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# Adult Sexual Abuse, Disordered Eating Behaviors, and Substance Abuse: The Role of Internalized Shame and Maladaptive Coping Strategies

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**ADULT SEXUAL ABUSE, DISORDERED EATING BEHAVIORS, AND SUBSTANCE  
ABUSE: THE ROLE OF INTERNALIZED SHAME AND MALADAPTIVE COPING  
STRATEGIES**

by

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## ABSTRACT

### ADULT SEXUAL ABUSE, DISORDERED EATING BEHAVIORS, AND SUBSTANCE ABUSE: THE ROLE OF INTERNALIZED SHAME AND MALADAPTIVE COPING STRATEGIES

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The prevalence of sexual abuse and disordered eating in young adulthood is increasing in the United States, with as many as one-quarter of women reporting unwanted sexual contact and two-thirds reporting extreme dieting. Among the numerous deleterious effects of sexual abuse are a greater risk of problematic eating, drinking and drug use among women, making this population at particular risk for co-occurrence of sexual abuse, disordered eating and substance use. Despite these statistics, the impact of adult sexual abuse (ASA) on disordered eating and substance use is largely unknown for this population. Shame and avoidance-focused coping have been identified as shared responses among sexual abuse survivors and are well-known contributors to the maintenance and development of disordered eating and substance abuse, though it is unclear how these might influence the relationship between ASA contact, disordered eating, and problematic substance use. This study aimed to 1) examine the association of history (i.e., ASA only, no history, revictimization) and 2) type (i.e., contact, non-contact) of ASA on health-risk behaviors among college women and 3) assess two potential mediators (i.e., internalized shame, maladaptive coping) influencing the relationship between ASA contact and disordered eating, problematic drinking, and problematic drug use. Participants were 420 undergraduate female students who completed an online survey. Results indicated that women who endorsed a history of ASA only (i.e., contact, non-contact) reported significantly greater

problematic drinking as compared to women who did not endorse ASA history. Further, endorsed revictimization (i.e., multiple instances of sexual abuse across lifespan) history was associated with significantly greater reported disordered eating and problematic substance use as compared to women with no reported ASA history. Results of mediation analyses revealed that internalized shame fully mediated the relationship between ASA contact, disordered eating and problematic drug use, and partially mediated the relationship between ASA contact and problematic drinking. Maladaptive coping did not mediate the relationship between ASA contact and the outcome variables. Overall, internalized shame explained the greatest amount of variance in the association between ASA contact, disordered eating, and substance use. Future research may benefit from replicating this study among larger, more diverse clinical samples.

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This thesis is dedicated to all survivors of sexual abuse.

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## CHAPTER I

### INTRODUCTION

The National Intimate Partner and Sexual Violence Survey (NISVS) in 2010 found that approximately one in four women (27.3%) experienced some form of unwanted sexual contact during their lifetimes (Breiding et al., 2014). Sexual abuse has long been recognized as a major threat to public health and safety on college campuses within the United States, with as many as one-third to one-half of men admitting to sexually assaulting a woman while attending college (Simons, Simons, Lei, & Sutton, 2012; Sutton & Simons, 2015). College women in the United States between the ages of 18-30, attending two- or four-year college or university institutions are at enhanced risk for sexual assault compared to same aged peers (Edwards et al., 2015; Fisher, Cullen, & Turner, 2000). Adams-Curtis and Forbes (2004) argue that this may be due to the contrast within the college environment between individuals in the midst of developing a stable identity and a culture inundated with peer pressure, sexual activity, substance use, and aggression. Researchers involved in The National College Women Sexual Victimization (NCVS) study found that in any given year between 1996 to 2000, 2.8% of women would experience a completed or attempted rape and that most sexual victimization occurred at night, in the presence of a male acquaintance or friend, in a private residence (Fisher et al., 2000). This percentage may serve as an underestimate, as Koss, Gidycz, and Wisniewski (1987) reported a rate of 6% of nationally sampled college women that were raped in the past 12 months, and (Yegidis, 1986) reported a rate of 10%.

Since 2000, rates of attempted and completed sexual assault on college campuses have steadily risen in the United States, with estimates ranging from one-fifth to one-quarter of female undergraduate students (Adams-Curtis & Forbes, 2004; Fisher et al., 2000; Muehlenhard,

Peterson, Humphreys, & Jozkowski, 2017). Among female survivors of sexual assault in the form of rape, approximately 78.7% were raped before the age of 25, 40.4% before age 18, and 38.3% between the ages of 18-24 (Breiding et al., 2014). These statistics reinforce the importance of examining sexual abuse not just in childhood and adolescence, but also from the perspective of college women, which is the focus of the present study. The present study aimed to replicate findings indicating that those with histories of revictimization, defined by multiple instances of sexual abuse across childhood and adulthood, may engage in greater levels of disordered eating behaviors, drinking and drug use than those with either or no history of sexual abuse. Further, the present study aimed to demonstrate the particular detrimental effect of contact ASA. An additional aim in the present study was to determine whether internalized shame and deficits in emotional coping mechanisms, particularly avoidance-focused coping strategies commonly seen among survivors of sexual abuse, may partially explain differences in health-risk behaviors (Turchik & Hassija, 2014).

Sexual assault is defined as sexual contact or behavior that occurs without explicit or freely given consent (Centers for Disease Control and Prevention [CDC], 2014; Rape, Abuse & Incest National Network [RAINN], 2009). While rape is a form of sexual assault, not all sexual assault is considered rape. Given nuances between terms and the importance of uniform definitions for sexual violence, the CDC released an updated Sexual Violence Surveillance document focusing on uniform definitions and recommended data elements in 2014. This document distinguishes penetration (contact) from non-contact unwanted sexual experiences. Penetration of an individual involves unwanted sexual contact and is considered rape. This is defined by any physical insertion of the penis into the vulva; contact between the mouth

penis, vulva, or anus; or physical insertion of a hand, finger, or other object into the anus or genitals of another person (CDC, 2014; RAINN, 2009). Based on this definition, approximately one in five women have experienced an attempted or completed rape in their lifetime (CDC, 2014). Non-contact unwanted sexual experiences are defined as sexual violence that does not include sexual physical contact though occurs against a person without consent, who is unable to consent, or is coerced and cannot refuse (CDC, 2014; RAINN, 2009). Some examples of non-contact sexual abuse include acts such as sexual harassment, unwanted exposure to sexual situations (e.g., pornography, exhibitionism, etc.), coercion, and unwanted filming, taking, or distributing sexual photographs or videos of another person. Of note, non-contact sexual abuse includes unwanted touching that doesn't involve penetration (e.g., groping). Approximately one-third of women (32.1%) have experienced at least one of the aforementioned forms of non-contact sexual abuse in their lifetime (CDC, 2014). The present study defined adult sexual abuse (ASA) as non-contact or contact (penetrative) unwanted sexual experiences.

The prevalence of sexual assault has drawn much media attention over the past few decades, resulting in a growing area of research focused on prevention, health-risks, comorbidities, and treatment of sexual trauma (O'Toole, 2015). Sexual assault is associated with a myriad of negative consequences, including a heightened risk of psychiatric disorders, often involving trauma, depression, self-harming behaviors, substance abuse, suicidal ideation and attempts, sexual aggression, somatic complaints, and eating disorders (Briere, 1992; Frazier, Conlon, & Glaser, 2001; Orchowski & Gidycz, 2015; Polusny & Follette, 1995). Subsequent to sexual assault, survivors' consumption habits are often altered in both eating and use of substances, which presents an additional hurdle for college women recovering from sexual assault (Ackard & Neumark-Sztainer, 2002; Brewerton, 2007; Collins, Fischer, Stojek, &

Becker, 2014; Ullman, Relyea, Peter-Hagene, & Vasquez, 2013). There is a debate in the literature surrounding the extent to which sexual abuse plays a role in the development of eating pathology (Collins et al., 2014; Smolak, 2011). Additionally, there is a noticeable disparity in the investigation of sexual abuse, with the majority of relevant studies assessing eating pathology from the lens of child sexual abuse (CSA); focusing on adult sexual abuse (ASA) typically within the context of revictimization (Pope & Hudson, 1992; Simmel, Postmus, & Lee, 2016; Ullman & Najdowski, 2009). While this focus is not unwarranted, given that 15-79% of women with a history of CSA were revictimized as adults (Lau & Kristensen, 2010), the present study collected this information in addition to isolating those individuals who solely reported contact sexual abuse in adulthood.

