

Social Anxiety as a Risk Factor of Sexual Victimization in College Women

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ABSTRACT

Sexual victimization is a significant problem on college and university campuses, and it is important to evaluate risk factors for sexual victimization in order to attempt to reduce women's risk of victimization. This study investigated social interaction anxiety as a risk factor for sexual victimization. It was hypothesized that social interaction anxiety may increase risk of sexual victimization by decreasing sexual assertiveness and increasing alcohol-related problems. College women ($n = 690$) completed an online survey that assessed social interaction anxiety, sexual assertiveness, alcohol-related problems, and a variety of types of sexual victimization, in addition to other measures. When total effects were examined, social interaction anxiety only significantly predicted victimization by coercion. However, when indirect effects of sexual assertiveness were examined, social interaction anxiety had a significant effect on all types of sexual victimization (i.e., unwanted sexual contact, attempted coercion, coercion, attempted rape, and rape). Alcohol-related problems did not significantly account for the relationship between social interaction anxiety and sexual victimization. It is recommended that interventions designed to reduce women's risk of victimization include interventions designed to address both social interaction anxiety and sexual refusal assertiveness.

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1.0 – Introduction

Sexual victimization is prevalent among college women. In a typical academic quarter (i.e., 8 to 10 weeks), 16.7 to 19% of college women are sexually victimized (Gidycz, Coble, Latham, & Layman, 1993; Gidycz, Hanson, & Layman, 1995; Gidycz et al., 2007), with approximately 7 to 8% of women reporting being the victim of rape or attempted rape during this time (Gidycz et al., 1993; Gidycz et al., 2007). Over the course of four years of college, nearly 70% of women report some type of sexual victimization occurring at least once, with one-year prevalence rates of rape ranging from 3.9% to 6.4% (Humphrey & White, 2000). In a recent study of college women, 12-month prevalence of unwanted sexual contact, attempted coercion, coercion, attempted rape, and completed rape were 29.9%, 15.7%, 11.5%, 13.5%, and 13.3%, respectively (Schry & White, 2009).

There are many types of sexual victimization, with a fair degree of consistency in operational definitions within the scientific literature. Unwanted sexual contact is often defined as touching private parts of the victim's body or removing the victim's clothing without her consent (Koss et al., 2007). Coercion refers to sexual intercourse (oral, vaginal, or anal sex) obtained without the consent of the victim when the perpetrator used verbal persuasion, including lies, threats of ending the relationship, threats of spreading rumors, and criticizing the victim, but does not include threat of physical harm (Koss et al., 2007). Rape refers to sexual intercourse obtained without the consent of the victim, when the victim was too intoxicated to consent, or the other person used physical force or threats of physical violence toward the victim or her loved ones (Koss et al., 2007). Attempted coercion and attempted rape refer to situations in which the perpetrator attempted to obtain, but was not successful in obtaining, sexual intercourse using the techniques included in coercion and rape, respectively (Koss et al., 2007).

Women who have been sexually victimized report higher levels of psychological distress, symptoms of anxiety and depression (Gidycz et al., 1993), as well as higher rates of sexual dysfunction, traumatic memories, and lower self-esteem (see Koss & Harvey, 1991, for a review). Rape is a significant risk factor for the development of post-traumatic stress disorder (PTSD), with nearly a third of rape victims meeting criteria for lifetime PTSD (Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993, as cited in Barlow & Durand, 2005). A history of rape has also been associated with current major depressive episodes, agoraphobia, obsessive-compulsive disorder, and social anxiety disorder (SAD) (Boudreaux, Kilpatrick, Resnick, Best,

& Saunders, 1998). Additionally, after controlling for PTSD, completed rape was still a significant predictor of both obsessive-compulsive disorder and SAD (Boudreaux et al., 1998). College women who have been raped are more than twice as likely as women who have never been raped to report considering suicide in the past year (Brener, McMahon, Warren, & Douglas, 1999). Women who have been sexually assaulted also frequently blame themselves for the incident and have altered safety, trust, power/self-efficacy, esteem, and intimacy schemas (Koss & Harvey, 1991). Additionally, past sexual victimization puts women at an increased risk of being victimized in the future (Gidycz et al., 1993), which may lead to further negative consequences.

The identification of risk factors for women is important in helping these women reduce their risk. Knowledge of risk factors and how they make a particular woman more likely to be the victim of sexual assault can aid in the design of prevention efforts on college campuses.

1.1 - Alcohol Use and Sexual Assault

College women often report consuming alcohol at the time of sexual victimization; approximately 70% of victimized college women report that they were drinking at the time of the assault (Gidycz, Van Wynsberghe, & Edwards, 2008; Mohler-Kuo, Dowdall, Koss, & Wechsler, 2004). Women who report being the victim of attempted or completed rape since the age of 14 consume more alcohol than do women who experienced less severe victimization or had never been victimized (Corbin, Bernat, Calhoun, McNair, & Seals, 2001). Sexual victimization in the past 12 months is positively correlated with both frequency of alcohol consumption and average number of drinks consumed per occasion in the past month (Schry & White, 2009). Given these findings, it appears that alcohol use increases a woman's risk of sexual victimization. Alcohol consumption, however, was measured for the past week or past month in these studies, so it is possible that the victimization led to increased alcohol consumption rather than higher levels of alcohol consumption leading to victimization.

Alcohol outcome expectancies may play a role in risk of sexual victimization, as women who expect certain outcomes as a result of drinking may increase their risk of being victimized more than women who drink for other reasons. Researchers have found that victims of rape or attempted rape report greater expectancies of tension reduction, global positive change, and sexual enhancement as a result of alcohol use than women who have never been victimized, with the largest difference being in the expectancy of tension reduction (Corbin et al., 2001). A

limitation of this study was that all measures were completed at one time point, so it is impossible to know whether the alcohol expectancies led to sexual victimization or sexual victimization led to women using alcohol to cope.

The importance of longitudinal research designs in this area is highlighted by research that provides support for a reciprocal relationship between alcohol use and sexual victimization. In one longitudinal study, higher levels of alcohol use were associated with greater risk of incapacitated rape at the following time point, but incapacitated rape was also associated with increases in alcohol use following the incident (Kaysen, Neighbors, Martell, Fossos, & Larimer, 2006). This finding suggests that, at least for incapacitated rape, the relationship with alcohol use is reciprocal (Kaysen et al., 2006).

As there appears to be a reciprocal relationship between alcohol use and sexual victimization, additional research is needed in order to assess variables that may moderate the relationship between alcohol use and sexual victimization. Gidycz and colleagues (2007) found that the relationship between alcohol use at the first time point and sexual victimization during the following 2 months was moderated by history of victimization. Specifically, alcohol use at the first time point was only predictive of sexual victimization during the study period for women who had a history of victimization, not for women who did not have a history of victimization. Additionally, the predictive ability of alcohol use may depend on the relationship between the victim and the person who commits the acts. For example, in another longitudinal study, alcohol use at the first time point was not predictive of sexual victimization by a romantic partner, but it did predict victimization by others who were not romantic partners of the victim (Testa, VanZile-Tamsen, & Livingston, 2007).

Alcohol use may increase risk of sexual victimization in multiple ways. Three possible models for explaining the relationship between alcohol use and sexual victimization are the impaired threat perception model, ineffective resistance model, and unintentional openness model. The impaired threat perception model theorizes that alcohol use may reduce women's ability to detect cues that a situation is becoming dangerous and that she is at risk of being victimized. In one laboratory study, college women either consumed alcoholic beverages (enough alcohol to reach an average blood alcohol concentration of 0.04) or a placebo (Loiselle & Fuqua, 2007). Following consumption of the beverage, participants listened to an audiotape of a date-rape vignette between a man and woman in which the man's use of coercive techniques

escalated until the vignette ended with nonconsensual sexual intercourse. Participants were asked to indicate at what point the man should stop making advances. Women who had consumed moderate amounts of alcohol waited significantly longer than women who had not consumed alcohol to indicate that the man should stop. Of particular concern was that “the mean response latencies for the Alcohol Group were sufficiently long to allow the scenario to progress to the point where the man had engaged in behavior that would meet the criteria for criminal sexual conduct in most states” (Loiselle & Fuqua, 2007, p. 264).

The ineffective resistance model asserts that alcohol affects the resistance efforts that women use when in high-risk interpersonal situations. In another laboratory experiment, women recruited from the community were assigned to a control group or one of two alcohol groups (either moderate or high alcohol; Norris et al., 2006). Participants were given a date-rape vignette written in the second person and told to put themselves into the story. At three time points, participants were asked to rate the likelihood that they would use different types of resistance techniques and their level of consent to the sexual activity being described. The researchers found that, while predicted use of assertive methods of resistance did not vary by alcohol consumption, greater levels of alcohol consumption resulted in higher rates of predicted passive resistance methods and higher rates of consent. The use of passive resistance methods, such as not doing anything, freezing up and not responding, or acquiescing despite not wanting the activities to continue, may increase the likelihood that a man who uses coercive or forceful techniques will be successful in obtaining nonconsensual sexual intercourse.

Finally, the unintentional openness model states that alcohol use may cause women to engage in behaviors that men perceive as indicative of sexual interest. Parks, Hequembourg, and Dearing (2008) found that women who were randomly assigned to consume more alcohol (average blood alcohol concentration of 0.08) engaged in more behaviors that could be seen as indicating sexual interest, such as open body position and engaging in more talking and movement, than women who consumed a lesser amount of alcohol (average blood alcohol concentration of 0.02).

Together, these findings indicate that alcohol use is an important risk factor for sexual victimization in women. Additional research in this area is needed, in order to identify additional moderators and mediators of this relationship. Furthermore, it is possible that alcohol use mediates the relationship between other variables and sexual victimization.

1.2 - Assertiveness and Sexual Assault

Nearly 70% of sexually victimized college women reported that they did not use assertive resistance techniques (Gidycz et al., 2008). Interestingly, participants' intentions to use assertive resistance techniques prior to victimization were predictive of their reported use of these techniques during the assault, as rated following the victimization (Gidycz et al., 2008).

Women who had been coerced into unwanted sexual activities reported lower levels of assertiveness in sexual situations and lower levels of self-esteem than women who had not been coerced and women who had been raped (Testa & Dermen, 1999). Women who have been raped or have been the victim of attempted rape report being less likely to be able to refuse unwanted sexual advances compared to women who have never been victimized (Corbin et al., 2001). Since victimization and assertiveness were measured at the same time in all these studies, it is impossible to determine the direction of the relationship between the two variables. One longitudinal study by Greene and Navarro (1998), however, found that low self-reported assertiveness in situations with the opposite sex predicted future victimization in college women.

The relationship between lack of assertiveness, particularly the inability to refuse unwanted sexual advances, and sexual victimization is reciprocal (Livingston, Testa, & VanZile-Tamsen, 2007). Low levels of sexual refusal assertiveness predicted future victimization, but low assertiveness also mediated the relationship between past victimization and future victimization (Livingston et al., 2007). This reciprocal relationship also applies to women who were victimized by romantic partners. Women who were sexually victimized by current or past romantic partners reported that they were less likely to be able to say no to unwanted sexual advances than women who had never been victimized, and this lower level of assertiveness at the beginning of the study was predictive of victimization by a romantic partner in the following two years (Testa et al., 2007).

1.3 - Other Risk Factors that Influence Sexual Assault

Misperception of sexual intentions may also play a role in sexual coercion. Women who reported being the victim of sexual victimization reported more incidents of sexual intention misperception than women who had not been victimized; additionally, those who had been the victim of an attempted or completed rape reported that their sexual intentions had been misperceived significantly more often than those who were sexually coerced (Abbey, Ross, McDuffie, & McAuslan, 1996). Alcohol may exacerbate misperceptions of sexual intentions,

and researchers have found that women who were sexually coerced were significantly more likely to report that both they and the men who misperceived their intentions had consumed alcohol prior to the misperception (Abbey et al., 1996).

Young age at the time of first sexual intercourse has also been associated with rape, with over two times as many women who have been raped reporting that they first had intercourse before the age of 15 as women who have not been raped (Brener et al., 1999). Anxiety and depression may serve as risk factors for victimization in college women, as college women who reported being victimized in a 9-week period reported higher levels of depression and anxiety both prior to and following victimization (Gidycz et al., 1993).

Being a victim of attempted or completed rape in childhood or adolescence increases the likelihood of sexual victimization in adulthood (Gidycz et al., 1993; Gidycz et al., 1995). Additionally, victimization in adulthood also increases the likelihood of being revictimized (Gidycz et al., 1995; Livingston et al., 2007). More severe victimization (i.e., rape or attempted rape) is related to higher rates of revictimization than less severe victimization, and severity of past victimization is predictive of severity of later victimization (i.e., individuals who were classified as being severely victimized were more likely to be victims of severe victimization later; Gidycz et al., 1995). College women who were victims of rape or attempted rape during a two-month period were over 12 times more likely to be revictimized in the following four months than those who were not victimized in the two-month period, and those who were victims of less severe sexual victimization were nearly nine times more likely to be revictimized than women who were not victimized in the initial two-month period (Gidycz et al., 2007).

