlikely to get caught.
- \_\_\_ 27. I have said something bad about a friend behind his/her back.
- \_\_\_ 28. When I hear people talking privately, I avoid listening.
- \_\_\_ 29. I have received too much change from a salesperson without telling him or her.
- \_\_\_ 30. I always declare everything at customs.
- \_\_\_ 31. When I was young I sometimes stole things.
- \_\_\_ 32. I have never dropped litter on the street.
- \_\_\_ 33. I sometimes drive faster than the speed limit.
- \_\_\_ 34. I never read sexy books or magazines.
- \_\_\_ 35. I have done things that I don't tell other people about.
- \_\_\_ 36. I never take things that don't belong to me.
- \_\_\_ 37. I have taken sick-leave from work or school even though I wasn't really sick.
- \_\_\_ 38. I have never damaged a library book or store merchandise without reporting it.
- \_\_\_ 39. I have some pretty awful habits.
- \_\_\_ 40. I don't gossip about other people's business.