The focus of the present study was to understand how shame and deficits in emotional coping mechanisms may explain dysfunctional eating behaviors and problematic substance use, in the form of alcohol and drug use, in a sample of college women with histories of contact adult sexual abuse (ASA). No study to date has examined the mediating influence of internalized shame and maladaptive coping behaviors on eating psychopathology and substance abuse among a sample endorsing contact ASA history. Research literature suggests that approach-focused coping strategies are typically more adaptive among female survivors of sexual abuse, while avoidance-focused coping mechanisms are often considered maladaptive, self-destructive and associated with consumption as a form of avoidance, such as binge-eating and substance use (Baumeister, 1991; Walsh, Fortier, & DiLillo, 2010). As not all college women who have experienced ASA demonstrate disordered eating or engage in substance abuse, it is necessary to identify whether factors that are linked to eating pathology, substance use, and sexual abuse, such as shame or coping strategies, are particular risk factors. If so, this could lend insight as to

why particular treatments of eating disorders, substance abuse, and sexual trauma may not be as effective in certain populations, and interventions could be tailored to be more suited to the needs of this population. This paper begins with a review of the literature connecting sexual assault, disordered eating, and substance use followed by conceptualizations of the avoidance-focused coping function of eating disorders and substance abuse in this population and known mediating and moderating variables affecting this relationship in sexual abuse survivors. Finally, a description of the specific aims and hypotheses of the present study will be discussed.

### **Disordered Eating in the College Environment**

Disordered or dysfunctional eating behaviors are described as subclinical behaviors that are detached from the normal process of eating when hungry and stopping when satisfied (Hill, Masuda, & Latzman, 2013). Disordered eating behavior is a common occurrence on college campuses within the United States, with as many as two-thirds of college women reporting extreme dieting behaviors (Berg, Frazier, & Sherr, 2009; Krahn et al., 2005). Berg and colleagues (2009) found that 49% of college females engaged in at least one disordered eating behavior at a minimum rate of once per week, particularly binge eating and non-purging compensatory behaviors including fasting and excessive exercise. Previous studies reinforce this finding that non-purging compensatory behaviors and binge-eating are more common in college women than purging behaviors such as vomiting or laxative use (Keel, Baxter, Heatherton, & Joiner, 2007; Rizvi, Stice, & Agras, 1999). Many factors inherent in the college environment can exacerbate dysfunctional eating behaviors; these include transitioning to an unfamiliar environment, newfound independence, new stressors, lack of support services and resources, interpersonal relationships with peers and faculty, and attending college during a high-risk developmental period where disparities in maturity and independence between freshman and



senior students can be profound (Berg et al., 2009; Bowen-Woodward & Levitz, 1989; Dickstein, 1989). Undergraduate college women are still developing eating and exercise habits and are often living independently for the first time, which could additionally increase their susceptibility to disordered eating. Research suggests that binge-eating behaviors, acknowledged as a prominent feature of Binge Eating Disorder (BED) and Bulimia Nervosa (BN), are also significantly prevalent among individuals without eating disorders, at subclinical levels (Berg et al., 2009; Johnson, Rohan, & Kirk, 2002; Kinzl, Traweger, Trefalt, Mangweth, & Biebl, 1999). The prevalence of subclinical binge-eating behaviors emphasizes the importance of targeting both clinical and subclinical populations of college women, as subclinical levels of disordered eating can still foster maladaptive physiological and psychological functioning or can later develop into clinical diagnoses.

### **How Sexual Abuse Relates to Disordered Eating**

Over the past 30 years, the relationship between sexual abuse and disordered eating has been a continued source of controversy and debate among researchers. Aside from methodological deficiencies resulting from varying age ranges, definitions, and measures of child sexual abuse (CSA), there are three major issues hindering our understanding of this relationship (Tripp & Petrie, 2001). The first is that abuse or trauma of any kind, not specifically sexual abuse, during the developmental period may lead to disordered eating (Dansky, Brewerton, Kilpatrick, & O'Neil, 1997; Harned, 2000). Second, sexual abuse may be related to a general risk for future psychopathology, rather than eating pathology alone (Cash & Smolak, 2011). Lastly, researchers have primarily focused on CSA, largely ignoring the possible contribution of ASA to disordered eating behaviors, aside from revictimization in adulthood. In addition to the aforementioned issues that must be considered before a causal link can be

suggested between sexual abuse and disordered eating, the shortage of studies using a uniform method in defining and measuring sexual abuse should be addressed. There is a need for research utilizing reliable and valid measures of sexual abuse. The present study addressed these needs by presenting clear age ranges, defining sexual abuse based on the Centers for Disease Control and Prevention (CDC) and Rape, Abuse and Incest National Network's (RAINN) definition, and using an established measure of sexual abuse.

Welch and Fairburn (1996) found that a history of sexual abuse and physical abuse was significantly more prevalent among women diagnosed with Bulimia Nervosa (BN) compared to normal controls. Dansky and colleagues (1997) corroborated these findings through investigating the relationship between BN and BED and different types of victimization in a national, representative sample of 3,006 women in the United States. Participants were classified into three groups: BN, BED, and Non-BN/ Non-BED, and researchers found that the incidence of rape was significantly higher among the BN group compared with the BED and Non-BN/Non-BED group (Dansky et al., 1997). No significant differences in frequency of rape were found between the remaining groups. Also, the BN group reported a greater incidence of aggravated assault compared to other groups. Though age of onset for aggravated assault was not collected, the average age of onset of binge-eating was 23.58 years, while the average age of first rape was 14.58, suggesting that the majority of women developed bulimic symptomology subsequent to sexual abuse (Dansky et al., 1997). Prevalence of lifetime and current Post-Traumatic Stress Disorder was also assessed in the sample. Survey and interview data revealed that the odds of developing BN were 3.36 times greater for women with a lifetime history of PTSD compared to women with no PTSD history, and 1.86 times greater for women with histories of aggravated and/or sexual assault than women without histories of victimization (Dansky et al., 1997). These

results suggest that women with histories of contact abuse (i.e., physical and/or sexual abuse) are at risk for developing BN. Harned (2000) investigated the influence of victimization in the form of sexual harassment, sexual abuse, and physical abuse on disordered eating in college women. She found that all three types of victimization were significantly associated with eating pathology. Her data also revealed that victimization often preceded eating pathology, and that women with PTSD or anxiety were the most likely to report symptoms of eating pathology (Harned, 2000).

Overall, these studies suggest that victimization, including sexual abuse, may increase the likelihood of women developing disordered eating behaviors, particularly bulimic symptomology. Though the present study did not address each possible area of victimization among women, additional factors that may further explain the relationship between sexual abuse in young adulthood and disordered eating were investigated. Descriptive data were also collected for initial onset of disordered eating behaviors and adult sexual abuse to see whether the aforementioned relationship of victimization preceding eating pathology holds true when sexual abuse is limited to adulthood.

Numerous studies have found evidence suggesting that sexual abuse in childhood may be a general risk factor for future psychopathology, rather than eating pathology specifically (Cash & Smolak, 2011; Dansky et al., 1997). In Polusny and Follette's (1995) review of the long-term correlates of child sexual abuse, general psychological distress, trauma, depression, anxiety, personality disorders, and self-destructive behaviors including high-risk sexual behavior, substance abuse, eating disorders, and somatization were all found to be outcomes of CSA in adulthood. Self-destructive behaviors, such as high-risk sexual behavior and substance use, were associated with a greater chance of revictimization in adulthood (Polusny & Follette, 1995).

Subsequent researchers found similar results in their study of the impact of childhood trauma and multi-impulsivity in eating disorders (Corstorphine, Waller, Lawson, & Ganis, 2007).

Corstorphine and colleagues (2007) surveyed 102 women with clinical diagnoses of eating disorders and their results showed that childhood sexual abuse (CSA) was associated with significantly more frequent levels of impulsive and self-destructive behavior. These behaviors primarily involved self-cutting, suicide attempts, substance abuse, risky sexual behavior, impulse spending, and stealing. While there was prevalence of sexual trauma in the sample for each group of eating disorders, those diagnosed with Anorexia Nervosa (AN) had an overall lower proportion of childhood sexual trauma when compared to BN, BED, and Eating Disorder Not Otherwise Specified (EDNOS) (Corstorphine et al., 2007). These studies suggest that while survivors of CSA are indeed at risk for developing eating pathology, especially bingeing and purging behaviors, they are additionally at risk for a variety of other negative psychological outcomes. Researchers argue that while there may not be a clear linear relationship between eating psychopathology and childhood sexual trauma, abuse of this nature could still place survivors at particular risk for developing clinical and subclinical levels of complex eating psychopathology (Vanderlinden & Vandereycken, 1996). The present study gathered information on childhood and adolescent sexual abuse while focusing specifically on sexual abuse in early adulthood as a subsequent aim, which the aforementioned studies did not investigate.