Research has shown that although college women recognize that women are at risk of being sexually victimized, they believe that they are not likely to be victimized and are not as likely as their peers to be victimized (see Gidycz, McNamara, & Edwards, 2006, for a review). Women must be aware of their own risk of victimization in order to take actions to reduce the level of risk, so the fact that women perceive themselves as being less likely to be victimized than their peers may put them at an increased risk of victimization. Elkind (1967) proposed the idea of “personal fable,” in which adolescents believe that their experiences are unique and that others cannot understand their feelings. Personal fables are also related to believing that consequences will happen to others, but not to one’s self. Elkind (1967) used the example of teenage girls not taking appropriate precautions to avoid pregnancy, because they believe that

pregnancy is something that only happens to others. Personal fables may play a role in perceived risk of sexual victimization, particularly in college women, as researchers have found that high levels of belief in personal fables endure into young adulthood (Frankenberger, 2000).

Finally, while there has been a great deal of research on individual factors that increase victimization, it is important to note that a number of factors contribute to victimization, and the victim of sexual victimization is not to blame. Finkelhor (1984, as cited in Harney & Muehlenhard, 1991) reported that there are four preconditions for sexual abuse: (1) a perpetrator with a desire to commit sexual assault must be present; (2) the perpetrator “must overcome internal inhibitions against abusing” (p. 168); (3) the perpetrator must overcome external barriers that would prevent abuse from occurring; and (4) the perpetrator must “overcome resistance by the victim” (p. 168). Given this model, while victims of sexual assault can try to put out additional external barriers (e.g., staying with friends rather than going off alone with a man) and can resist the perpetrator, there are many factors that the victim cannot control. It is also likely that when the perpetrator’s desire to abuse is high, the perpetrator’s drive to overcome the barriers will be so high that the victim’s efforts may not be effective, even when implemented.

1.4 - Social Anxiety

SAD, also referred to as social phobia, is an anxiety disorder characterized by an excessive and persistent fear of social situations in which an individual is in a setting in which they must be around unfamiliar people or may be scrutinized by others (American Psychiatric Association, 2000). This fear of social or performance situations interferes with the individual’s life by getting in the way of relationships or social activities, maximal occupational or academic functioning, or the individual’s routine. There are two types of fears involved in social anxiety – fears related to interacting with others and fears related to being observed by others/performing in front of others. Individuals with SAD may be anxious in one or both of these types of situations.

SAD is one of the more common psychiatric disorders. In a national sample, the 12-month prevalence was 7.1% and lifetime prevalence was 12.1% (Ruscio et al., 2008). SAD is also fairly common among college females. One study found 12-month prevalence of 8.9% in female undergraduates (Izgiç, Akyüz, Doğan, & Kuğu, 2004). SAD is the disorder associated with very high levels of social anxiety, but social anxiety can be viewed as a personality characteristic that exists on a continuum (e.g., Creed & Funder, 1998).

1.5 - Assertiveness and Social Anxiety

Undergraduate students who report high levels of social anxiety have been shown to be less assertive (Creed & Funder, 1998; LeSure-Lester, 2001). College students who report high levels of social anxiety are viewed by their peers as being vulnerable to threat, while those lower in social anxiety are not viewed in this way (Creed & Funder, 1998). Additionally, peers who interacted with college students who were high in social anxiety were rated as dominating the interaction, while individuals who interacted with students who were low in social anxiety were not seen as dominating the interaction (Creed & Funder, 1998). Low levels of assertiveness have been shown to be related to increased risk of sexual victimization (see above). It is proposed that social anxiety may increase risk of sexual victimization in college women, because the women are perceived by others as being vulnerable to threat, which may lead men who are likely to use coercive or forceful methods to obtain sexual intercourse to perceive these women as easy targets. Additionally, being dominated in conversations may also cause men to view socially anxious women as being more easily dominated in other situations, including sexual encounters.

1.6 - Alcohol Use and Social Anxiety

The relationship between social anxiety and problematic alcohol use may be another factor that could increase socially anxious women's risk of sexual victimization. Social anxiety and alcohol use disorders are often comorbid (Buckner, Schmidt, et al., 2008; Grant et al., 2005). Social anxiety in adolescence has been shown to be a risk factor for the development of alcohol dependence in college students (Gilles, Turk, & Fresco, 2006) and adults, but not alcohol abuse in adults (Buckner, Schmidt, et al., 2008). Lifetime history of SAD increases the risk of alcohol dependence by 2.26, but it does not increase the odds of alcohol abuse (Buckner, Timpano, Zvolensky, Sachs-Ericsson, & Schmidt, 2008). Alcohol dependence involves three of the following symptoms: the development of tolerance to alcohol; experience of withdrawal symptoms when alcohol is not consumed; increased use over time; an inability to reduce or control alcohol consumption; spending a lot of time on alcohol-related activities; failure to engage in other activities due to alcohol use; and continuing to consume alcohol despite physical or mental health problems (APA, 2000). In contrast, alcohol abuse involves recurrent psychosocial problems, such as failure to complete obligations, putting oneself in physical risk, legal problems, and problems with others (APA, 2000). Importantly, in order to meet diagnostic criteria for alcohol abuse, a person must "have never met the criteria for [Alcohol] Dependence"

(APA, 2000, p. 199). Buckner, Schmidt, and colleagues (2008) suggest that Cooper and colleagues' (1992, as cited in Buckner, Schmidt, et al., 2008) theory that using alcohol to cope with negative emotions may put individuals at a risk for alcohol withdrawal and tolerance (symptoms that are specific to alcohol dependence) may account for the finding that SAD is related to alcohol dependence but not alcohol abuse. Individuals who report high levels of social anxiety typically report higher levels of using alcohol to deal with negative emotions than those lower in social anxiety (Buckner, Schmidt, & Eggleston, 2006). A diagnosis of SAD may only be a risk factor for future alcohol use disorders (AUDs) in females, as Buckner and Turner (2009) found that a diagnosis of SAD at the first assessment was associated with AUD at the second assessment only in females. For the majority of individuals with both SAD and an AUD, the onset of SAD precedes the onset of the AUD, but for approximately 16% of individuals with co-occurring AUD and SAD, the onset of the AUD preceded the SAD (Buckner, Timpano, et al., 2008). SAD appears to be a very specific risk factor, as other anxiety disorders do not predict later alcohol dependence (Buckner, Schmidt, et al., 2008; Buckner & Turner, 2009). SAD resulted in increased odds of alcohol dependence, even after controlling for several co-morbid psychiatric diagnoses and gender (Buckner, Timpano, et al., 2008). Negative life events, although related to both social anxiety at the first time point and AUD at the second time point, did not mediate the relationship between SAD and AUD (Buckner & Turner, 2009).

Despite the research that has found a relationship between SAD and AUDs, research with college students has either failed to find a relationship between social anxiety and alcohol consumption or has found an inverse relationship between social anxiety and alcohol consumption (Buckner et al., 2006; Gilles et al., 2006; Ham & Hope, 2006; Lewis et al., 2008; Schry & White, 2009). One possible reason for the lack of a positive relationship between social anxiety and alcohol use is that socially anxious students may avoid social situations and only use alcohol to cope with anxiety in social situations when they cannot be avoided (Norberg, Norton, & Olivier, 2009; Stewart, Morris, Mellings, & Komar, 2006). Ham and Hope (2006) found that the inverse relationship between social anxiety and alcohol use was mediated by perceived drinking norms of peers, which may offer additional support for the hypothesis that the inverse relationship is due to the avoidance of social situations, as socially anxious individuals may not

be aware of the drinking norms of their peers. Socially anxious individuals may also worry about being negatively evaluated by their peers, which could result in them drinking less than peers who are not as socially anxious (Stewart et al., 2006).

Although alcohol use overall may be negatively related to social anxiety, alcohol use in particular settings and for particular reasons may be positively related to social anxiety. Frequency of alcohol use in situations of interpersonal conflict, unpleasant emotions, social pressure, and testing personal control are all positively correlated with social anxiety (Buckner et al., 2006). The associations between social anxiety and alcohol use in situations involving conflict with others, unpleasant emotions, and social pressure suggest that college students who report high levels of anxiety use alcohol to cope with feelings of negative emotions and to avoid possible negative evaluations by others (Buckner et al., 2006). The finding that social anxiety is associated with using alcohol when in situations involving testing personal control suggests that socially anxious individuals see alcohol use as a way to have some control in social situations where they feel they cannot control their environment (Buckner et al., 2006). Women with SAD report expecting alcohol to reduce tension and negative mood and improve socio-emotional functioning more than women who do not have SAD (Gerlach, Schiller, Wild, & Rist, 2006). Individuals who are high on measures of using alcohol to cope with anxiety in social situations report higher levels of alcohol outcome expectancies related to increased assertiveness and decreased tension compared to individuals who do not report using alcohol to cope with anxiety in social situations as often (Carrigan, Ham, Thomas, & Randall, 2008).

The findings that socially anxious individuals use alcohol to cope with anxiety were supported by a laboratory study by Kidorf and Lang (1999). In this study, participants were told that they would have to give a self-disclosing speech that would be taped and later evaluated by others. They were provided with the alcoholic beverage of their choice before giving the speech. Participants' alcohol consumption was also measured during a baseline assessment of equal length. While, on average, all participants consumed more alcohol during the experimental session than the baseline session, individuals who reported higher levels of social anxiety showed greater increases in the amount of alcohol they consumed.

Even though social anxiety does not seem to predict overall alcohol use in college students, higher levels of social anxiety have been found to be associated with greater alcohol-related problems when controlling for alcohol use (Buckner et al., 2006; Lewis et al., 2008),

particularly in female undergraduates (Norberg et al., 2009; Norberg, Norton, Olivier, & Zvolensky, 2010). This finding is not universally reported, however. Several studies have not found a relationship between social anxiety and alcohol-related problems (e.g., Ham, Bonin, & Hope, 2007; Ham & Hope, 2006) or have found an overall negative relationship between social anxiety and alcohol problems (Ham, Zamboanga, Bacon, & Garcia, 2009). It is possible that the differences in findings are related to different measures of social anxiety. Specifically, Ham and colleagues (Ham et al., 2007; Ham & Hope, 2006) typically relied on the Social Phobia Anxiety Inventory (SPAI; Turner, Beidel, Dancu, & Stanley, 1989) or standardized scores based on a combination of scores on the SPAI and the Interaction Anxiousness Scale (IAS; Leary, 1983, as cited in Ham & Hope, 2006), while Buckner and colleagues (2006), Lewis and colleagues (2008), and Norberg and colleagues (2009) used the Social Interaction Anxiety Scale (Mattick & Clarke, 1998). It may be that anxiety about interacting with others is a specific risk factor for alcohol-related problems, and since the SPAI is not specific to social interaction anxiety, scores on this measure may not be related to alcohol-related problems in the same way that anxiety about interacting with others is related to these problems. Different measures of alcohol problems may also account for the different findings, as Ham and colleagues (2009) used the AUDIT (Babor et al., 2001, as cited in Ham et al., 2009), Buckner and colleagues (2006) and Lewis and colleagues (2008) used the Rutgers Alcohol Problems Index (RAPI; White & Labouvie, 1989), and Norberg and colleagues have used a modified Timeline Followback (Norberg et al., 2009; Norberg et al., 2010). Finally, it is possible that a failure to consider gender in analyses is another reason for the conflicting findings on the relationship between social anxiety and alcohol-related problems (Norberg et al., 2010), as Norberg and colleagues (2010) found that gender moderates the relationship between social anxiety and alcohol problems.

In studies that have detected a positive relationship between social anxiety and alcohol-related problems, this relationship seems to be mediated by drinking for negative reinforcement motives, such as coping and fitting in with others (Lewis et al., 2008; Norberg et al., 2009; Norberg et al., 2010; Stewart et al., 2006). Individuals' anxiety about others judging them negatively is related to alcohol-related problems, but this relationship was mediated by coping and conformity motives for drinking (Stewart et al., 2006).

1.7 - Current Study

The primary purpose of this study was to test the hypothesis that higher levels of social interaction anxiety lead to greater risk of being victimized sexually, particularly being the victim of unwanted sexual contact, attempted coercion, and coercion, in college women. Since social anxiety and sexual victimization have both been associated with problematic alcohol use and low levels of assertiveness, the relationships among these variables were examined in two separate models. If social anxiety is predictive of sexual victimization, problematic alcohol use and assertiveness may mediate the relationship. Since all data were collected at a single time point, it is not possible to examine true mediation, but the relationships among the variables can be examined in order to determine if future studies should examine these variables as potential mediators. Given that social anxiety does not tend to be related to alcohol use in undergraduate females (e.g., Norberg et al., 2009; Norberg et al., 2010), alcohol-related problems were used as an indicator of problematic alcohol use. Given evidence that anxiety about social interaction may be particularly relevant, more so than more general or performance-based anxiety (Schry & White, 2009), only social interaction anxiety was evaluated as a predictor. It was hypothesized that social interaction anxiety would be positively related to alcohol-related problems per drinking episode, and alcohol-related problems would be positively related to sexual victimization. Furthermore, it was expected that the strength of the relationship between social anxiety and sexual victimization would be reduced when controlling for the effect of alcohol-related problems. In the second model, it was hypothesized that social anxiety would be negatively related to assertiveness, and assertiveness would be negatively related to sexual victimization. Additionally, it was hypothesized that the strength of the relationship between social anxiety and sexual victimization would be reduced when partialling out the effect of assertiveness.