As is evident in the preceding literature review, there is a clear absence of eating disorder research focusing specifically on sexual abuse in adulthood, particularly early adulthood, between the ages of 18 to 30 years. There are few studies that examined adult sexual abuse (ASA) with the intention of comparing to CSA. One such example is a pilot study that was

conducted in an Italian community sample of 126 women, ages 18-30, assessing whether body dissatisfaction mediated the relationship between sexual abuse and eating disorder symptoms. A history of sexual assault and rape was obtained by the inclusion of two detailed questions recounting unwanted sexual touch and intercourse during childhood (before age 12), adolescence (age 12-18), or adulthood (after age 18). Of their sample, 18.3% reported an occurrence of sexual abuse. Within those who reported sexual abuse, 5.5% had been raped in adulthood (Preti, Incani, Camboni, Petretto, & Masala, 2006). Researchers found that those who reported a history of lifetime sexual abuse scored significantly higher on measures of eating pathology than those who denied sexual abuse. Also, young women who had a history of sexual abuse, particularly if the sexual abuse occurred before the age of 12 years, were more likely to report eating disorder symptomology than those without histories of sexual abuse (Preti et al., 2006). As mentioned, the present study focused on disordered eating in women between the ages of 18 to 30 with histories of contact adult sexual abuse. Assessing ASA in an American sample may assist in bridging the gap in the research literature between CSA, ASA and disordered eating.

### **How Sexual Abuse Relates to Substance Use**

Among the numerous deleterious effects of sexual abuse are a greater risk of problematic drinking and drug use among women (Ullman et al., 2013). Several potential pathways have been identified that may elucidate the frequent comorbid Posttraumatic Stress Disorder (PTSD) and substance abuse disorder diagnoses in individuals with histories of sexual abuse (Stewart, Pihl, Conrod, & Dongier, 1998). Among the first to research this pattern of heightened consumption of drugs, alcohol, nicotine and caffeine were Keane and colleagues (1983), who focused on combat veterans diagnosed with PTSD, due to combat and/or military sexual trauma, receiving mental health services. They reported comorbid alcohol abuse rates ranging from 64-

84% and drug abuse rates ranging from 40-44% (Keane, Caddell, Martin, Zimering, & Fairbank, 1983; Stewart et al., 1998). The National Vietnam Veterans Readjustment Study (NVVRS) reported that as many as 73% of veterans with PTSD had a comorbid diagnosis of a substance abuse disorder (Kulka et al., 1988). In a later study, researchers compared female Vietnam veterans diagnosed with PTSD who reported alcohol abuse to those who did not (Ouimette, Wolfe, & Chrestman, 1996). Researchers found that the female veterans with comorbid PTSD and alcohol abuse reported more CSA and military sexual abuse than those who had a solitary PTSD diagnosis (Ouimette et al., 1996). These results suggest that the type of trauma, particularly sexual trauma, may serve as an important factor in the development of comorbid alcohol abuse in women diagnosed with PTSD. While lower rates of alcohol abuse are reported among civilian women with PTSD diagnoses, 25-39% with a history of sexual assault still have a comorbid substance abuse disorder diagnosis (Stewart et al., 1998). Figures from the National Comorbidity Survey (NCS) largely corroborate these findings, as approximately 30% of females with a history of trauma reported alcohol abuse and 27% reported drug abuse (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Ullman and colleagues (2013) expanded upon these findings by dividing trauma into groups of non-interpersonal, interpersonal, and CSA severity in a large sample of female sexual abuse survivors, focusing on both drug and alcohol substance abuse as a means of coping. Researchers found that only interpersonal traumas predicted substance use to cope and child sexual abuse (CSA) severity was associated with substance use to cope and PTSD symptomology (Ullman et al., 2013). These findings yielded similar results to past literature, suggesting the importance of differentiating type of trauma, as both non-interpersonal and interpersonal traumas predicted PTSD, yet only interpersonal trauma (including CSA) predicted using drugs and alcohol to cope (Ehring & Quack, 2010; Green et al., 2000). The present study

focused on interpersonal trauma, consisting of sexual abuse in childhood/adolescence and adulthood.

While the aforementioned studies focused on substance use as a coping mechanism for PTSD diagnoses resulting from combat or sexual abuse, there is substantial evidence for a dimensional model of trauma, suggesting the importance of a continuous instead of a categorical approach to conceptualizing psychological responses following traumatic events (Broman-Fulks et al., 2006; Read, Colder, Merrill, Ouimette, White, & Swartout, 2012; Ruscio, Ruscio, & Keane, 2002). Furthermore, more recent studies suggest that a considerable percentage of individuals exposed to trauma may still experience distress and impairment in functioning related to a traumatic event without meeting full criteria for a PTSD diagnosis (Read et al., 2012; Mylle & Maes, 2004). Analogous to subclinical disordered eating behaviors among college women, there is a substantially higher rate of subclinical PTSD among college students (30-35%) compared to those diagnosed with PTSD (9%) (Read et al., 2012; Read et al., 2011; Smyth, Hockemeyer, Heron, Wonderlich, & Pennebaker, 2008). To account for subclinical levels of sexual trauma among college students, the present study assessed sexual abuse, disordered eating, and substance abuse in the absence of clinical diagnoses of Trauma-and Stressor-Related Disorders.

### **Why Internalized Shame is Important to Examine**

When a person experiences shame, negative evaluation is directed toward the self as a whole, rather than a particular behavior. Internalized shame is conceptualized as a consequence of prolonged or extreme exposure to shameful situations and is associated with numerous clinical problems, including depression, anxiety, Body Dysmorphic Disorder, and trauma-related disorders (Cook, 1994; Goss & Allan, 2009; Kaufman, 1992). Internalized shame is seen as an

expected response to sexual abuse due to its extremely intrusive nature, resulting in many survivors viewing themselves as inferior, helpless, or unlovable to others (Kaufman, 1992; Tangney, Wagner, & Gramzow, 1992). Vidal and Petrak (2007) reported that up to 75% of their sample of female ASA survivors endorsed feelings of shame following sexual victimization and that revictimization, physical injury, self-blame, non-disclosure, and known perpetrators significantly influenced the extent in which survivors self-reported shame. Additionally, women who do not physically resist their perpetrators are more prone to victim-blame, thus may be particularly at risk for self-blame (Branscombe & Weir, 1992; Calhoun & Townsley, 1991; Kaysen, Morris, Rizvi, & Resick, 2005; Koss, Figueredo & Prince, 2002; Kowalski, 1992).

Nonconsensual sexual contact inherent in sexual assault can additionally promote body shame and repulsion, contributing to increased body dissatisfaction or body loathing (Dansky et al., 1997). This suggests that while internalized shame is primarily directed towards the total self, survivors' feminine or masculine bodies after sexual abuse can become an additional focus of shame. Furthermore, recent literature has identified shame as a crucial component in the development and maintenance of eating psychopathology, particularly bingeing and purging behaviors (Duarte, Pinto-Gouveia, & Ferreira, 2014; Goss & Allan, 2009). The presence of internalized shame in both sexual abuse and disordered eating emphasizes the value of examining this construct in the present study.

The utility of considering shame as a potential mediator in the link between sexual abuse and eating disturbance, particularly symptoms of bingeing and purging, is noted (Silberstein, Striegel-Moore, & Rodin, 1987). Multiple studies have corroborated these findings in both clinical and nonclinical populations, where women who endorsed higher levels of internalized shame tended to exhibit more frequent and severe characteristics of bulimic symptomology



(Cook, 1994; Murray, Waller, & Legg, 2000). Elevated levels of internalized shame were found to mediate the relationship between incest and subclinical bulimic symptoms (Murray & Waller, 2002). However, researchers addressed the complexity of this relationship, noting that the severity, frequency, and circumstance of abuse (e.g., interfamilial or acquaintance rape) in addition to underlying or prior psychopathology can be difficult to differentiate, yet is crucial to consider (Murray & Waller, 2002). The present study addressed some of these complexities by using a well-known measure of sexual experiences that includes items examining severity, frequency, and circumstance of sexual abuse.

Internalized shame, in the form of body shame, was the focus of Kearney-Cooke and Striegel-Moore's (1994) study, which hypothesized that women with histories of sexual abuse would feel ashamed of their bodies; thus, a positive relationship between significantly elevated levels of internalized shame and body loathing in women with histories of sexual abuse was expected. The results supported their hypotheses, indicating that heightened attitudes of shame increased body loathing, which is an additional risk factor in the development and maintenance of eating pathology (Jansen, Nederkoorn, & Mulken, 2005). The authors underscored caution in the interpretation of these results due to the complexity and varying nature of body loathing. This could be in the form of attitudes, behaviors, subjective view of the shape and size of the body, or a combination among these. It is important to note that the abovementioned studies used samples of women with histories of childhood sexual abuse (CSA), with the majority of studies excluding women with ASA, aside from those who were revictimized in adulthood. Due to the lack of literature focusing on ASA, these constructs were examined in young women with and without histories of ASA in the present study. In order to utilize and expand the research literature on ASA, those with histories of child and adolescent sexual abuse were included in the present

study to better understand sexual revictimization and its effects on substance use and disordered eating, though young women presenting with isolated histories of ASA were of greater emphasis.