In sum, the hypotheses for this study were as follows: (1) social interaction anxiety would be associated with increased risk of unwanted sexual contact, attempted coercion, and coercion; (2) sexual assertiveness would partially account for the relationship between social interaction anxiety and sexual victimization; and (3) for participants who regularly consume alcohol, alcohol-related problems would partially account for the relationship between social interaction anxiety and sexual victimization.

Findings from this study may have important clinical implications. There are effective treatments for SAD (Beidel & Turner, 2007) and social interaction anxiety is one of the primary symptoms of SAD. Therefore, if social interaction anxiety is related to sexual victimization, interventions designed to treat SAD could be examined in order to evaluate their effectiveness in reducing risk of sexual assault. Looking at the roles of alcohol-related problems and low levels of assertiveness in this relationship is also important. If social interaction anxiety is related to increased alcohol-related problems which in turn are related to increased risk of victimization, it would be important to target both drinking and social anxiety in interventions, as individuals who are socially anxious may experience more alcohol-related problems at lower levels of alcohol consumption than individuals who are less socially anxious. If only drinking is reduced, individuals may look for new but possibly equally dangerous coping techniques in social situations, which could also affect risk of victimization. Similarly, if social anxiety is causing individuals to struggle with being assertive, simply teaching women to be assertive may not be sufficient, if they are still too socially anxious to use the techniques they have been taught. Sexual victimization is all too common and has been associated with many negative outcomes for victims. It is, therefore, essential for psychologists to identify causal factors of sexual victimization in order to develop ways to reduce individuals' risk of sexual assault.

2.0 - Method

2.1 - Participants

All participants were female undergraduate students at Virginia Tech. They were recruited using the psychology department's Sona system, flyers posted on campus, and advertisements in psychology courses at Virginia Tech. The study was advertised as a study on psychological health and sexual experiences, and the advertisements included no reference to sexual assault (See Appendices A & B for recruitment materials). A convenience sampling technique was used to recruit participants, as the study was advertised and interested participants self-selected into the study. In addition, the study was listed on the Sona website, and interested individuals were able to sign up for the study on the system. Participants who completed the survey during the first three weeks of the semester had the option of signing up to complete the survey a second time approximately eight weeks later, but these follow-up data were not analyzed as part of this study. Most participants' data were anonymous, with the exception of those participants who volunteered to complete the survey a second time.

A power analysis was conducted in order to compute the needed sample size. Data from a correlational pilot study (Schry & White, 2009) were used to estimate the effect size. It was hoped that 550 participants, 450 of whom would have consumed alcohol since the beginning of the calendar year, would complete the survey, which would provide 69% power to detect an effect when a one standard deviation increase in SIAS Total Score resulted in an odds ratio of 1.3 for risk of sexual victimization with an alpha level of 0.10.

Seven hundred thirty-three sets of data were collected. One participant self-identified as male on the demographics questionnaire. One participant was identified as male by the investigator, despite having indicated that he was a female on the survey; this individual also participated in another study conducted by the researcher, and in that study, he identified his gender as male. The data from both of these individuals were excluded in this study. Forty-one participants did not complete the entire survey, and their data were not included in any analyses (see missing data analyses below). A total of 690 data sets was retained. Demographic information for the participants is included in Table 1.

2.2 - Measures

Demographics. A nine-item questionnaire was used to collect demographic information from all participants (Appendix C). Individuals provided information about their sex, age, year in college, race and ethnicity, type of residence, sexual orientation, relationship status, whether they are a member of a social sorority, and their involvement in other extracurricular activities.

2.3 - Primary Measures.

Social interaction anxiety. Participants completed the Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998; Appendix D) in order to measure anxiety in social interaction settings. The SIAS is designed to measure feelings of anxiety in social interactions, with the main concerns relating to “being inarticulate, boring, sounding stupid, not knowing what to say or how to respond within social interaction, and of being ignored” (Mattick & Clarke, 1998, p. 457). The SIAS is comprised of 20 items, which are rated on a 0 (not at all) to 4 (extremely) scale for how characteristic each statement is of the individual. Total scores are computed and range from 0 to 80, with higher scores indicating more social interaction anxiety. Average total score for the SIAS is 18.5 in undergraduate females, and 33.4 in females with SAD (Mattick & Clarke, 1998). Internal consistency for this measure is excellent, with a Cronbach’s α of 0.94 in a large sample (Mattick & Clarke, 1998), and 0.90 in an undergraduate sample (Mattick &

Clarke, 1998; Osman, Gutierrez, Barrios, Kopper, & Chiros, 1998). Cronbach's α in this sample was 0.93. The test-retest reliability for up to a 12-week period between tests is excellent ($r_s > 0.90$; Mattick & Clarke, 1998). Scores on the SIAS discriminate individuals with SAD from both individuals with agoraphobia and from normal controls (Mattick & Clarke, 1998). The total score on the scale is moderately to highly correlated with other measures of social anxiety, including the Fear of Negative Evaluation Scale (Watson & Friend, 1969, as cited in Mattick & Clarke, 1998), Social Avoidance and Distress Scale (Watson & Friend, 1969, as cited in Mattick & Clarke, 1998), and the Social Phobia subscale of the Fear Questionnaire (Marks & Mathews, 1979, as cited in Mattick & Clarke, 1998).

Unwanted sexual experiences. In order to measure unwanted sexual experiences, the Sexual Experiences Survey – Short Form Victimization (SES-SFV; Koss et al., 2007; Appendix E) was administered to all participants. Seven different unwanted sexual experiences and five different tactics that perpetrators may have used to coerce their victims are assessed by the SES-SFV. Of the 37 items comprising this questionnaire, 35 items assess victimization, one asks respondents to report on the gender of the individual who committed the victimization, and one item inquires about whether or not the respondent has ever been raped. Participants respond to most items twice – participants are asked about the number of times the event occurred in the past year as well as the number of times victimization has occurred since the age of 14 (not including the past year). Participants in this study were classified based on whether they had experienced different types of victimization according to the definitions described by Koss and colleagues (2008). The dependent variables in the study were victimization that occurred in the past year.

The SES-SFV has two primary advantages over other measures of unwanted sexual experiences. The first advantage is that the word “rape” is avoided until the very last question. Because individuals differ in how they define “rape,” individuals who have experienced events that meet the definition of rape may not recognize that they have been raped. Another advantage is that it uses “behaviorally specific descriptions of acts (unwanted sexual experiences) and tactics (behaviors used by perpetrators to compel sex acts against consent)” (Koss et al., 2007, p. 357). Behaviorally specific descriptions ensure that participants have a clear description of what is being asked.

Due to the recent revisions made (Koss et al., 2007), psychometric properties of this version are not yet available. However, past versions of the Sexual Experiences Survey (SES) have been shown to be reliable and valid. Internal consistency and test-retest reliability of a past version were 0.74 and 0.93, respectively, for a sample of college students (Koss & Gidycz, 1985). In a recent, unpublished study, the internal consistency of the revised SES in a sample of undergraduate college females was 0.93 (Schry & White, 2009). In the current sample, Cronbach's alpha for past year victimization was 0.92, and for victimization since age 14, Cronbach's alpha was 0.93. When compared to coders' ratings of transcribed descriptions of sexual victimization, percent agreement for incidents classified as rape ranged from 81 to 94% ($Kappa = 0.76-0.81$), and percent agreement for incidents classified as coercion was between 86 and 95% ($Kappa = 0.86-0.93$) (Testa, VanZile-Tamsen, Livingston, & Koss, 2004).

In college women, over 90% of adult sexual victimizations are committed by people known to the victim (e.g., Abbey et al., 1996; Gidycz et al., 1993). Therefore, questions about the participants' relationship to the person who committed the acts and how well the participants knew the person who committed the acts were added to the SES. Because the items on the SES are not mutually exclusive, participants also completed items that asked about the number of different occasions that victimization occurred in order to assess total number of times the participant was victimized. Because number of sexual partners has been associated with increased risk of sexual victimization (Synovitz & Byrne, 1998; Testa et al., 2007), participants were asked to report their total number of sexual partners.

Alcohol consumption. Participants completed several questions about their alcohol use in the past week (Appendix F). Participants answered the items for each day of the past week. Participants reported on the number of drinks consumed (Dimeff, Baer, Kivlahan, & Marlatt, 1999), their participation in drinking games, their desire to become drunk, and whether they did get drunk (J. L. Maggs, personal communication, April 7, 2010). Additionally, participants were asked about where and with whom they consumed alcohol each day (J. L. Maggs, personal communication, April 7, 2010).

Participants also completed items about their drinking behaviors since the beginning of the calendar year (Appendix G). Participants reported the frequency of alcohol consumption and binge drinking (defined as four or more drinks in a two hour period), and their typical and

maximum consumption in a 24-hour period (National Institute on Alcohol Abuse and Alcoholism, 2003).

Alcohol-related problems. Adapted from a list of 24 alcohol-related problems (Norberg et al., 2009; Appendix H), participants rated the frequency of their experience of specific problems since the beginning of the calendar year, and they could write in any additional alcohol-related problems not listed. Participants also responded to this list of consequences as a yes/no checklist for each day that they reported drinking in the past week. Norberg and colleagues (2009) found this list of alcohol-related problems to be correlated ($r = .67$) with the Rutgers Alcohol Problems Index (RAPI; White & Labouvie, 1989). They also found that females high in social anxiety reported more alcohol-related problems on this measure than males high in social anxiety. Cronbach's α for alcohol-related problems since the beginning of the calendar year in the current sample was 0.93.

Assertiveness. The Refusal subscale of the Sexual Assertiveness Scale (SAS; Morokoff et al., 1997; Appendix I) was administered to all participants to measure sexual assertiveness. This subscale consists of 6 items, rated on a 1 (strongly disagree) to 5 (strongly agree) scale. Some items are reverse scored. Higher summed total scores correspond to greater sexual assertiveness. Morokoff and colleagues (1997) showed that the SAS is a reliable and valid measure of sexual assertiveness. Internal consistency for the Refusal subscale was 0.80, and test-retest reliability over six months to one year ranges from 0.59 to 0.65 for the Refusal subscale (Morokoff et al., 1997). Refusal assertiveness was negatively associated with expectation of negative responses from romantic partners and being the victim of coerced sexual intercourse, and positively correlated with self-reported refusal behavior (Morokoff et al., 1997). Cronbach's alpha for the current sample was 0.70 on the Refusal subscale.

Participants also completed a single item to measure general assertiveness (Appendix J). Participants rated their assertiveness in general on a 1 (strongly disagree) to 7 (strongly agree) scale. Greater self-reported assertiveness was, therefore, reflected by higher scores.

2.4 - Exploratory Measures.

Social performance anxiety. Participants completed the Social Phobia Scale (SPS; Mattick & Clarke, 1998; Appendix K). Comprised of 20 items rated on a 0 (not at all) to 4 (extremely) Likert scale, the SPS yields a total score from 0 to 80, with higher scores indicative of greater anxiety. The SPS measures anxiety in situations where the individuals are being

watched by others or when they must engage in certain activities, such as eating, drinking, writing, and using the bathroom, when others are present. Internal consistency is excellent, with Cronbach's alpha of 0.94 in a large sample (Mattick & Clarke, 1998), and 0.88 to 0.91 in an undergraduate sample (Mattick & Clarke, 1998; Osman et al., 1998). In the current sample, Cronbach's alpha was 0.93. The SPS and SIAS are companion scales and are correlated with each other ($r = 0.72$; Mattick & Clarke, 1998).

Depression. Depression symptoms were measured using the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977; Appendix L), a 20-item self-report questionnaire that can be completed in five minutes. Participants select the frequency with which they have experienced the symptom described in each item during the past week on a 0 (rarely or none of the time (less than 1 day)) to 3 (most or all of the time (5-7 days)) scale. Questions are totaled to obtain an overall score (after reverse scoring some items), which can range from 0 to 60, with higher scores indicative of greater frequency of depressive symptoms. Multiple studies have found that the CES-D is reliable when used with college students ($\alpha = 0.87$ to 0.89; Radloff, 1991; Shean & Baldwin, 2008). Cronbach's alpha in the current study was 0.91. Radloff (1991) also found that the CES-D is acceptable for use with college students. Total scores on the CES-D have been found to be highly correlated ($r = 0.86$) with scores on the Beck Depression Inventory-II (BDI-II; Beck, Steer, and Brown, 1996, as cited in Shean & Baldwin, 2008), and moderately correlated (Spearman rank correlation coefficient = 0.56) with clinician rating of current depression on the Diagnostic Interview Schedule – IV (American Psychiatric Association, 1994, as cited in Shean & Baldwin, 2008).

Drinking motives. Participants completed the Drinking Motives Questionnaire Revised (DMQ-R; Cooper, 1994; Appendix M), a 20-item measure that assesses four drinking motives: social (positive social rewards), coping (dealing with negative emotions), enhancement (increasing positive mood), and conformity (fitting in with peers, avoiding rejection for not drinking). Participants rate each item on how frequently they drink alcohol for each reason on a 1 (never/almost never) to 5 (always/almost always) scale. The mean frequency for each motive is calculated. Cooper (1994) found that the measure was internally consistent and confirmed the hypothesized four-factor structure in an adolescent sample, and this factor structure was found to be consistent regardless of age, gender, and race. Additionally, this measure and the previous version, although developed for adolescents, have been used in studies with undergraduate

students (e.g., Buckner et al., 2006; Stewart, Hall, Wilkie, & Birch, 2002; Stewart et al., 2006). In the current study, Cronbach's α for the entire questionnaire was 0.93; for the Enhancement, Coping, Conformity, and Social subscales, internal consistency calculations were 0.89, 0.85, 0.87, and 0.91, respectively. Given that certain drinking motives, particularly coping (Buckner et al., 2006; Norberg et al., 2010), have been associated with both social anxiety and sexual victimization, drinking motives may provide additional information about the relationships among social anxiety, alcohol consumption, alcohol-related problems, and sexual victimization.

Alcohol expectancies. Alcohol expectancies in social situations were measured using the Alcohol Expectancies for Social Evaluative Situations scale (AESES; Bruch, Heimberg, Harvey, & McCann, 1992; Appendix N). It is a 10-item scale that assesses how much participants expect positive outcomes of alcohol use in social situations. Each item is rated from 1 (not at all true) to 5 (very much true), so total scores can range from 10 to 50. Higher scores are indicative of stronger expectancies that alcohol will have positive outcomes in social situations. The measure has adequate internal consistency, with Cronbach's alpha being 0.84 to 0.89 (Bruch et al., 1992). Cronbach's alpha in the current study was 0.96. The AESES is correlated with total scores on the Alcohol Expectancy Questionnaire (AEQ; Brown, Goldman, Inn, & Anderson, 1990, as cited in Bruch et al., 1992), a global measure of positive alcohol expectancies ($r = 0.86$ for females; Bruch et al., 1992).

Child abuse. Participants completed three questions about history of child abuse (Appendix O) in order to control for previous abuse in the model, as it has been found that prior abuse predicts re-victimization. Each question was answered in a yes/no format, and there was one question to assess each of the three main types of child abuse – sexual abuse, physical abuse, and verbal/emotional abuse. While the questions about physical and verbal/emotional abuse asked about the time before the participant turned 18, the sexual abuse question only asked about the time before the participant turned 14, as the Sexual Experiences Survey (Koss et al., 2007) asked participants about victimization since the age of 14.

2.5 - Procedures

Study procedures were approved by the university's Institutional Review Board (IRB; Appendix P). All participants signed up for the study on the Sona system or on an on-line survey, if they were not eligible for Sona credit. On the Monday following signing up, participants received an e-mail with the link to the survey, and the survey was open through

Wednesday each week. Participants who did not complete the survey during that time continued to receive weekly e-mails with the survey link until they either completed the survey or the study closed. The survey was only open from Monday to Wednesday in order to control for differences in recall biases in remembering alcohol consumption. Participants were provided with information about the study and potential risks before beginning the survey, and their consent was implied by entering their e-mail address in order to receive credit for completing the survey on the Sona system. They were then directed to the survey, which included all measures described above. At the end of the survey, participants were thanked for their participation and provided with a list of local and national resources in case answering the questions was upsetting to them or caused them to want to seek out treatment.

2.6 - Statistical Analyses

Analyses were conducted in order to determine whether participants who completed the survey differed from participants who started but did not complete the survey. For continuous and ordinal variables, such as age, year in school, total SIAS scores, and number of sexual partners, independent samples *t*-tests were conducted. For categorical variables, such as race/ethnicity and sexual orientation, Pearson's chi-square tests were used when expected cell counts were greater than five, and Fisher's exact tests were used when expected cell counts were less than five.

For analyses, five dichotomous variables for the interpersonal victimization types (sexual contact, attempted coercion, coercion, attempted rape, and rape), based on Koss and colleagues' (2008) scoring guidelines, were created for sexual victimization that occurred in the past 12 months. Participants were classified as either having experienced or not experienced each type of victimization. The categories of sexual victimization were not mutually exclusive, as participants could have experienced multiple types of victimization.

In computing the total number of alcohol-related problems since the beginning of the calendar year, the items that assess regretted sexual encounters and being taken advantage of sexually were not included in the total, as they are confounded with the dependent variable of sexual victimization. This total was then divided by the predicted number of times the participant would have consumed alcohol since the beginning of the calendar year (estimated based on the question about frequency of alcohol use since the beginning of the year) in order to estimate the Average Per Episode Alcohol-Related Problems (AvgARP). As is frequently

observed with measures of alcohol use, the distribution of AvgARP was very positively skewed. As a result, these data were log transformed after being shifted one unit to the right (i.e., a raw value of x was transformed using $\log[x + 1]$), as past researchers have done (Norberg et al., 2009; Norberg et al., 2010).

Separate logistic regressions were run for each type of victimization occurring in the previous year with social interaction anxiety (i.e., SIAS Total Score) as the independent variable. Logistic regression was used because the dependent variables, types of sexual victimization, are dichotomous. Child Sexual Abuse and Past Victimization were controlled for in the models, because past research has found that sexual victimization is associated with increases in general anxiety (Gidycz et al., 1993) and social anxiety (Boudreaux et al., 1998). Both Child Sexual Abuse and Past Victimization were dichotomous variables. Past Victimization was operationalized as any type of victimization endorsed on the SES-SFV for the timeframe of since the age of 14 (which excludes the past 12 months). Predictors were added in blocks; by entering predictors in blocks, the change in the percentage of variance explained can be examined. Child Sexual Abuse and Past Victimization were entered in the first block, and SIAS Total Score was entered in the second block of the regression.

SAS Refusal Score and AvgARP were hypothesized to account for indirect effects of SIAS Total Score on Sexual Victimization. In applying the commonly used Baron and Kenny (1986) model for mediation, the first requirement for an indirect effect is that there is a significant relationship between the predictor and the outcome. Based on this model, indirect effects would only be evaluated for the types of Sexual Victimization for which SIAS Total Score was a significant predictor. However, other researchers (e.g. MacKinnon, Krull, & Lockwood, 2000) have shown that it is possible to have indirect effects in the absence of a significant direct effect, because it is possible that indirect effects work in opposite directions and cancel one another out, which can lead to a non-significant total effect while indirect effects are significant. Because it is possible that social anxiety is a protective factor for sexual victimization via some indirect effects (e.g., reducing exposure to parties and other situations that may increase risk of victimization), indirect effects were examined even in the absence of significant total effects. After examining the total effect of SIAS Total Score on Sexual Victimization, the effects of SAS Refusal Score and AvgARP on Sexual Victimization were examined using logistic regressions. Past Victimization and Child Sexual Abuse were controlled

for in these models, as well. Indirect effects of SAS Refusal Score and AvgARP were only examined when they were significant predictors of a given type of Sexual Victimization. In the absence of a relationship between the variable considered to be the possible mediator and the outcome, an indirect effect is not possible (Baron & Kenny, 1986). Indirect effects were examined using a bootstrapping technique (Preacher & Hayes, 2008).

3.0 - Results

3.1 - Missing Data Analyses

All participants who did not complete the survey completed the demographics questionnaire, so comparisons between all 41 participants with incomplete data and the 690 participants with complete data were run. The two groups did not differ on age ($t(729) = -0.35, p = 0.34$) or year in college ($t(729) = 0.46, p = 0.65$). Additionally, the groups did not differ on race/ethnicity (White/Caucasian, non-Hispanic, non-Arab: $\chi^2(1) = 0.46, p = 0.50$; Black/African American, non-Hispanic: Fisher's exact test p (2-sided) = 0.64; Hispanic/Latina: Fisher's exact test p (2-sided) = 0.20; American Indian/Alaskan Native: Fisher's exact test p (2-sided) = 1.00; Arab/Middle Eastern or Arab-American: Fisher's exact test p (2-sided) = 0.16; Asian/Asian-American: Fisher's exact test p (2-sided) = 0.77; Pacific Islander: Fisher's exact test p (2-sided) = 1.00; did not wish to provide information: Fisher's exact test p (2-sided) = 1.00). The groups also did not differ on sexual orientation (Fisher's exact test p (2-sided) = 1.00).

For the 27 participants who did not complete the survey but completed the SIAS and question about the number of sexual partners, comparisons on the SIAS Total Score and number of sexual partners were conducted. The groups did not differ on SIAS Total Score ($t(715) = 0.69, p = 0.49$) or number of sexual partners ($t(715) = -0.18, p = 0.86$).

Only 14 of the participants who did not complete the survey completed the SES-SFV, so comparisons based on rates of victimization were not conducted. Since the groups did not differ on any of the variables on which they were compared and given that participants with incomplete data comprised just 5.6% of the full sample, participants with incomplete data were not included in the analyses.

3.2 - Descriptive Statistics

Descriptive statistics for continuous variables are presented in Table 2. Although there were fewer participants who reported their sexual orientation as homosexual, bisexual, or other was lower than would be expected, only one participant who did not complete the survey

reported their sexual orientation as other than heterosexual. Therefore, it does not seem that sexual orientation was related to individuals discontinuing the survey. It is possible, however, that the way the study was advertised contributed to a low response rate among individuals who self-identified as homosexual or bisexual (see Appendices A & B). Frequency distributions for sexual victimization and child abuse are presented in Table 3. Frequency distributions for the items on alcohol use since the beginning of 2010 are presented in Table 4. Correlations among study variables are presented in Table 5.

3.3 - Logistic Regressions for Total Effects

The odds ratios for the logistic regressions to test the total effects are presented in Table 6. The first hypothesis, in which it was predicted that SIAS Total Score would be a significant predictor of Sexual Contact, Attempted Coercion, and Coercion, was partially supported. SIAS Total Score was a significant predictor of Coercion, but not the other four types of sexual victimization (i.e., Sexual Contact, Attempted Coercion, Attempted Rape, and Rape).¹

3.4 - Logistic Regressions to Test for Indirect Effects

Before testing hypotheses two and three, it was necessary to examine which types of sexual victimization should be included in the analyses of indirect effects. In order to do so, logistic regressions were used to evaluate the relationships between SAS Refusal Score and Sexual Victimization and between AvgARP and Sexual Victimization. Also, ordinary least squares regressions were conducted to examine the relationships between SIAS Total Score and SAS Refusal Score and between SIAS Total Score and AvgARP.

First, logistic regressions were conducted in order to determine whether SAS Refusal Score was a significant predictor of each type of Sexual Victimization, controlling for Past Victimization and Child Sexual Abuse. There was a significant negative relationship between SAS Refusal Score and all five types of Sexual Victimization (see Table 7 for odds ratios). Next, an ordinary least squares regression was conducted in which SIAS Total Score was a predictor of SAS Refusal Score, controlling for the effects of Past Victimization and Child Sexual Abuse. SIAS Total Score was a significant predictor ($b = -0.05$, $t = -3.32$, $p = 0.001$). Therefore, the indirect effect of SIAS Total Score on all types of Sexual Victimization through SAS Refusal Score was examined.

Next, logistic regressions were conducted in order to determine whether AvgARP was a significant predictor of each type of Sexual Victimization, controlling for Past Victimization and Child Sexual Abuse. Only participants who reported consuming alcohol in the week prior to completing the survey ($n = 455$) were included in these analyses. Only these participants were included in these analyses, because it is possible that alcohol-related problems would only be predictive of sexual victimization for women who reported drinking regularly. Women who do not consume alcohol on a regular basis may not increase their risk of victimization due to alcohol-related problems, regardless of their level of social interaction anxiety, because they do not drink alcohol frequently enough to increase their risk of sexual victimization. AvgARP was only a significant predictor of Attempted Coercion, not the other four types of Sexual Victimization (see Table 7 for odds ratios). An ordinary least squares regression was conducted to examine the relationship between SIAS Total Score and AvgARP, controlling for Past Victimization and Child Sexual Abuse. SIAS Total Score was a significant predictor of AvgARP ($b = 0.003, t = 4.72, p < 0.001$). Therefore the indirect effect of SIAS Total Score on Attempted Coercion through AvgARP was examined. The indirect effects for the other four types of Sexual Victimization were not examined, because there was not a significant relationship between AvgARP and those types of victimization.

3.5 - Analyses of Indirect Effects

For the models above in which examination of indirect effects were warranted, a bootstrapping technique was used (Preacher & Hayes, 2008). First, analyses of the indirect effect of SIAS Total Score on each type of Sexual Victimization through SAS Refusal Score were computed, controlling for Past Victimization and Child Sexual Abuse. All participants were included in these analyses. Statistical significance of the indirect effects was determined using 95% bias-corrected and accelerated bootstrap confidence intervals. If the confidence interval did not contain zero, then it was concluded that there was a significant indirect effect.

The second hypothesis, which stated that SAS Refusal Score would partially account for the relationship between SIAS Total Score and Sexual Victimization, was supported, as there was a significant indirect effect through SAS Refusal Score for all types of Sexual Victimization. For Sexual Contact, the indirect effect was equal to 0.005 (95% $CI = 0.002$ to 0.009); for Attempted Coercion, the indirect effect was equal to 0.004 (95% $CI = 0.001$ to 0.007); for

Coercion, the indirect effect was equal to 0.006 (95% *CI* = 0.002 to 0.012); for Attempted Rape, the indirect effect was equal to 0.003 (95% *CI* = 0.001 to 0.006); and for Rape, the indirect effect was equal to 0.006 (95% *CI* = 0.002 to 0.011).