Additionally, shame is an important factor in the development and maintenance of substance abuse and associated problems or consequences. Although there are a multitude of acknowledged contributing factors to the development and maintenance of substance abuse, researchers differentiate between “static” and “dynamic” factors (Dearing, Stuewig, & Tangney, 2005; Hesselbrock, Hesselbrock, & Epstein, 1999). While important in our understanding of the development of substance abuse, “static” characteristics are relatively stable, such as genetic predisposition, personality traits, and temperament, and are often not utilized as possible targets of intervention (Dearing et al., 2005). “Dynamic” characteristics on the other hand, such as interpersonal relationships, peer influences, social environment, social support, stressors and emotion-regulation disturbances (e.g., shame, anger, trauma, depression, anxiety) are typically considered more feasible points of intervention (Dearing et al., 2005; Fossum & Mason, 1986; Potter-Efron, 2002). In particular, the importance and clinical utility of targeting shame in the context of a supportive therapeutic relationship has been noted amongst patients presenting with drug and alcohol abuse diagnoses (Fossum & Mason, 1986). Previous research has demonstrated that amongst diverse samples, including college undergraduate students and jail inmates, proneness to shame was positively correlated with substance use problems, while proneness to guilt was inversely related, suggesting the positive utility of guilt as a motivator for change (Dearing et al., 2005). Despite the often interchangeable way in which guilt and shame are utilized in daily language to signify negative affect, research has substantiated the importance of differentiating these emotions (Dearing et al., 2005). While feelings of guilt signify a negative affective state, these feelings are considered more adaptive than feelings of shame, which are

internalized, as guilt can often function as a positive motivator for change while shame can serve as a maladaptive, self-defeating cycle, exasperating substance abuse (Baumeister, Stillwell, & Heatherton, 1995; Dearing et al., 2005; Tangney & Dearing, 2002). Baumeister and colleagues (1995) found that in terms of problematic interpersonal relationships, guilt served as an effective mechanism in positively altering behavior of relationship partners. Based on this literature, there seems utility in enhancing guilt-proneness and focusing on shame reduction in future prevention and treatment interventions for substance abuse. The presence and maladaptive influence that shame can have on substance abuse requires further evaluation, particularly in reference to college women with histories of sexual abuse, as is the focus of the present study.

### **Why Coping Techniques are Important to Examine**

Folkman and Lazarus (1980) define coping as a shifting process that includes a variety of behaviors and cognitions that are used to overcome, manage, or reduce mental and physical consequences following a stressful or traumatic event. According to Baumeister (1991), those that have a heightened sense of negative self-awareness are at risk for developing behaviors promoting active avoidance, such as substance use, binge eating, or self-harming behavior, which are often associated with poorer psychological functioning and psychopathology. Survivors of abuse are at increased risk for engaging in avoidant and internalizing coping strategies as a means of regulating their emotions (Long & Jackson, 1993; Sigmon, Greene, Rohan & Nichols, 1997), and binge eating and substance use may serve as maladaptive avoidance strategies for handling emotional distress (Arnou, Kenardy, & Agras, 1992; Goldfield, Adamo, Rutherford, & Legg, 2008; Heatherton & Baumeister, 1991; Walsh et al., 2010).

A meta-analysis of 39 studies of trauma coping strategies identified adaptive coping strategies as problem and emotion-focused coping and maladaptive coping strategies as internalizing and avoidance-focused methods (Littleton, Horsley, John, & Nelson, 2007). Strategies of problem-focused coping involve seeking resources and additional information and developing a plan of action, while emotion-focused coping involves seeking social support or advice and venting of emotions (Folkman et al., 1986; Folkman & Moskowitz, 2004; Littleton et al., 2007). Approach-focused coping strategies include rationalizing, reappraising, or minimizing a stressful or traumatic event, conversely, avoidance-focused coping strategies consist of denial, mental and behavioral disengagement and focus on venting of emotions (Carver, Scheier, & Weintraub, 1989; Gates, 2001). Examples of approach-focused methods include problem solving, seeking out additional information and social support while examples of avoidance-focused methods include learned helplessness, denial of the event or stressor, or distracting oneself with entertainment, alcohol, drugs, food, sleep, etc. (Carver et al., 1989; Gates, 2001). As mentioned, avoidance-focused coping strategies are thought to be effective in the short-term, though are often deleterious to one's health and less effective in the long-term or for coping with more serious traumatic events, such as sexual abuse (Baumeister, 1991; Gates, 2001). A meta-analysis conducted by Littleton and colleagues (2007) revealed significant associations between avoidance-focused coping and three types of psychological distress measured; general distress, depression, and post-traumatic stress symptoms. Stronger associations were found between approach-focused coping and decreased distress among studies that assessed longer-duration traumas (Littleton et al., 2007). These results were consistent with the notion that avoidance-focused coping strategies are maladaptive, particularly for more extreme or longer lasting

traumas and that individuals may resort to utilizing multiple approach-focused coping strategies before they see a decrease in distress (Littleton et al., 2007; Snyder & Pulvers, 2001).

Walsh, Fortier and DiLillo's (2010) thorough review investigated coping strategies from the perspective of adults with histories of CSA. Of particular relevance to the present study were studies focusing on coping strategies utilized by resilient young adults. One such study identified positive coping strategies among resilient survivors as more approach-focused, involving reappraisal of the situation, rationalizing, and focusing on moving forward (Bogar & Hulse-Killacky, 2006). Another study among resilient first year female college students with histories of CSA found similar approach-focused results, such as positive reframing, minimization, disclosure and discussing of CSA, and focusing on recovery and moving forward, to be particularly adaptive (Himelein & McElrath, 1996). Further, severity of CSA was positively associated with avoidant-focused coping strategies, which then predicted more severe trauma symptomology and likelihood of revictimization in adulthood, suggesting that trauma symptomology and coping strategies may serve as additional risk factors for revictimization (Himelein & McElrath, 1996). In a more recent study where 577 female college students were surveyed, results indicated that those who reported revictimization (both ASA and CSA) were more likely to self-blame (shame), had more severe PTSD symptomology, were more likely to cope using substances such as drugs and alcohol, engage in risky sexual behavior, isolate themselves, and seek outpatient therapy services than those with ASA only and non-victims of sexual abuse (Filipas & Ullman, 2006).

In another study included in the review, undergraduate college students who reported more than one instance of abuse were more likely to report problem-focused and emotion-focused methods of coping involving mental and behavioral disengagement (avoidance), such as

using substances, work, entertainment, or sleep to distance thoughts of the event, and reducing efforts to solve the problem or minimize stress (Carver et al., 1989; Leitenberg, Gibson, & Novy, 2004; Walsh et al., 2010). Researchers were also interested in whether coping strategies mediated the relationship between CSA and resiliency (positive adult adjustment) and found that social support and coping mediated the relationship between CSA and positive adjustment in adulthood in multiple studies and control over the healing process mediated the relationship between social support and positive adjustment in adulthood (Frazier, Tashiro, Berman, Steger, & Long, 2004; Merrill, Thomsen, Sinclair, Gold, & Milner, 2001; Runtz & Schallow, 1997; Walsh et al., 2010). Despite a lack of longitudinal research and a multitude of methodological differences among studies, overall research literature suggests that approach-focused coping strategies are more adaptive among female survivors of sexual abuse, while avoidance-focused coping mechanisms are often considered maladaptive and self-destructive. The present study will utilize the Coping Orientation to Problems Experienced (COPE) self-report questionnaire, as it is a well-established measure of coping styles whose 15 subscales differentiate between adaptive and maladaptive coping strategies, to examine coping styles among college women with histories of sexual abuse (Carver et al., 1989).

### **Disordered Eating as a Form of Avoidance-Focused Coping**

Clinical samples of patients diagnosed with eating disorders with a history of abuse are at increased risk of engaging in additional forms of self-destructive behavior (Favaro, Grave, & Santonastaso, 1998). A significant body of research examining the role of varying forms of trauma on eating psychopathology suggests that for those women with histories of trauma who subsequently develop clinical or subclinical disordered eating behaviors, these behaviors may function as internalized coping strategies (Root, 1991; Root & Fallon, 1988). Over-controlling

eating behaviors may be reflective of an attempt to regain power and control lost during sexual assault (Smolak & Murnen, 2002). Additionally, within treatment settings, some sexual abuse survivors have spoken of their association of forced fellatio with bingeing and purging behaviors (Bass & Davis, 1988). This suggests that disordered eating symptomology may internally represent varying constructs to survivors, introducing the possibility of numerous coping functions.