The third hypothesis, that AvgARP would partially account for the relationship between SIAS Total Score and Sexual Victimization, was not supported. Next, an analysis of the indirect effect of SIAS Total Score on Attempted Coercion through AvgARP was conducted. The indirect effect was equal to 0.004 (95% *CI* = 0.000 to 0.011), and as such, was not significant.

4.0 - Discussion

The primary purpose of this study was to examine social interaction anxiety as a potential risk factor for sexual victimization in college women. It was also expected that poor sexual assertiveness and alcohol-related problems would partially account for the relationship between social interaction anxiety and sexual victimization. Because past sexual victimization has been associated with an increased risk of future victimization (Gidycz et al., 1993; Gidycz et al., 1995; Livingston et al., 2007) and sexual victimization has been associated with increased anxiety (Boudreaux et al., 1998; Gidycz et al., 1993), past victimization and child sexual abuse were controlled for in all analyses. When the total effect of social interaction anxiety on different types of victimization was examined, social interaction anxiety was only a significant predictor of sexual victimization resulting from coercion perpetration techniques. Although the odds ratio for the effect of social interaction anxiety on the probability of experiencing sexual victimization through coercive techniques seems low, particularly when compared to the odds ratio for past victimization (a dichotomous variable), it is important to recognize that this odds ratio is for a one point increase in SIAS Total Score. For a one standard deviation increase in SIAS Total Score, the odds ratio would be 1.45. In other words, for a one standard deviation increase in social interaction anxiety as measured by the SIAS, there is a one and a half fold increase in risk of coercive sexual victimization. Therefore, it is important to consider the scale of the variables when interpreting the odds ratios.

The original hypothesis that social interaction anxiety would predict unwanted sexual contact, attempted coercion, and coercion was partially supported. This prediction was based on previous research (Schry & White, 2009). The perpetration techniques used in attempted and completed rape (e.g., being too drunk or “out of it” to consent, the perpetrator using threats of physical violence, and the perpetrator using physical force; Koss et al., 2007) may be such strong

perpetration techniques that social interaction anxiety may not play a role in these types of victimization. In other words, victimization by rape may be more related to characteristics of the situation or the perpetrator, at least relative to other types of victimization. As such, the woman's degree of social anxiety may have comparatively little impact on her risk of experiencing rape. When considering unwanted sexual contact, since all perpetration techniques are included in that variable, it is possible that the lack of an effect of social interaction anxiety on certain perpetration types caused a non-significant effect of social interaction anxiety on unwanted sexual contact. Sexual contact was the most frequently reported type of victimization (25.8% of this sample reported at least one incident of unwanted sexual contact in the past 12 months). The fact that the experience of unwanted sexual contact among college females is so prevalent may indicate that it is primarily determined by contextual factors, such that the woman's social anxiety is not a significant risk factor. Coercive perpetration techniques, such as telling lies, threatening to end the relationship or spread rumors, using verbal pressure, showing displeasure, and criticizing the victim (Koss et al., 2007), may be more likely to be associated with social interaction anxiety. Women who are higher on social interaction anxiety may have more difficulty refusing unwanted sexual advances when the perpetrator uses coercive techniques. It is also possible that men who use coercive perpetration techniques on women seek out women with high levels of social interaction anxiety because they may perceive them as more likely to concede to advances when coercive techniques are used. This possibility is supported by the finding that individuals high in social anxiety are perceived as being more vulnerable to threat than those lower in social anxiety (Creed & Funder, 1998). The finding that social interaction anxiety was not a significant predictor of attempted coercion, although hypothesized, is actually not surprising, because it may be that women who are lower in social interaction anxiety still experience coercion techniques, but they are better able to stop further advances before sexual intercourse occurs.

Although social interaction may be associated with factors that increase risk of some types of sexual victimization, it is also plausible that social anxiety is associated with protective factors that serve to decrease risk for sexual victimization, such as fewer sexual partners ($r = -0.10, p = 0.008$, in this study). Additionally, because individuals with SAD often avoid situations that make them anxious (APA, 2000), they may be in social situations that increase risk of sexual victimization (e.g., large parties where alcohol is served in large quantities, bars)

less often than their less anxious peers. Therefore, even though social interaction anxiety was only a significant predictor of unwanted sexual intercourse resulting from coercion, indirect effects were examined for all types of sexual victimization. The indirect effects of social interaction anxiety on all types of sexual victimization through sexual assertiveness were significant. Therefore, although social interaction anxiety was only a significant predictor of sexual victimization resulting from coercion when total effects were examined, social interaction anxiety does appear to reduce sexual assertiveness, which in turn increases risk of all types of sexual victimization.

Alcohol-related problems were examined as another possible variable to account for the relationship between social interaction anxiety and sexual victimization. Consistent with Norberg and colleagues' (2009; 2010) findings, social interaction anxiety was positively related to alcohol-related problems. Alcohol-related problems, however, was only a significant predictor of one type victimization, specifically, attempted sexual intercourse using coercive techniques, and this indirect effect was not significant. This finding was surprising, because past research has found that alcohol consumption plays a role in the majority of sexual victimization incidents (Gidycz et al., 2008; Mohler-Kuo et al., 2004). Therefore, it was expected that alcohol-related problems would be a predictor of sexual victimization, because it was hypothesized that problematic alcohol use is the reason for the relationship between alcohol use and sexual victimization. Given these findings, it is possible that increased alcohol use, regardless of whether or not the individual experiences alcohol-related problems is associated with increased risk of sexual victimization.

It is important to note that for Coercion, Attempted Rape, and Rape, the relationship with alcohol-related problems was close to statistical significance ($ps < 0.15$). It is, therefore, possible that measurement error in assessment of alcohol-related problems reduced our ability to find an effect. The measurement error for alcohol-related problems was increased in this sample, because for each problem, participants reported the number of times it had occurred since the beginning of the calendar year and answer choices ranged from 0 to 7+. The number of participants responding 7+ varied by item and ranged from 1 (0.1%) to 132 (19.1%), which restricted the range of the total number of alcohol-related problems. Additionally, the number of times alcohol had been consumed was needed in order to calculate the average number of

alcohol-related problems per drinking episode. The number of drinking occasions, however, had to be estimated using an ordinal variable on frequency of alcohol use. Most answer choices for this question included a range, so the mean of the range was used to estimate the number of times alcohol had been consumed since the beginning of the calendar year. This estimation technique added further measurement error.

This study supported the possibility that social interaction anxiety increases college women's risk of all types of victimization by decreasing assertiveness. Additionally, even without considering the effects of assertiveness, social interaction anxiety increased unwanted sexual intercourse resulting from coercive techniques. Based on these findings, counselors and psychologists who work with college and university women with SAD should include skill building, such as assertiveness training and specifically refusal skills, in treatment in order to help these women decrease their risk of sexual victimization. Although alcohol-related problems did not account for an indirect effect of social interaction anxiety on sexual victimization, it is still recommended that counselors and psychologists working with these women address alcohol use in risky social situations, as it may further increase risk of sexual victimization. Additionally, interventions designed to reduce risk of victimization should aim to include modules to address psychological variables, such as social interaction anxiety and sexual assertiveness.

Although this study did find a relationship between social interaction anxiety and sexual victimization, it is important to note that it is suggestive that social interaction anxiety is a risk factor for sexual victimization, and these findings do not suggest that victims are at fault for being victimized. As Finkelhor's (1984, as cited in Harney & Muehlenhard, 1991) model suggests, it is the perpetrator's drive to commit sexual assault that causes sexual victimization. Women can merely attempt to put up barriers to sexual assault, but even in situations in which women do not resist or engage in other prevention techniques, the blame for the assault falls solely on the perpetrator.

4.1 - Limitations

The limitations of this study should be considered when interpreting the results of this study. There are three primary methodological limitations of this study: (1) lack of temporal precedence; (2) the use of separate logistic regressions; and (3) the nature of data. First, temporal precedence cannot be established, because all study measures were completed at a

single time point. While it is possible that these findings support the hypothesis that social interaction anxiety increases risk of sexual victimization, it is also possible that victimization increases social interaction anxiety or that the relationship is bidirectional. Interpretation of the results of indirect effects also must be made with caution, because temporal precedence cannot be established.

The second primary limitation is that the dependent variables are correlated with one another, and separate logistic regressions were used in the data analyses. A multivariate framework would have been ideal to examine all types of sexual victimization at once in order to control for this correlation. The available syntax for controlling for correlated outcomes in multivariate logistic regression, however, is designed to be used with repeated measures data, which was deemed inappropriate for the data from this study. Additionally, other studies that have examined predictors of different types of sexual victimization and different outcomes of victimization, in which the outcome variables were likely correlated and dichotomous, have used separate logistic regressions (e.g., Mohler-Kuo et al., 2004; Testa, VanZile-Tamsen, & Livingston, 2004).

Finally, the use of only self-report measures and the fact that participants completed the survey at different times during the semester is a limitation. The fact that the AvgARP variable was estimated was also a limitation related to the nature of the data, as this introduced a large amount of measurement error into the variable. Given the finding that individuals high in social anxiety are viewed by others as being more vulnerable to threat (Creed & Funder, 1998), it is possible that observer-ratings of social interaction anxiety are more important than self-report ratings. Data were collected over a period of almost 12 weeks during the fall semester of the academic year. All variables, and particularly alcohol use and alcohol problem variables, may have been affected by when in the semester the survey was completed, particularly for first year students. Additionally, since many of the alcohol use and alcohol-related problems questions asked about the time since the beginning of the calendar year, the amount of time reported on differed for participants. By computing the average number of alcohol-related problems per drinking episode, this issue was controlled for, but it is still possible that participants' responses to these items were affected by when the survey was completed.

This sample only included only female undergraduate students and was primarily Caucasian. This study was designed to test this model in a college sample, and these models are not expected to differ across racial/ethnic groups, so the nature of the sample is not considered a limitation. It is predicted that the model in which social interaction anxiety increases risk of sexual victimization via decreased assertiveness would hold in community samples of women in addition to college samples. The model in which social interaction anxiety increases risk of sexual victimization through alcohol-related problems may not hold in other samples. Research findings on the relationship between social interaction anxiety and alcohol use suggest that this relationship differs in college samples and community adult samples (e.g., Buckner et al., 2006). The possibility that the model in which alcohol-related problems accounts for an indirect effect may not hold in other populations is not a limitation of this study, however, as this study was designed to examine these models in undergraduate females. It does, however, mean that these models should be tested in other populations before generalization to these populations is made.

4.2 - Future Directions

Future research that includes longitudinal data collection is recommended in order to establish temporal precedence of social interaction anxiety, potential mediators, and sexual victimization. Since social interaction anxiety may also serve as a protective factor for sexual victimization, it is important that variables that may account for these indirect effects be investigated. Given the possibility that social interaction anxiety may be both a risk and protective factor, potential mediator and moderator variables should be considered. In addition to low sexual assertiveness and alcohol-related problems, desire to conform with perceived social norms and tendency to concede to social pressure may also account for indirect effects between social anxiety and increased risk for victimization. Reduced exposure to risky social situations (e.g., bars and parties where large amounts of alcohol are consumed), not separating from close friends when in social situations, and fewer sexual partners are variables that should be investigated as possibly accounting for an indirect effect of social anxiety on reduced risk for victimization. Potential moderators are many and may include religious or community affiliations, as they may affect views on premarital sexual relationships, as well social groups (e.g., peer norms, sorority involvement, etc.).

Research should also examine whether the effect of social interaction anxiety on sexual victimization varies based on variables related to the victimization, such as the relationship between the victim and the perpetrator, how well the victim knows the perpetrator, where the victimization occurred, and how the victim met the perpetrator. Finally, future research studies should include more diverse samples in order to investigate the generalizability of these findings.

5.0 - Conclusions

This study provides preliminary evidence that social interaction anxiety serves as a risk factor for unwanted sexual intercourse resulting from coercive techniques. Additionally, because social interaction is associated with decreased sexual assertiveness, it increases risk of all types of sexual victimization through this relationship. Alcohol-related problems were not related to most types of victimization and did not account for the relationship between social interaction anxiety and attempted coercion. Future research, however, may still want to investigate this relationship further, given that social interaction anxiety has been positively related to alcohol-related problems in college women (Norberg et al., 2009; Norberg et al., 2010) and many victims consumed alcohol either before or during unwanted sexual experiences (Gidycz et al., 2008; Mohler-Kuo et al., 2004).

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Footnote

¹ Separate logistic regressions were also run to examine the total effect of social interaction anxiety on each form of sexual victimization (i.e., unwanted sexual contact, oral sex, vaginal sex, anal sex, attempted oral sex, attempted vaginal sex, and attempted anal sex) that resulted from coercive techniques. SIAS Total Score was only a significant predictor of oral, vaginal, and anal sex resulting from coercive techniques ($OR = 1.028$ to 1.054 , $ps < 0.05$), which are the variables included in the Coercion variable tested. Indirect effects were not examined due to the number of statistical tests required and concern about Type I Errors.

Table 1

Demographic Information

	<i>M</i>	<i>SD</i>	Minimum	Maximum
Age (in years)	19.40	1.59	17	45 ^a
		<i>n</i>	% of sample	
Year in College				
1 st Year		222	32.2	
2 nd Year		184	26.7	
3 rd Year		151	21.9	
4 th Year		117	17.0	
5 th Year or Beyond		16	2.3	
College of Major Field of Study ^b				
Agriculture and Life Science		106	15.4	
Architecture and Urban Studies		7	1.0	
Pamplin College of Business		56	8.1	
Engineering		24	3.5	
Liberal Arts and Human Sciences		172	24.9	
Natural Resources		2	0.3	
Science		327	47.4	
University Studies		82	11.9	
Race/Ethnicity ^b				
White/Caucasian, non-Hispanic, non-Arab		600	87.0	
Black/African American, non- Hispanic		23	3.3	
Hispanic/Latina		25	3.6	
American Indian/Alaskan Native		5	0.7	
Arab/Middle Eastern or Arab- American		3	0.4	
Asian/Asian American		60	8.7	
Pacific Islander		3	0.4	
Other		1	0.1	
Did not wish to provide information		3	0.4	

Table 1 continued

Demographic Information

	<i>n</i>	% of sample
Residence Type		
On-campus residence hall	303	43.9
Fraternity/sorority house	16	2.3
Other university housing	4	0.6
Off-campus, non-university housing	361	52.3
Parent or guardian's house	6	0.9
Sexual Orientation		
Heterosexual	672	97.4
Homosexual/Lesbian	1	0.1
Bisexual	14	2.0
Did not wish to provide information	1	0.1
Other	2	0.3
Relationship Status		
Not dating anyone	309	44.8
Casually dating one person	91	13.2
Casually dating more than one person	10	1.4
In a serious and committed relationship	271	39.3
Living with partner	2	0.3
Engaged	3	0.4
Married or in a domestic Partnership	4	0.6
Sorority Member		
Yes	109	15.8
No	581	84.2

^a Only one participant reported an age of 45 years. The next oldest participants were 25 years old (2 participants).

^b Participants could choose more than one option for these questions.

Table 2

Descriptive Statistics

Variable	<i>M</i>	<i>SD</i>	Median	Minimum	Maximum	Skewness	Kurtosis
SIAS Total ^a	19.586	12.459	17.00	0	79	0.981	1.064
# of days alcohol consumed in past week ^b	1.456	1.107	1.00	0	5	0.418	-0.367
# of alcoholic drinks consumed in past week ^b	7.070	7.909	5.00	0	54	1.827	5.026
APs since 1/1/10 ^b	25.206	22.838	19.50	0	154	1.346	2.220
# of AP per drinking episode ^b	0.935	1.865	0.48	0	21.60	7.066	62.105
log(per episode AP + 1) ^b	0.221	0.197	0.17	0	1	2.174	7.048
APs in past week ^b	2.735	4.248	1.00	0	26	2.277	6.603
SAS Refusal Total ^a	23.925	5.077	25.00	6	30	-0.639	-0.311
General Assertiveness ^a	5.922	1.540	6.00	1	7	-1.796	2.592

Table 2 continued

Descriptive Statistics

Variable	<i>M</i>	<i>SD</i>	Median	Minimum	Maximum	Skewness	Kurtosis
SPS Total ^a	13.086	11.957	9.00	0	80	1.452	2.888
CES-D Total ^a	14.522	10.144	12.00	0	50	0.876	0.348
DMQ-R Enhancement ^c	3.071	1.327	3.00	1	6	0.027	-0.933
DMQ-R Coping ^c	2.013	0.953	1.80	1	6	1.036	0.954
DMQ-R Conformity ^c	1.769	0.864	1.60	1	5.60	1.568	2.910
DMQ-R Social ^c	3.549	1.262	3.60	1	6	-0.280	-0.691
AESES Total ^a	26.083	11.198	26.00	10	50	0.187	-0.996
# of sexual partners ^a	2.604	3.604	1.00	0	25	2.580	8.804

^a $n = 690$; ^b $n = 588$, only administered to participants who drank in 2010; ^c $n = 619$, only administered to participants who drank in their lifetime

Note: APs = alcohol-related problems

Table 3

Frequency of Sexual Victimization and Child Abuse

	Yes <i>n</i> (%)	No <i>n</i> (%)
Sexual Contact		
Past 12 months	178 (25.8%)	512 (74.2%)
Since age 14	249 (36.1%)	441 (63.9%)
Attempted Coercion		
Past 12 months	98 (14.2%)	592 (85.8%)
Since age 14	128 (18.6%)	562 (81.4%)
Coercion		
Past 12 months	58 (8.4%)	632 (91.6%)
Since age 14	100 (14.5%)	590 (85.5%)
Attempted Rape		
Past 12 months	110 (15.9%)	580 (84.1%)
Since age 14	109 (15.8%)	581 (84.2%)
Rape		
Past 12 months	102 (14.8%)	588 (85.2%)
Since age 14	129 (18.7%)	561 (81.3%)
Participant reported she had been raped ^a	16 (15.7%)	86 (84.3%)
Participant reported she had been raped ^b	26 (20.2%)	103 (79.8%)
Sexual abuse (prior to age 14)	47 (6.8%)	643 (93.2%)
Physical abuse (prior to age 18)	48 (7.0%)	642 (93.0%)
Emotional/verbal abuse (prior to age 18)	215 (31.2%)	475 (68.8%)

^a participants who reported at least one incident that met criteria for rape in the past 12 months

^b participants who reported at least one incident that met criteria for rape since the age of 14

Table 4

Frequencies for Alcohol Use Questions

	<i>n</i>	%
Frequency of alcohol use in 2010		
Never drank in lifetime	71	10.3
Did not drink in 2010	31	4.5
1 or 2 times	44	6.4
3 to 11 times	69	10.0
Once a month	37	5.4
2 to 3 times a month	103	14.9
Once a week	86	12.5
Twice a week	175	25.4
3 to 4 times a week	67	9.7
5 to 6 times a week	7	1.0
Maximum # of standard drinks consumed in 24-hours in lifetime ^a		
1 drink	22	3.6
2 drinks	18	2.9
3 drinks	35	5.7
4 drinks	44	7.1
5 to 6 drinks	78	12.6
7 to 8 drinks	135	21.8
9 to 11 drinks	126	20.4
12 to 15 drinks	90	14.5
16 to 19 drinks	47	7.6
20 to 23 drinks	14	2.3
24 to 35 drinks	7	1.1
36+ drinks	3	0.5
Typical # of standard drinks consumed per drinking episode ^b		
1 drink	72	12.2
2 drinks	80	13.6
3 drinks	108	18.4
4 drinks	119	20.2
5 to 6 drinks	117	19.9
7 to 8 drinks	49	8.3
9 to 11 drinks	23	3.9
12 to 15 drinks	7	1.2
16 to 19 drinks	6	1.0
20 to 23 drinks	2	0.3
24 to 35 drinks	1	0.2
36+ drinks	4	0.7

Table 4 continued

Frequencies for Alcohol Use Questions

	<i>n</i>	%
Maximum # of standard drinks consumed in 24-hours since beginning of 2010 ^b		
1 drink	29	4.9
2 drinks	35	6.0
3 drinks	34	5.8
4 drinks	59	10.0
5 to 6 drinks	111	18.9
7 to 8 drinks	126	21.4
9 to 11 drinks	92	15.6
12 to 15 drinks	69	11.7
16 to 19 drinks	19	3.2
20 to 23 drinks	11	1.9
24 to 35 drinks	1	0.2
36+ drinks	2	0.3
Frequency of binge drinking (i.e., 4 or more standard drinks in a 2-hour period) in 2010 ^b		
Never	134	22.8
1 or 2 days	147	25.0
3 to 11 days	58	9.9
One day a month	37	6.3
2 to 3 days a month	62	10.5
One day a week	55	9.4
Two days a week	81	13.8
3 to 4 days a week	14	2.4

^a Only administered to participants who reported drinking in their lifetime ($n = 619$)

^b Only administered to participants who reported drinking in 2010 ($n = 588$)

Table 5

Correlations Among Study Variables

	SIAS Total Score	Alcohol Use Frequency	Alcohol Use Quantity	Total ARP	Total ARP Past Week	SAS Refusal Score	General Assertion	SPS Total Score	CES-D Total Score	# of Sexual Partners
SIAS Total Score		.073	-.129***	.074	-.014	-.134***	-.126***	.642***	.483***	-.102**
Alcohol Use Frequency			-.323***	.998***	-.240***	.111**	.003	.048	-.002	-.217***
Alcohol Use Quantity				-.293***	.669***	-.091*	-.052	-.031	.009	.220***
Total ARP					-.204***	.101**	-.006	.058	.011	-.199***
Total ARP Past Week						-.162***	-.120**	.090*	.167***	.172***
SAS Refusal Score							.404***	-.142***	-.227***	-.164***
General Assertion								-.156***	-.254***	-.023
SPS Total Score									.505***	-.060
CES-D Total Score										.026

Table 5 continued

Correlations Among Study Variables

	SIAS Total Score	Alcohol Use Frequency	Alcohol Use Quantity	Total ARP	Total ARP Past Week	SAS Refusal Score	General Assertion	SPS Total Score	CES-D Total Score	# of Sexual Partners
DMQ-R Enhance	-.023	-.295***	.450***	-.244***	.376***	-.071	-.036	.091*	.123**	.209***
DMQ-R Coping	.214***	-.197***	.273***	-.141***	.398***	-.226***	-.144***	.293***	.409***	.148***
DMQ-R Conform	.242***	-.089*	.055	-.058	.238***	-.267***	-.241***	.326***	.286***	.036
DMQ-R Social	.027	-.346***	.390***	-.298***	.340***	-.117**	-.033	.093*	.130***	.162***
AESES	.195***	-.310***	.292***	-.287***	.352***	-.166***	-.095*	.286***	.266***	.092*

Note. * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$. SIAS = Social Interaction Anxiety Scale; Alcohol Use Frequency = # of days alcohol was consumed in the past week; Alcohol Use Quantity = # of alcoholic drinks consumed in the past week; Total ARP = total alcohol-related problems since the beginning of 2010 (excluding items confounded with sexual victimization); Total ARP Past Week = total alcohol-related problems in the past week (excluding items confounded with sexual victimization); SAS = Sexual Assertiveness Scale; General Assertion = response from item on general assertiveness; SPS = Social Phobia Scale; CES-D = Center for Epidemiologic Studies Depression Scale; DMQ-R = Drinking Motive Questionnaire – Revised; AESES = Alcohol Expectancies for Social Evaluative Situations Scale

Table 5 continued

Correlations Among Study Variables

	DMQ-R Coping	DMQ-R Conform	DMQ-R Social	AESES
DMQ-R Enhance	.574***	.255***	.759***	.611***
DMQ-R Coping		.463***	.594***	.608***
DMQ-R Conform			.396***	.394***
DMQ-R Social				.678***

Table 6

Results of Logistic Regressions for Total Effects

Dependent Variable	<i>OR</i> for SIAS Total	<i>OR</i> for Past Victimization	<i>OR</i> for Child Sexual Abuse
Sexual Contact	1.00 ($p = 0.79$)	4.71 ($p < 0.001$)	0.91 ($p = 0.77$)
Attempted Coercion	1.01 ($p = 0.28$)	5.36 ($p < 0.001$)	1.49 ($p = 0.28$)
Coercion	1.03 ($p = 0.001$)	4.26 ($p < 0.001$)	1.14 ($p = 0.78$)
Attempted Rape	1.00 ($p = 0.80$)	7.09 ($p < 0.001$)	1.57 ($p = 0.21$)
Rape	1.00 ($p = 0.64$)	6.14 ($p < 0.001$)	1.57 ($p = 0.21$)

Table 7

Results of Logistic Regressions for Indirect Effects

Dependent Variable	SAS Refusal Analyses <i>OR</i>	AvgARP Analyses <i>OR</i>
Sexual Contact	0.91 ($p < 0.001$)	1.66 ($p = 0.39$)
Attempted Coercion	0.93 ($p = 0.001$)	4.87 ($p = 0.02$)
Coercion	0.88 ($p < 0.001$)	3.41 ($p = 0.13$)
Attempted Rape	0.94 ($p = 0.007$)	3.09 ($p = 0.09$)
Rape	0.89 ($p < 0.001$)	3.36 ($p = 0.07$)

Appendix A

Recruitment Flyer

Psychological Health and Sexual Experiences Survey



If you are an undergraduate female at Virginia Tech and would be interested in completing an on-line survey about psychological health and sexual experiences, please take a slip below and visit the website provided for more information and to sign up for the study. If you have any questions, please contact Amie Schry at aschry@vt.edu



Psychological Health & Sexual Experiences Survey https://www.surveymonkey.com/s/FCVNFGJ
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Psychological Health & Sexual Experiences Survey https://www.surveymonkey.com/s/FCVNFGJ

Appendix B

Study Description on Sona Website

Study Name: Psychological Health and Sexual Experiences Survey

Abstract: ****WOMEN ONLY!**** On-line survey about psychological health and sexual experiences.

Description: This study involves an on-line survey regarding your psychological health and sexual experiences you may have had. After signing up for this study, you will receive an e-mail with a website address and login information for the survey. The survey will be open from Monday to Wednesday each week. You will receive an e-mail each Monday until you complete the survey or remove yourself from this study.