Schwartz and Cohn (1996) identified a variety of coping functions of disordered eating symptoms originally conceptualized for CSA survivors, which may be reasonably applied to young women with recent histories of ASA. These functions include maintaining helplessness, instilling predictability and structure, eliciting attention, reenacting abuse in the form of repetition and compulsion, administering self-punishment to the body, cleansing and purifying the body, creating a large or small body to instill protection, and avoiding intimacy (Schwartz & Cohn, 1996). Fasting or overeating can additionally facilitate mood alterations, such as emotional control and numbing (Schwartz & Cohn, 1996). While self-destructive, disordered eating behaviors may represent a means of coping with these overwhelming mood alterations and reinstall a sense of self-regulation in survivors (Casper, 1983; Goodsitt, 1983; Johnsons & Connors, 1987). These potential alternative coping functions highlight the importance of viewing these outwardly maladaptive behaviors from the beneficial or protective lens of the survivors, in order to possibly enhance rapport and better inform treatment planning and intervention. The possibility of disordered consumption as a means of coping instead of merely a comorbidity could also better inform health-risk prevention interventions for survivors.

### **Substance Abuse as a Form of Avoidance-Focused Coping**

While research literature has established a link between sexual abuse and subsequent substance abuse, underlying mechanisms between these often co-occurring disorders are not as clearly understood. Similar to the adaptive function that disordered eating may serve to sexual abuse survivors, substance use and abuse may serve as a self-soothing mechanism. According to Khantzian's (1997, 2003) self-medication hypothesis (SMH), abusing substances serves as a compensatory mechanism to regulate or manage overwhelming emotions and negative affect (Suh, Ruffins, Robins, Albanese, & Khantzian, 2008). Khantzian (1997) views substance abuse from the lens of a self-regulation disorder, where individuals self-medicate due to their inability to regulate their own emotions or emotional expression, and feelings towards themselves or others, which is significantly more likely following a traumatic event, such as sexual abuse. In the context of sexual abuse, an example could be abusing drugs with sedating and pain-relieving properties following a nightmare or flashback of the assault in an effort to reduce the fear and emotion of the images, and be able to fall back asleep. The SMH falls in line with avoidance coping strategies, ones that aid in denial and withdrawal, such as alcohol abuse, and are typically associated with poorer treatment outcomes in survivors of sexual abuse (Frazier et al., 2005; Ullman & Najdowski, 2009).

Khantzian's (2008) SMH additionally theorized that the particular substances individuals use to self-medicate may lend insight into possible psychopathology. Suh and colleagues (2008) expanded upon this concept by attempting to connect individuals' psychopathology with their drug of choice. Participants were interviewed for substance use histories and administered a battery of assessments, including the Minnesota Multiphasic Personality Inventory-2 (MMPI-2) (Butcher, Graham, Williams, Ben-Porath, 1990). Results indicated that Repression and (inverse)



Depression scales from the MMPI-2 were able to significantly predict the alcohol users; the Psychomotor Acceleration scale was able to predict cocaine users, and Cynicism scale significantly predicted the heroin group (Suh et al., 2008). These results were partially in line with Khantzian's expectation that individuals likely to repress emotions and become defensive were more likely to be abusing alcohol, although this group did not report significant levels of Overcontrolled Hostility (OH) as Khantzian predicted (Khantzian, 1997; Suh et al., 2008). Khantzian (1997) also suggested that cocaine users were more likely to have a strong desire for restlessness and elation often seen in mania. Suh and colleagues' (2008) results confirmed this, as a greater level of elation and restlessness (Ma2) did significantly predict participants' cocaine preference. In regards to heroin users, Khantzian argued that this group was more likely to be aggressive, angry, and have significant trauma, as heroin can have a powerful numbing ability (1997, 2003). Researchers found that these individuals scored higher on the Cynicism (CYN) scale, which includes endorsing items related to anger and negative emotionality and expectations towards themselves and others (Suh et al., 2008). However, significant levels on the Posttraumatic Stress Disorder (PK) scale were not elevated in this group. The authors mention that although this scale was intended to assess trauma symptomology, their use of this scale may not have been the best option for evaluating the severity of trauma in their sample (Suh et al., 2008). Overall, this study corroborated Khantzian's self-medication hypothesis and partially supported many of his predictions of psychological factors that may contribute to and underlie substance use. In order to examine substance use, the present study assessed substance use through established measures of problematic drug and alcohol use.

### **Revictimization**

Sexual revictimization refers to survivors of sexual abuse (either CSA or ASA) being

victimized again, at some point subsequent to their initial abuse (Messman & Long, 1996; Messman-Moore & Long, 2003). Literature indicates that women with CSA are two to eleven times more likely to be revictimized as adults compared to those with no history of sexual abuse (Fergusson, Harwood, & Lynskey, 1997; Messman-Moore & Long, 2003). These statistics align with a meta-analysis indicating that between 15-79% of women with histories of CSA will be revictimized in adulthood (Lau & Kristensen, 2010). Based on 19 empirical studies, a moderate effect size of .59 was reported for revictimization between childhood and adult victimization, demonstrating a well-defined link between CSA and ASA (Roodman & Clum, 2001). Severity of the initial instance of sexual abuse, particularly if the first occurrence was in childhood or adolescence, is considered to be among the most robust predictors of sexual revictimization (Lau & Kristensen, 2010). Factors that increase severity in CSA and predict ASA include penetration (contact), incest, long-lasting abuse, physical force, and multiple incidences (Arata, 2002; Fleming, Mullen, Sibthorpe & Bammer, 1999; Lau & Kristensen, 2010). Thus, history (i.e., revictimization, ASA only, no history), and type (i.e., contact, non-contact) of sexual abuse were examined in the current study.

While sexual victimization increasing the risk for further revictimization is not disputed, potential mediators increasing this vulnerability are not well understood. Lau and Kristensen (2010) attempted to clarify this relationship among a sample of women with self-reported histories of CSA, ASA or both. The authors hypothesized that those women who have been revictimized may have been exposed to more severe CSA than women who were not revictimized and that those revictimized were more likely to be psychologically distressed than those with one instance of sexual abuse (Lau & Kristensen, 2010). Researchers found that of their sample, 36% had a history of revictimization. Results indicated that CSA was most severe

in those who were revictimized in adulthood, in terms of number of offenders and frequent penetration, though onset and duration of CSA was similar to the non-revictimized group. Rates of attempted suicides were also significantly higher in the revictimized group, with a prevalence of 47% compared to 30% who solely reported CSA (Lau & Kristensen, 2010). These figures fit with prior research suggesting that risk of psychopathology, suicidal ideation, and interpersonal issues were amplified following sexual revictimization (Lau & Kristensen, 2010; Messman-Moore, Brown, & Koelsch, 2005). Women in the revictimization group reported more severe psychopathology, were more fearful and mistrustful of others, and would often anticipate that others would treat them in a hostile manner compared to the non-revictimization group (Lau & Kristensen, 2010). Due to the potentially amplified impact of sexual revictimization, the present study accounted for revictimization among the study sample of college-aged women.

### **Current Study**

Prior research does not support a direct causal relationship between sexual abuse, disordered eating, and substance use, yet there is an indication that women with histories of sexual abuse are at increased risk for developing dysfunctional health-risk behaviors following abuse, such as greater food and substance consumption, compared to non-survivors (Claes & Vandereycken, 2007; Romans, Gendall, Martin, & Mullen, 2001; Smolak et al., 2002; Vanderlinden et al., 1996). The current study aimed to contribute to the existing body of research on sexual abuse and health-risk behaviors among college women in several ways. First, subclinical and clinical levels of health-risk behaviors associated with sexual abuse (i.e., disordered eating behaviors, problematic drinking, problematic drug-use) were examined in order to better understand the association between ASA and subclinical levels of health-risk behaviors. Relevant literature does suggest a positive association between trauma

symptomology, dysfunctional eating behaviors, and drug and alcohol use among survivors, though the majority of research focuses on clinical levels of trauma and risk behaviors (Claes & Vandereycken, 2007). Subclinical levels differ from clinical levels such that they are below the level of clinical detection and are symptom-focused rather than diagnosis-focused (Vanderlinden & Vandereycken, 1996). By scoring health-risk measures on a dimensional rather than a categorical scale, the current study was able to account for the possibility of sub-threshold risk behaviors. The current study also focused on examining the potential association of history (i.e., ASA only, no history, revictimization) and type (i.e., contact, non-contact ASA) of ASA on risk behaviors. This was based on existing research suggesting the importance of the presence and severity of sexual abuse experienced (Dansky et al., 1997; Lau & Kristensen, 2010) and the compounding negative effect of revictimization (Lau & Kristensen, 2010; Messman-Moore & Long, 2003) on psychological functioning and health-risk comorbidities. Specifically, it was considered that differences in health-risk behaviors might vary based on the presence and severity of ASA.

Lastly, the current study examined whether the association between ASA contact, disordered eating, and substance use was mediated by enhanced shame and avoidance-focused coping. Specifically, internalized shame and maladaptive coping strategies (i.e., mental and behavioral disengagement) were tested as underlying explanatory mechanisms between ASA contact, disordered eating behaviors and problematic substance use (i.e., current problematic drinking and drug use). Mediating variables are described as variables that can explain the effect of the predictor variable on the criterion variable, or whose presence has the ability to link the influence of a given predictor to the outcome (Baron & Kenny, 1986; Cohen & Cohen, 1983). Internalized shame was proposed as a mediator as it has been identified as a common response

among survivors of sexual assault (Kaufman, 1992) and is a well-known contributor to the development of disordered eating behaviors and substance use (Swan & Andrews, 2003). Maladaptive coping strategies were also proposed as a mediator based on existing research suggesting disproportionately higher levels of avoidance-focused coping, particularly food and substance consumption among sexual abuse survivors as compared to non-survivors (Sarin & Nolen-Hoeksema, 2010). Non-contact adult sexual abuse is defined as non-consensual sexual experiences involving coercion since 18 years old, while contact adult sexual abuse is defined as non-consensual sexual experiences involving unwanted sexual contact, attempted rape, and rape since 18 years old. To our knowledge no current studies have focused on delineating how the presence of internalized shame and maladaptive coping might explain the association between sexual abuse with eating behaviors and substance abuse in women. If supported, these findings could aid in the clinical evaluation, conceptualization, and treatment of sexual trauma in college-aged women and better inform health-risk prevention interventions for college women who have recently been sexually assaulted.

Specific aims and hypotheses are as follows:

**Aim 1:** To examine the association of history (i.e., ASA only, revictimization, no history) of ASA on health-risk behaviors among college women (see Table 1).

*Hypothesis 1a:* Women with a history of revictimization (i.e., sexual abuse that occurred in both childhood/adolescence and adulthood) would report more disordered eating and substance abuse than those who experienced sexual abuse that occurred only in adulthood (i.e., ASA only).

*Hypothesis 1b:* Women with a history of revictimization (i.e., sexual abuse that occurred in both childhood/adolescence and adulthood) would report more disordered eating and

substance abuse (i.e., problematic drinking, problematic drug use) than those without histories of sexual abuse (i.e., non-victim).

**Aim 2:** To examine the association of type (i.e., contact, non-contact) of ASA on health-risk behaviors among college women (see Table 1).

*Hypothesis 2a:* Women who have experienced adult contact sexual abuse (i.e., unwanted sexual contact, attempted/completed rape) would report more disordered eating and substance abuse (i.e., problematic drinking, problematic drug use) than those who experienced non-contact sexual abuse in adulthood (i.e., attempted coercion, coercion).

*Hypothesis 2b:* Women who have experienced adult contact sexual abuse would report more disordered eating and substance abuse than those who did not experience sexual abuse.

**Aim 3:** To examine a conceptual model whereby the indirect relationship between ASA contact (i.e., number of unwanted sexual contacts, attempted, and completed sexual assaults since age 18) and disordered eating, problematic drinking, and problematic drug use is mediated by internalized shame and maladaptive coping strategies (see Figure 1).

*Hypothesis 3a:* Internalized shame would mediate the relationship between adult contact sexual abuse (i.e., unwanted sexual contact, attempted rape, and rape) and disordered eating behaviors. Specifically, it was predicted that the presence of ASA contact would be associated with greater disordered eating behaviors.

*Hypothesis 3b:* Internalized shame would mediate the relationship between adult contact sexual abuse and substance abuse. Specifically, it was predicted that the presence of ASA contact would be associated with an increase in problematic drinking, and problematic drug use (i.e., severity).

*Hypothesis 4a:* Maladaptive coping strategies would mediate the relationship between adult contact sexual abuse (i.e., unwanted sexual contact, attempted rape, and rape) and disordered eating behaviors. Specifically, it was predicted that the presence of ASA contact would be associated with greater disordered eating behaviors.

*Hypothesis 4b:* Maladaptive coping strategies would mediate the relationship between adult contact sexual abuse and substance abuse. Specifically, it was predicted that the presence of ASA contact would be associated with an increase in problematic drinking and, problematic drug use (i.e., severity).

Table 1

*Levels of the Independent Variables*

Contextual Factor	Levels
ASA History	<ol style="list-style-type: none"> <li>1. ASA history endorsed</li> <li>2. Revictimization history endorsed</li> <li>3. No history of childhood or adulthood SA endorsed</li> </ol>
ASA Type	<ol style="list-style-type: none"> <li>1. SA involved attempted/completed coercion, no sexual contact (i.e., non-contact)</li> <li>2. SA involved unwanted sexual contact, or attempted/completed rape (i.e., contact)</li> </ol>

*Note.* ASA= adult sexual abuse; CSA= child sexual abuse; SA = sexual abuse; Revictimization = CSA + ASA.



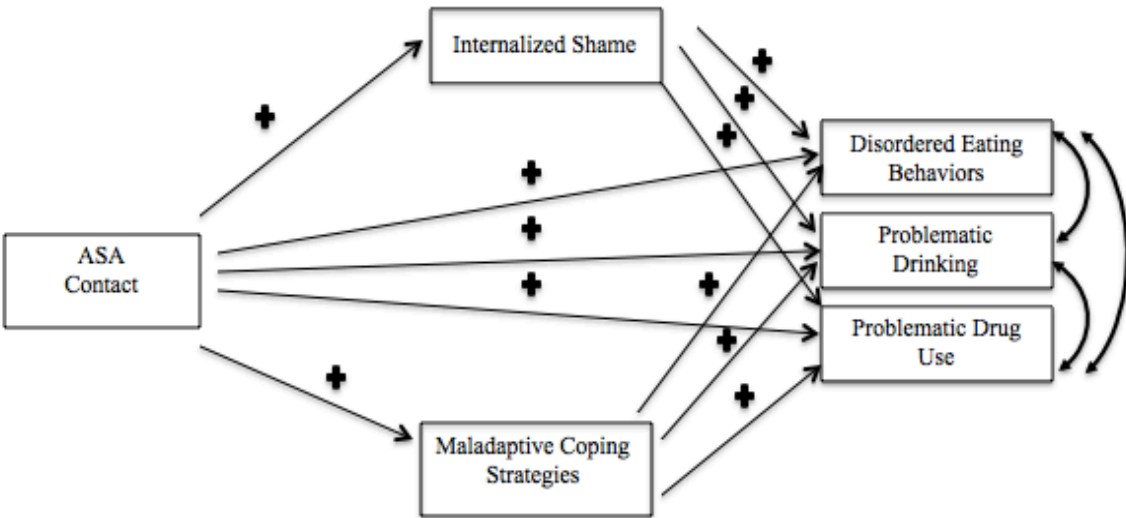


Figure 1. Proposed path model for Aim 3 with adult sexual abuse (ASA) contact as the predictor variable, internalized shame and maladaptive coping strategies as the mediators, and disordered eating behaviors, problematic drinking, and problematic drug use as the outcome variables.

## CHAPTER II

### METHOD

#### Participants and Recruitment

Participants for the present study were female undergraduate students enrolled in undergraduate psychology courses at Old Dominion University, and Norfolk State University students who were sent survey links through their university email. Participants met eligibility criteria if they identified as female, were between the ages of 18 to 30, and were not pregnant or breastfeeding during survey administration. Women who were pregnant or breastfeeding at the time of the survey were excluded from the present study, because literature suggests attitudinal changes toward body image and eating behaviors evolve as changes in body shape and size occur with pregnancy and postpartum (Goodwin, Astbury, & McMeeken, 2000; Silveira, Ertel, Dole, & Chasan-Taber, 2015). Apriori power analyses indicated that a total sample size of 344 was needed to achieve a power level of .80 for planned analyses. The survey was administered to 559 women. Of these individuals, 420 (75.1%) women met study criteria and had their data included in the analyses. The mean age was 21.19 years ( $SD = 3.17$ ). The mean BMI of the current sample was 26.3, falling under the overweight category. The sample ethnicity was comprised of mostly African-Americans (44.3%) and Caucasians (36.0%), which was representative of the population within southeastern Virginia (U.S. Census Bureau, 2016). Additional descriptive statistics are reported in Table 2.

Table 2

*Demographic Characteristics of Final Sample (N = 420)*

Descriptor	<i>n</i>	%
<i>Ethnicity</i>		
African American	186	44.3%
Asian American	18	4.3%
European/Caucasian	151	36.0%
Latina American	21	5.0%
Multiethnic/Other	34	8.1%
<i>Sexual Orientation</i>		
Asexual	1	0.2%
Bisexual	42	10.0%
Gay/Lesbian	12	2.9%
Heterosexual	360	85.7%
Other	3	0.7%
<i>Class Standing</i>		
Freshman	137	32.6%
Sophomore	71	16.9%
Junior	92	21.9%
Senior	98	23.3%
Graduate	19	4.5%
Unsure/Other	2	0.5%
<i>Psychiatric Medications</i>		
Yes	38	9.0%
No	372	88.6%

## Procedure

Prior to beginning the study, the Institutional Review Board (IRB) at Norfolk State University (NSU) and College of Sciences Human Subjects Committee from Old Dominion University (ODU) approved all procedures in the present study for Protection of Human Subjects. As data were not collected from Eastern Virginia Medical School (EVMS), a copy of the approved IRB, protocol, and measures were sent to EVMS for review of Dr. Will's (co-director) involvement (i.e., mentorship) and an approval of non-research was received from the IRB at EVMS for her involvement. All APA guidelines for the ethical treatment of participants were followed (APA, 2010). Due to the sensitive nature of the survey content, participants were provided with a list of resources at the close of the survey. These resources included contact information for ODU's and NSU's counseling centers, local rape crisis centers, and 24-hour hotline services providing information, referrals, and crisis counseling for several safety and mental health concerns, including suicide, sexual assault and eating disturbance.