Web Study: This is an online study. Participants are not given the study URL until after they sign up.

Eligibility Requirements: Females only

Duration: Approximately 60 minutes

Credits: 1

Researcher: Amie Schry E-mail: aschry@vt.edu

Appendix C

Demographics Questionnaire

Survey Directions: Please complete each question to the best of your ability. The entire survey is expected to take one hour or less. We ask that you please complete the entire survey in one sitting. If you are unable to complete the survey in one sitting, please return before Wednesday, <INSERT DATE>, at 11:59 p.m. to finish the survey, as the survey will close for the week at 11:59 p.m. on Wednesday, <INSERT DATE>.

1. How did you first learn about this study?

- Psychology Department Sona System
- E-mail I received
- Flyer I saw
- Other (Please specify _____)

2. Sex:

- Female
- Male

3. Age (in years): _____

4. In what month were you born?

- | | | | | | |
|---------|----------|-----------|---------|----------|----------|
| January | February | March | April | May | June |
| July | August | September | October | November | December |

5. What year are you in college?

- 1st Year 2nd Year 3rd Year 4th Year 5th Year or Beyond

6. What college(s) is/are your major(s) in? (**Select all that apply**)

- College of Agriculture & Life Sciences
- College of Architecture & Urban Studies
- Pamplin College of Business
- College of Engineering
- College of Liberal Arts & Human Sciences
- College of Natural Resources
- College of Science

- University Studies
- Other (Please specify _____)

7. How do you usually describe your race and/or ethnicity? (**Select all that apply**)

- White/Caucasian, non-Hispanic, non-Arab
- Black/African American, non-Hispanic
- Hispanic/Latina
- American Indian/Alaskan Native
- Arab/Middle Eastern or Arab American
- Asian/Asian-American
- Pacific Islander
- Other (Please specify _____)
- I do not wish to provide this information

8. Where do you live?

- On-campus residence hall
- Fraternity or sorority house
- Other university housing
- Off-campus, non-university housing
- Parent or guardian's house
- Other (Please specify the type of housing you live in _____)

9. How do you describe your sexual orientation?

- Heterosexual
- Bisexual
- Homosexual/Lesbian
- Other (Please specify _____)
- I do not wish to provide this information

10. What is your current relationship status?

- I am not dating anyone
- I am casually dating one person
- I am casually dating more than one person
- I am in a serious and committed relationship, but not married
- I am living with my partner, but not married
- I am engaged
- I am married or in a domestic partnership
- I am divorced
- I am widowed

11. Are you a member of a social (not academic) Greek organization/sorority?

- Yes
- No

12. Are you involved in any of the following extracurricular activities? (**Select all that apply.**)

- Honor Society (Academic or Professional)
- Academic Professional Organization
- Intercollegiate Athletics
- Intramural Athletics/Club Sports
- Student Government
- Volunteering Organization
- Political Activism Organization
- Religious Organization
- Arts, Music, or Media Organization
- Military Organization
- Other clubs or activities (Please specify _____)
- No Clubs

Appendix D

Social Interaction Anxiety Scale (SIAS)

For each question, please select a number to indicate the degree to which you feel the statement is characteristic or true of you. The rating scale is as follows:

0 = Not at all characteristic or true of me
 1 = Slightly characteristic or true of me
 2 = Moderately characteristic or true of me

3 = Very characteristic or true of me
 4 = Extremely characteristic or true of me

	Not at all	Slightly	Moderately	Very	Extremely
1. I get nervous if I have to speak with someone in authority (teacher, boss, etc.).	0	1	2	3	4
2. I have difficulty making eye-contact with others.	0	1	2	3	4
3. I become tense if I have to talk about myself or my feelings.	0	1	2	3	4
4. I find difficulty mixing comfortably with the people I work with.	0	1	2	3	4
5. I find it easy to make friends of my own age.	0	1	2	3	4
6. I tense-up if I meet an acquaintance on the street.	0	1	2	3	4
7. When mixing socially, I am uncomfortable.	0	1	2	3	4
8. I feel tense if I am alone with just one other person.	0	1	2	3	4
9. I am at ease meeting people at parties, etc.	0	1	2	3	4
10. I have difficulty talking with other people.	0	1	2	3	4

11. I find it easy to think of things to talk about.	0	1	2	3	4
12. I worry about expressing myself in case I appear awkward.	0	1	2	3	4
13. I find it difficult to disagree with another's point of view.	0	1	2	3	4
14. I have difficulty talking to attractive persons of the opposite sex.	0	1	2	3	4
15. I find myself worrying that I won't know what to say in social situations.	0	1	2	3	4
16. I am nervous mixing with people I don't know well.	0	1	2	3	4
17. I feel I'll say something embarrassing when talking.	0	1	2	3	4
18. When mixing in a group, I find myself worrying I will be ignored.	0	1	2	3	4
19. I am tense mixing in a group.	0	1	2	3	4
20. I am unsure whether to greet someone I know only slightly.	0	1	2	3	4

Appendix E

Sexual Experiences Survey Short Form Victimization (SES-SFV)

1. How many different sexual partners have you had vaginal sexual intercourse with? If you have never had vaginal sex, please enter “0.” If you are uncertain, please enter your best estimate.

The following questions concern sexual experiences that you may have had that were unwanted. Your information is completely confidential. We hope that this helps you to feel comfortable answering each question honestly. Select the number of times each experience has happened to you from the drop down menus. If several experiences occurred on the same occasion – for example, if one night someone told you some lies and had sex with you when you were drunk, you would check both boxes a and c. **“The past 12 months” refers to the time from today’s date in 2009 through today. “Since age 14” refers to the time since your 14th birthday, but does not include the past 12 months. In other words, if you experienced a certain sexual experience in the past year, it would be reported only under “the past 12 months” category and not “since age 14.”**

Sexual Experiences	How many times in the past 12 months?				How many times since age 14?			
	0	1	2	3+	0	1	2	3+
1. Someone fondled, kissed, or rubbed up against the private areas of my body (lips, breast/chest, crotch, or butt) or removed some of my clothes without my consent (but did not attempt sexual penetration) by:								
a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn’t want to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn’t want to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Taking advantage of me when I was too drunk or out of it to stop what was happening.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Threatening to physically harm me or someone close to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Someone had oral sex with me or made me have oral sex with them without my consent by:								
a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn’t want to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn’t want to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Taking advantage of me when I was too drunk or out of it to stop what was happening.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sexual Experiences	How many times in the past 12 months?				How many times since age 14?			
d. Threatening to physically harm me or someone close to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. A man put his penis into my vagina, or someone inserted fingers or objects without my consent by:	0	1	2	3+	0	1	2	3+
a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Taking advantage of me when I was too drunk or out of it to stop what was happening.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Threatening to physically harm me or someone close to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. A man put his penis into my butt, or someone inserted fingers or objects without my consent by:								
a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Taking advantage of me when I was too drunk or out of it to stop what was happening.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Threatening to physically harm me or someone close to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Even though it did not happen, someone TRIED to have oral sex with me, or make me have oral sex with them without my consent by:								
a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sexual Experiences	How many times in the past 12 months?				How many times since age 14?			
c. Taking advantage of me when I was too drunk or out of it to stop what was happening.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Threatening to physically harm me or someone close to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Even though it did not happen, a man TRIED to put his penis into my vagina, or someone tried to stick in fingers or objects without my consent by:	0	1	2	3+	0	1	2	3+
a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Taking advantage of me when I was too drunk or out of it to stop what was happening.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Threatening to physically harm me or someone close to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Even though it did not happen, a man TRIED to put his penis into my butt, or someone tried to stick in objects or fingers without my consent by:								
a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Taking advantage of me when I was too drunk or out of it to stop what was happening.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Threatening to physically harm me or someone close to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. If you reported any experiences above, what was the sex of the person or persons who did them to you?

- I reported no experiences
- Female only
- Male only
- Both females and males

9. If you reported any experiences above, what was your relationship with the person or persons who did them to you? Please select all that apply.

- I reported no experiences
- Complete stranger
- Casual acquaintance
- Friend
- Romantic Partner
- Family Member

10. If you reported any experiences above, please rate how well you knew the person who did them to you.

I reported no experiences

More than one person did these things to me

1	2	3	4	5	6	7
Did not know at all						Knew very well

11. Consider for a minute all the experiences described on this page. From the age of 14 until now (including the past 12 months), on how many different occasions have you had any of these experiences? If you are unsure, please give your best estimate. If you reported no experiences, please enter 0 below.

12. Consider for a minute all the experiences described on this page. In the past 12 months, on how many different occasions have you had any of these experiences? If you are unsure, please give your best estimate. If you reported no experiences, please enter 0 below.

13. Have you ever been raped?

- yes
- no

Appendix F

Alcohol Use Questions – Past Week

Please contact Dr. Jennifer L. Maggs at jmaggs@psu.edu and Amie Schry at aschry@vt.edu before using or altering these questions.

Note: These items were administered for each day of the past week (i.e., Monday through Sunday preceding the opening of the survey).

1. Did you consume any alcohol on DAY, DATE?

Yes

No

Note: If “no,” skip to next day.

2. On DAY, DATE, how many alcoholic drinks did you consume? **By a drink we mean half an ounce of absolute alcohol (e.g. a 12 ounce can or glass of beer or cooler, a 5 ounce glass of wine, or a drink containing 1 shot of liquor).**

3. On DAY, DATE, where were you and who were you with when you drank alcohol? (Check all that apply for Day, Date.)

	Alone	With Friends	Romantic Partner	Large Group	Your Parents
Dorm/Residence Hall					
Bar/Restaurant					
Fraternity House or Party					
Sorority House or Party					
Apartment/Home					
Major Entertainment Event (Sports, tailgate, concert, etc.)					
Somewhere else (please specify _____)					

4. On DAY, DATE, did you participate in any drinking games?

_____ Yes

_____ No

5. On DAY, DATE, did you want to get drunk?

_____ Yes

_____ No

6. On DAY, DATE, did you get drunk?

_____ Yes

_____ No

7. On DAY, DATE, did you drink 4 or more drinks containing any kind of alcohol within a 2-hour period? **By a drink we mean half an ounce of absolute alcohol (e.g. a 12 ounce can or glass of beer or cooler, a 5 ounce glass of wine, or a drink containing 1 shot of liquor).**

_____ Yes

_____ No

Appendix G

Alcohol Use Questions – Past 12 Months

1. Since the beginning of the year (meaning, since January 1, 2010), how often did you usually have any kind of drink containing alcohol? **By a drink we mean half an ounce of absolute alcohol (e.g. a 12 ounce can or glass of beer or cooler, a 5 ounce glass of wine, or a drink containing 1 shot of liquor).** Choose only one.

Every day

5 to 6 times a week

3 to 4 times a week

Twice a week

Once a week

2 to 3 times a month

Once a month

3 to 11 times in the past year

1 or 2 times in the past year

(IF RESPONDENT GIVES ANY OF THE ABOVE RESPONSES, GO TO QUESTION 4)

I did not drink any alcohol since the beginning of the year, but I did drink in the past
(GO TO QUESTION 2)

I never drank any alcohol in my life
(GO TO QUESTION 3)

2. During your lifetime, what is the maximum number of drinks containing alcohol that you drank within a 24-hour period? **By a drink we mean half an ounce of absolute alcohol (e.g. a 12 ounce can or glass of beer or cooler, a 5 ounce glass of wine, or a drink containing 1 shot of liquor).**

36+ drinks

24 to 35 drinks

20 to 23 drinks

16 to 19 drinks

12 to 15 drinks

9 to 11 drinks

7 to 8 drinks

5 to 6 drinks

4 drinks

3 drinks

2 drinks

1 drink

(DONE WITH ALCOHOL QUESTIONS – ALSO SKIP DAILY ALCOHOL QUESTIONS)

3. So you have never had a drink containing alcohol in your entire life?

NOTE: ASKED ONLY OF THOSE WHO SAY THEY NEVER DRANK ALCOHOL IN THEIR LIVES

Yes, I never drank.

(DONE WITH ALCOHOL QUESTIONS – ALSO SKIP DAILY ALCOHOL QUESTIONS)

No, I did drink

(GO BACK TO QUESTION 1 AND REPEAT)

4. Since the beginning of the year (meaning, since January 1, 2010), how many alcoholic drinks did you have on a typical day when you drank alcohol? **By a drink we mean half an ounce of absolute alcohol (e.g. a 12 ounce can or glass of beer or cooler, a 5 ounce glass of wine, or a drink containing 1 shot of liquor).**

36+ drinks

24 to 35 drinks

20 to 23 drinks

16 to 19 drinks

12 to 15 drinks

9 to 11 drinks

7 to 8 drinks

5 to 6 drinks

4 drinks

3 drinks

2 drinks

1 drink

5. Since the beginning of the year (meaning, since January 1, 2010), what is the largest number of drinks containing alcohol that you drank within a 24-hour period? **By a drink we mean half an ounce of absolute alcohol (e.g. a 12 ounce can or glass of beer or cooler, a 5 ounce glass of wine, or a drink containing 1 shot of liquor).**

36+ drinks

24 to 35 drinks

20 to 23 drinks

16 to 19 drinks

12 to 15 drinks

9 to 11 drinks

7 to 8 drinks

5 to 6 drinks
4 drinks
3 drinks
2 drinks
1 drink

6. Since the beginning of the year (meaning, since January 1, 2010), how often did you have 4 or more drinks containing any kind of alcohol in within a two-hour period? **That would be the equivalent of at least 4 12-ounce cans or bottles of beer, 4 five ounce glasses of wine, 4 drinks each containing one shot of liquor or spirits.** Choose only one.