As incentive for completing the survey, participants recruited through ODU were given the option to either receive research credits for their participation through the SONA Psychology Research Participation System or be entered in a gift card raffle. Those participants recruited from NSU who did not have the option of receiving research credits, as well as participants from ODU who indicated that they were not interested in receiving research credits, were entered in a raffle with the chance to win one of five \$25 Amazon.com gift cards. Identifying information (e.g., email addresses) required for the raffle was collected in a separate database, so that individuals could not be linked to their responses from the original survey.

## Measures

**Demographics.** A demographic questionnaire (see Appendix A), assessed participant

descriptive variables, such as the participants' age, gender, ethnicity, year in college, sexual orientation, religious affiliation, use of psychotropic medications, and Body Mass Index (BMI). Body Mass Index (BMI) for each participant was calculated by dividing self-reported weight in kilograms by height in meters squared. Weight categories were identified for descriptive purposes and included underweight, normal weight, overweight and obese, defined as a BMI of less than 18.5, 18.5-24.9, 25.0-29.9, and greater than 30.0 respectively (Flegal, Carroll, Kit, & Ogden, 2012).

**Sexual abuse history.** The revised 10-item *Short Form Victimization* (SES-SFV; Koss et al., 2012; see Appendix B) version of the *Sexual Experiences Survey* was used to assess sexual victimization, including rape. A sample item includes, "Even though it didn't happen, someone TRIED to have oral sex with me or made me have oral sex with them without my consent by:" where five various scenarios pertaining to this item are described. Scenarios provide additional information surrounding circumstances of sexual experiences and were used to determine the history and type of sexual victimization endorsed. For each scenario, participants responded to how many times in the past 12 months (0, 1, 2, 3+), and how many times since age 14 each scenario occurred. Prompts for responses were modified to inquire how many times each item occurred since their 18<sup>th</sup> birthday, and how many times each item occurred before age 18. SES-SFV scores were scored both categorically and continuously, as each method provides unique information vital to the present study (Anderson, Cahill, & Delahanty, 2016; Koss et al., 2007; 2012). Categorical scores were used to create ASA history groups (i.e., ASA only, no history, revictimization) for multivariate analyses of variance (MANOVAs) assessing group differences and continuous scores were used to create ASA type groups (i.e., contact, non-contact) for MANOVAs and mediation analyses.

Sexual victimization was categorized in ascending order of severity: No Victimization, Unwanted Sexual Contact, Attempted/Coercion, and Attempted Rape/Rape. Contact ASA was defined by combining Unwanted Sexual Contact, Attempted Rape, and Rape categories. Non-contact ASA included Attempted Coercion and Coercion. No ASA included the non-victim category. Of note, the ASA contact category in the current study was based on whether participants endorsed experiencing unwanted *physical* contact that is sexual in nature, to include groping, and attempted and completed rape (i.e., contact). The ASA non-contact category included participants who endorsed only attempted and/or completed coercion that is sexual in nature, in the *absence* of *physical* contact. Responses A and B on the SES-SFV describe coercion (i.e., threatening without physical force, becoming angry), representing non-contact ASA. Responses C, D, and E describe attempted and completed non-consensual sexual contact (i.e., taking advantage of inability to consent, threatening with physical force, using force), representing contact ASA (Anderson et al., 2016; Koss et al., 2012). Sexual victimization frequency scores used for continuous scoring were calculated by analyzing the scenario frequency responses for each of the first seven items and summing them (0, 1, 2, 3+), representing estimates of the number of incidents of sexual victimization. This method accounts for the possibility that a person may experience multiple counts and types of sexual abuse from the same attacker, in a single incident.

The original SES has consistently demonstrated high levels of reliability and validity among samples of adult females, with Cronbach's alpha values above .70 (Koss et al., 1996; Koss & Gidycz, 1985). However, researchers conceptualize the SES-SFV as an induced model in which observed models are combined to form a new variable representing a category of experiences (Koss et al., 2012). Given that sexual abuse experiences are not necessarily related,

and items in categories are not required to be correlated with one another, measures of internal reliability are not appropriate with the induced variable model (Koss et al., 2012). As a result, measures of internal reliability are not reported for the current study.

**Internalized shame.** The *Internalized Shame Scale, fifth edition* (ISS; Cook, 2001; see Appendix C), consists of 30 items, 24 of which are negatively worded items measuring internalized shame, and six of which are positively worded self-esteem items modified from the Rosenberg Self-Esteem Scale (Rosenberg, 1965). Cognitions involving internalized shame include self-loathing, inferiority, incompetence, and defectiveness (Cook, 2001). Sample items include, “I see myself as being very small and insignificant” and “I feel as if I am somehow defective as a person, like there is something basically wrong with me.” For each item, participants indicated the frequency of cognitive-affective experiences using a 5-point Likert-type scale ranging from 0 (*never*) to 4 (*almost always*). Internalized shame scores were calculated out of a total of 96 possible, with scores above 50 indicating elevated levels of internalized shame, above 60 indicating possible depression and above 70 indicating likely depression or significant emotional distress (Cook, 2001). Items measuring self-esteem were scored to assess response bias in accordance with research suggesting a negative association between self-esteem and trait shame (Cook, 2001; Elison, Lennon & Pulos, 2006; Yelsma, Brown, & Elison, 2002). The negative association between self-esteem and shame persisted in the present sample, ( $r = -.43, p < .001$ ), suggesting valid results.

The ISS has demonstrated stability, with high test-retest reliability after seven weeks ( $r = .84$ ) (Cook, 2001; Del Rosario & White, 2006). The ISS also demonstrates convergent validity for related measures of trait shame, ranging from .49 to .86 on the Personal Feelings Questionnaire, and moderate correlations ranging from .39 to .52 for situation-based shame on

Tangney's Self-Conscious Affect and Attribution Inventory (Reilley, 2014). Discriminant validity was demonstrated from the Mosher Guilt Scale ranging from .15 to .24 and guilt subscale from Tangney's Self-Conscious Affect and Attribution Inventory ranging from .07 to .10 (Reilley, 2014). Estimates of internal consistency and Cronbach's alpha coefficients have been excellent in clinical and non-clinical samples (Del Rosario & White, 2006). In this study's sample, Cronbach's alpha was .93 overall, with shame and self-esteem subscale alpha coefficients of .97 and .89, respectively.

**Eating pathology.** The *Eating Attitudes Test* (EAT-26; Garner, Olmsted, Bohr, & Garfinkel, 1982; see Appendix D) measures symptoms and concerns characteristic of eating disorders. This measure is a particularly useful preliminary screening tool to assess eating disorder risk in young adults (Dubosc et al., 2012). The 26 items consist of three subscales: Dieting, Bulimia and Food Preoccupation, and Oral Control. Sample questions include, "Display self-control around food," "Have gone on eating binges where I felt that I may not be able to stop." Participants were asked to rate items on a 6-point Likert-type scale ranging from 0 (*never*) to 5 (*always*), with higher scores indicating greater dysfunctional eating behaviors and attitudes and possible eating pathology. Total scores were calculated out of a total of 78 possible, whereby scores of 20 and above indicate "probable diagnosis" of an eating disorder (Garner et al., 1982). Due to the cross-sectional nature of the present study, and hypothesized model suggesting that ASA contact leads to eating pathology, additional questions were added to the EAT-26 inquiring when participants' symptoms first began (e.g., "At what age did you first start restricting food?") in order to determine the initial onset of disordered eating behaviors in our sample. Participants who denied disordered eating attitudes or symptoms had the option of selecting not applicable. Fewer than 5% of participants responded to these qualitative questions with a response other than



not applicable; therefore, these responses were not interpreted.

This scale was originally validated using groups of female patients diagnosed with anorexia nervosa and normative female college students (Garner et al., 1982). Elevated EAT-26 scores were found to be predictive of clinical group membership,  $r = .87$  (Garner & Garfinkel, 1979). Internal consistency among clinical and non-clinical samples was excellent, .83 and .90, respectively (Garner et al., 1982; Dubosc et al., 2012). In this study's sample, Cronbach's alpha was .88 overall.