Every day
5 to 6 days a week
3 to 4 days a week
Two days a week
One day a week
2 to 3 days a month
One day a month
3 to 11 days in the past year
1 or 2 days in the past year
Never

7. During your lifetime, what is the largest number of drinks containing alcohol that you drank within a 24-hour period? **By a drink we mean half an ounce of absolute alcohol (e.g. a 12 ounce can or glass of beer or cooler, a 5 ounce glass of wine, or a drink containing 1 shot of liquor).**

36+ drinks
24 to 35 drinks
20 to 23 drinks
16 to 19 drinks
12 to 15 drinks
9 to 11 drinks
7 to 8 drinks
5 to 6 drinks
4 drinks
3 drinks
2 drinks
1 drink

Appendix H

Alcohol-Related Problems

The following are some things that some individuals experience after consuming alcohol. Please indicate how many times you have experienced any of these problems since the beginning of 2010 (meaning since January 1, 2010).

Note: This measure was also administered as a yes/no checklist for each day that participants reported consuming alcohol in the past week.

1. Did something I later regretted or was embarrassed by.
0 1 2 3 4 5 6 7+
2. Had a verbal argument.
0 1 2 3 4 5 6 7+
3. Was rude or obnoxious while under the influence of alcohol.
0 1 2 3 4 5 6 7+
4. Got into a sexual situation I later regretted (e.g., unprotected sex, sex with a stranger).
0 1 2 3 4 5 6 7+
5. Was taken advantage of sexually or took advantage of another sexually.
0 1 2 3 4 5 6 7+
6. Felt sick or vomited while under the influence of alcohol.
0 1 2 3 4 5 6 7+
7. Urinated in a public setting.
0 1 2 3 4 5 6 7+
8. Damaged property.
0 1 2 3 4 5 6 7+
9. Put myself in a risky or dangerous situation, other than drunk driving or risky sex.
0 1 2 3 4 5 6 7+
10. Drove a car under the influence of alcohol or rode in a car with a driver under the influence of alcohol.
0 1 2 3 4 5 6 7+

11. Had a physical conflict.

0 1 2 3 4 5 6 7+

12. Physically hurt or injured myself or another person (not as the result of a physical fight).

0 1 2 3 4 5 6 7+

13. Passed out.

0 1 2 3 4 5 6 7+

14. Had a hangover (headache or sick stomach) the day after drinking.

0 1 2 3 4 5 6 7+

15. Had memory loss (unable to remember large stretches of time while drinking).

0 1 2 3 4 5 6 7+

16. Had less energy or felt tired because of drinking.

0 1 2 3 4 5 6 7+

17. Missed a class, work, or important event.

0 1 2 3 4 5 6 7+

18. Not able to do school-work or study for a test.

0 1 2 3 4 5 6 7+

19. Spent so much money on alcohol, I missed out on something else.

0 1 2 3 4 5 6 7+

20. Neglected household or family responsibilities.

0 1 2 3 4 5 6 7+

21. Felt badly about myself from drinking.

0 1 2 3 4 5 6 7+

22. Impaired athletic or sporting performance.

0 1 2 3 4 5 6 7+

23. Had legal trouble with the authorities (e.g., arrested).

0 1 2 3 4 5 6 7+

24. Required medical treatment for an alcohol overdose.

0 1 2 3 4 5 6 7+

25. Other (please specify problem and number of times it has occurred)

Appendix I

Sexual Assertiveness Scale – Refusal Subscale

Please rate each of the following statements on the following scale.

1	2	3	4	5
Strongly Disagree	Somewhat Disagree	Mixed	Somewhat Agree	Strongly Agree

1. I give in and kiss if my partner pressures me, even if I already said no.

1	2	3	4	5
---	---	---	---	---

2. I put my mouth on my partner's genitals if my partner wants me to, even if I don't want to.

1	2	3	4	5
---	---	---	---	---

3. I refuse to let my partner touch my breasts if I don't want that, even if my partner insists.

1	2	3	4	5
---	---	---	---	---

4. I have sex if my partner wants me to, even if I don't want to.

1	2	3	4	5
---	---	---	---	---

5. If I said no, I won't let my partner touch my genitals even if my partner pressures me.

1	2	3	4	5
---	---	---	---	---

6. I refuse to have sex if I don't want to, even if my partner insists.

1	2	3	4	5
---	---	---	---	---

Appendix J

General Assertiveness Question

Please rate your agreement with the following statement.

In general, I believe I am able to say no in situations in which I do not want to do something.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree Nor Disagree			Strongly Agree

Appendix K

Social Phobia Scale (SPS)

For each question, please circle a number to indicate the degree to which you feel the statement is characteristic or true of you. The rating scale is as follows:

0 = Not at all characteristic or true of me 3 = Very characteristic or true of me
 1 = Slightly characteristic or true of me 4 = Extremely characteristic or true of me
 2 = Moderately characteristic or true of me

	Not at all	Slightly	Moderately	Very	Extremely
1. I become anxious if I have to write in front of other people.	0	1	2	3	4
2. I become self-conscious when using public toilets.	0	1	2	3	4
3. I can suddenly become aware of my own voice and of others listening to me.	0	1	2	3	4
4. I get nervous that people are staring at me as I walk down the street.	0	1	2	3	4
5. I fear I may blush when I am with others.	0	1	2	3	4
6. I feel self-conscious if I have to enter a room where others are already seated.	0	1	2	3	4
7. I worry about shaking or trembling when I'm watched by other people.	0	1	2	3	4
8. I would get tense if I had to sit facing other people on a bus or a train.	0	1	2	3	4
9. I get panicky that others might see me faint or be sick or ill.	0	1	2	3	4

10. I would find it difficult to drink something if in a group of people.	0	1	2	3	4
11. It would make me feel self-conscious to eat in front of a stranger in a restaurant.	0	1	2	3	4
12. I am worried people will think my behavior odd.	0	1	2	3	4
13. I would get tense if I had to carry a tray across a crowded cafeteria.	0	1	2	3	4
14. I worry I'll lose control of myself in front of other people.	0	1	2	3	4
15. I worry I might do something to attract the attention of other people.	0	1	2	3	4
16. When in an elevator, I am tense if people look at me.	0	1	2	3	4
17. I can feel conspicuous standing in a line/queue.	0	1	2	3	4
18. I get tense when I speak in front of other people.	0	1	2	3	4
19. I worry my head will shake or nod in front of others.	0	1	2	3	4
20. I feel awkward and tense if I know people are watching me.	0	1	2	3	4

Appendix L

Center for Epidemiologic Studies Depression Scale (CES-D)

Below is a list of ways that you might have felt or behaved. Please select the answer choice that describes how often you have felt this way DURING THE PAST WEEK.

0 = Rarely or none of the time (less than 1 day)

1 = Some or a little of the time (1-2 days)

2 = Occasionally or a moderate amount of time (3-4 days)

3 = Most or all of the time (5-7 days)

1. I was bothered by things that usually don't bother me.

0 1 2 3

2. I did not feel like eating; my appetite was poor.

0 1 2 3

3. I felt that I could not shake off the blues even with help from my family or friends.

0 1 2 3

4. I felt that I was just as good as other people

0 1 2 3

5. I had trouble keeping my mind on what I was doing.

0 1 2 3

6. I felt depressed.

0 1 2 3

7. I felt that everything I did was an effort.

0 1 2 3

8. I felt hopeful about the future.

0 1 2 3

9. I thought my life had been a failure.

0 1 2 3

10. I felt fearful.

0 1 2 3

11. My sleep was restless.

0 1 2 3

12. I was happy.

0 1 2 3

13. I talked less than usual.

0 1 2 3

14. I felt lonely.

0 1 2 3

15. People were unfriendly.

0 1 2 3

16. I enjoyed life.

0 1 2 3

17. I had crying spells.

0 1 2 3

18. I felt sad.

0 1 2 3

19. I felt that people dislike me.

0 1 2 3

20. I could not get "going."

0 1 2 3

Appendix M

Drinking Motives Questionnaire – Revised

Here is a list of reasons people give for drinking alcoholic beverages. Using the response categories below, please indicate how often you drink for each of the following reasons. There are no right or wrong answers to these questions. We just want to know about the reasons why you usually drink when you do. Please use the following scale:

- | 1 | 2 | 3 | 4 | 5 | 6 |
|--|-----------------|---------------------|---------------------------|---------------------|--------|
| Never | Almost
never | Some of
the time | About half
of the time | Most of
the time | Always |
| 1. How often do you drink to forget about your worries? | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 |
| 2. How often do you drink because your friends pressure you to drink? | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 |
| 3. How often do you drink because it helps you enjoy a party? | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 |
| 4. How often do you drink because it helps you when you feel depressed or nervous? | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 |
| 5. How often do you drink to be sociable? | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 |
| 6. How often do you drink to cheer up when you are in a bad mood? | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 |
| 7. How often do you drink because you like the feeling? | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 |
| 8. How often do you drink so that others won't kid you about <i>not</i> drinking? | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 |
| 9. How often do you drink because it's exciting? | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 |

10. How often do you drink to get high?

1 2 3 4 5 6

11. How often do you drink because it makes social gatherings more fun?

1 2 3 4 5 6

12. How often do you drink to fit in with a group you like?

1 2 3 4 5 6

13. How often do you drink because it gives you a pleasant feeling?

1 2 3 4 5 6

14. How often do you drink because it improves parties and celebrations?

1 2 3 4 5 6

15. How often do you drink because you feel more self-confident or sure of yourself?

1 2 3 4 5 6

16. How often do you drink to celebrate a special occasion with friends?

1 2 3 4 5 6

17. How often do you drink to forget about your problems?

1 2 3 4 5 6

18. How often do you drink because it's fun?

1 2 3 4 5 6

19. How often do you drink to be liked?

1 2 3 4 5 6

20. How often do you drink so you won't feel left out?

1 2 3 4 5 6

Appendix N

Alcohol Expectancies for Social Evaluative Situations Scale (AESES)

Directions: This is a questionnaire of your perceptions about the effects of alcohol. Please read each statement carefully and then rate the degree to which the effect is "true" for you using the scale below. When the statements mention "drinking alcohol," or just "drinks," this refers to any alcoholic beverage such as beer, wine, whiskey, gin, vodka, wine coolers, and any type of regular or sweet mixed drink. Regardless of the amount of your actual drinking experience, please answer according to what you believe the effect is or would be for you.

Please rate all of the items using the following key:

1 = Not at all true

2 = A little true

3 = Somewhat true

4 = Frequently true

5 = Very much true

- _____ 1. I don't worry as much about what people are thinking about me when I am drinking.
- _____ 2. When I am drinking, it doesn't bother me as much if people are looking at me.
- _____ 3. When I am drinking alcohol, I feel freer to be myself and do whatever I want.
- _____ 4. It is easier to start a conversation with someone if I have had a few drinks.
- _____ 5. I feel more comfortable in a large group situation when I am drinking.
- _____ 6. I think less about saying or doing something embarrassing in front of others when I have had a few drinks.
- _____ 7. After a few drinks, I feel more confident when telephoning someone.
- _____ 8. I think less about what others might think about my physical appearance when I've had a few drinks.
- _____ 9. After I have a few drinks, I feel more comfortable talking to people.
- _____ 10. After a few drinks, I feel more at ease when talking to someone.

Appendix O

Child Abuse Questions

1. Before the age of 14, did you have any unwanted sexual experiences?

____ Yes

____ No

2. Before the age of 18, were you ever physically abused?

____ Yes

____ No

3. Before the age of 18, were you ever emotionally or verbally abused (including, but not limited to, being repeatedly ignored, isolated, rejected, neglected, exploited, verbally assaulted, or terrorized)?

____ Yes

____ No

Appendix P

IRB Approval Letter

See Next Pages



MEMORANDUM

DATE: June 18, 2010

TO: Susan White, Amie Schry

FROM: Virginia Tech Institutional Review Board (FWA00000572, expires June 13, 2011)

PROTOCOL TITLE: Social Interaction Anxiety as a Risk Factor of Sexual Victimization in College Women

IRB NUMBER: 10-493

Effective June 17, 2010, the Virginia Tech IRB Chair, Dr. David M. Moore, approved the new protocol for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report promptly to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at <http://www.irb.vt.edu/pages/responsibilities.htm> (please review before the commencement of your research).

PROTOCOL INFORMATION:

Approved as: **Expedited, under 45 CFR 46.110 category(ies) 7**

Protocol Approval Date: **6/17/2010**

Protocol Expiration Date: **6/16/2011**

Continuing Review Due Date*: **6/2/2011**

*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

FEDERALLY FUNDED RESEARCH REQUIREMENTS:

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals / work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.

Date*	OSP Number	Sponsor	Grant Comparison Conducted?

*Date this proposal number was compared, assessed as not requiring comparison, or comparison information was revised.

If this IRB protocol is to cover any other grant proposals, please contact the IRB office (irbadmin@vt.edu) immediately.

cc: File