**Drug use severity.** The *Drug Abuse Screening Test, Short Form* (DAST-10; McCabe, Boyd, Cranford, Morales, & Slayden, 2006; see Appendix E) is a 10-item measure assessing substance use problem severity over the past 12 months. Respondents reported on their use of various classes of drugs, including excessive/non-medical use of prescription or over-the-counter medications. These classes of drugs the instructions reference include cannabis, solvents, tranquilizers, barbiturates, stimulants, hallucinogens, and narcotics. Assessment of alcohol and tobacco were excluded. Sample items include, "Have you used drugs other than those required for medical reasons?" and "Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?" For each item, participants indicated either "yes" or "no." Respondents received one point for every "yes" and one item was reverse scored. Total scores are calculated out of a total of 10 possible. A score of 0-2 indicates low severity, 3-5 indicates a moderate level of problem severity, 6-8 indicates substantial severity, and 9-10 indicates a severe level (Skinner, 1982).

The DAST-10 has shown acceptable internal consistency (Cronbach's  $\alpha > .85$ ) and test-retest reliability ( $r > .70$ ) and is highly correlated with the original 28-item version ( $r = .99$ )

(Cocco & Carey, 1998; McCabe et al., 2006). The DAST-10 demonstrated strong convergent validity with other alcohol, drug, and psychiatric assessments (Yudko, Lozhkina, & Fouts, 2007). It has also demonstrated adequate (70%) overall predictive accuracy for clinical diagnosis of substance use (Cocco & Carey, 1998). The sensitivity and specificity of the DAST-10 ranges from 41-95% and from 68-99%, respectively. In the current study, Cronbach's alpha was .84.

**Alcohol use severity.** The *Alcohol Use Disorders Identification Test* (AUDIT; Saunders et al., 1993; see Appendix F) is a 10-item self-report questionnaire for assessing current alcohol problem severity. The AUDIT includes three drinking frequency items, three alcohol dependence items, and four items assessing common consequences or problems caused by alcohol (Aertgeerts et al., 2000; Saunders et al., 1993). Sample items include, "How often do you have a drink containing alcohol?" and "How often during the last year have you failed to do what was normally expected of you because of drinking?" Responses to each item are scored 0 (*never, 1 or 2 drinks, no*) to 4 (*4 or more times a week, 10 or more drinks, daily or almost daily, yes during the last year*). Total scores were calculated out of a total of 40 possible. A score of 0-7 indicates low severity, 8-15 indicates moderate to severe problem severity, 16-19 indicates substantial severity, and 20-40 indicates a severe level (Saunders et al., 1993).

The AUDIT is used to detect problematic drinking behavior rather than to diagnose alcohol use and abuse disorders, demonstrating good specificity and sensitivity across settings (Aertgeerts et al., 2000; Reinert & Allen, 2002). Among individuals in primary care settings reporting non-hazardous and harmful alcohol use, 94% had an AUDIT score of 8 or less, while 92% of those reporting hazardous or harmful alcohol use received an AUDIT score of 8 or greater (Saunders et al., 1993). Researchers determined that a score of 6 accurately detected 91% of high-risk drinkers, while a recommended score of 8 yielded a sensitivity of 82% and

specificity of 78% (Kokotailo et al., 2004). Based on these results, the current study considered scores of 8 or greater as an indicator of problematic alcohol consumption. According to Reinert and Allen's (2002) review, the median Cronbach's alpha was acceptable, with a range in the .80s, and test-retest reliability ranged from .64 to .81. In this study's sample, Cronbach's alpha was .87. Based on these criteria, the data suggest that the AUDIT can be considered a reliable and valid general screening instrument for problematic drinking behavior.

**Maladaptive coping.** The *Coping Orientation to Problems Experienced* (COPE; Carver et al., 1989; see Appendix G) is a 60-item self-report questionnaire used to assess coping strategies. The three "less useful coping responses" subscales (i.e., behavioral disengagement, focusing on venting of emotions, mental disengagement) representing maladaptive, avoidance focused coping strategies (COPE-M) were used in the present study (Carver et al., 1989). Sample items include, "I reduce the amount of effort I'm putting into solving the problem" and "I drink alcohol or take drugs in order to think about it less." Respondents used a 4-point Likert-type scale, ranging from 1 (*I usually don't do this at all*) to 4 (*I usually do this a lot*) to describe what they generally do and feel when they experience stressful events. Maladaptive coping subscale scores were calculated out of a total of 48 possible, with higher scores indicating greater use of that coping mechanism (Carver et al., 1989). The COPE-M has shown acceptable internal consistency aside from the mental disengagement scale ( $r = .60$ ) (Carver et al., 1989). The authors note that the low reliability coefficient was expected given that mental disengagement involves multiple factors. However, this was not the case in the current study ( $\alpha = .80$ ).

**Validity check.** To ensure that survey participants were paying attention and answering accurately, three attention questions were dispersed throughout the survey that asked participants to select a certain response if they are paying attention. Initially, participants that incorrectly

answered two out of the three questions were planned to be removed. However, approximately 17% of the sample incorrectly answered one of the check questions, which prompted participants to select strongly agree, “If you live in the United States.” As less than 5% of participants provided incorrect responses to the remaining questions, this check question was omitted from the validity check due to the possible confusion or ambiguity that this question may have caused. Specifically, participants may have interpreted this as a question regarding citizenship. Participants that incorrectly answered one out of the remaining two questions were removed (see Data Screening section for number of cases excluded).

### **Preparatory Procedures for Analyses**

**Power analysis.** In order to evaluate the minimum sample size needed for an adequate power level of .80 (Cohen, 1992), a power analysis was conducted using statistical power analysis program G\*Power 3.1 (Faul, Erdfelder, Lang, & Buchner, 2007). Meta-analyses of relevant sexual abuse research literature suggest a range of small,  $f = 0.10$  ( $f^2$  of .02) to medium effect sizes,  $f = 0.25$  ( $f^2$  of .15); consequently, a small effect size was selected for the present study in order to be conservative and ensure detection of effect regardless of magnitude (Briere & Elliott, 2003; Chen et al., 2010; Hillberg, Hamilton-Giachritsis, & Dixon, 2011). The power analysis indicated that using an alpha level set at .05, a total sample size of 344 with 58 people per group was needed to detect a small effect size, since planned analyses included multivariate analyses of variance (MANOVAs) with three predictor variables, and three outcome variables. This power estimate was also examined for its adequacy in the path model following guidelines from O'Rourke & Hatcher (2013), which indicate that this desired sample size was also sufficient for testing the path model. The present study accounted for an attrition rate of 20% (i.e., 69 additional participants), which could occur with the sensitive nature of the self-report questions.

Accordingly, the minimum sample size to be recruited was 413 participants for the present study. Given the final sample size of the present study consisted of 420 participants, analyses could be run.

**Data screening.** Data were first screened and cases that endorsed exclusionary criteria or did not fit certain inclusion criteria were removed. Although the present study was advertised for college women between the ages of 18 to 30 who were not pregnant or breastfeeding at the time of the survey, 16 participants (2.8%) selected a male gender, 20 participants (3.6%) exceeded age range criteria, and five participants (.90%) endorsed being pregnant or breastfeeding at the time of survey administration. Thus, 41 participants (7.3%) were removed. Next, in order to have enough data to be used for the main analyses, 89 participants who completed the survey with greater than 50% data missing were excluded (15.9%). Additionally, nine participants (1.6%) who did not pass the validity check were also excluded. Among the original 559 respondents, a total of 139 cases (24.9%) were excluded from the final analyses, leaving 420 (75.1%) cases to be analyzed.

**Analysis approach.** SPSS and SPSS add-on AMOS Version 22 (Arbuckle, 2013) were used to analyze the data in the present study. Aims 1 and 2 were tested using a series of one-way Multivariate Analyses of Variance (MANOVAs) to test for mean vector differences in disordered eating behaviors, problematic drug use, and problematic alcohol use scores between individuals with histories (i.e., ASA only, no history, revictimization) and type (i.e., contact, non-contact ASA) of sexual abuse. Carey (1998) discussed that MANOVAs should be used either when there is utility in not performing multiple individual tests due to multiple correlated outcome variables, or when researchers are interested in how predictor variables may be related to a response pattern on the outcome variables (Carey, 1998; Maxwell & Delaney, 2004). The

utility of using MANOVAs over a series of Analyses of Variance (ANOVAs) lies in reducing the likelihood of committing a Type I error, given the multiple dependent variables (Maxwell & Delaney, 2004). Prior to conducting the MANOVA, Pearson correlations were determined to test the account for the possibility of multicollinearity and singularity (Carey, 1998; Maxwell & Delaney, 2004).

In order to examine Aim 3, mediation analyses including only participants reporting ASA contact were conducted. Mediating variables are described as third variables that can explain how and why an independent variable (IV) predicts a dependent variable (DV) (Baron & Kenny, 1986; Cohen & Cohen, 1983; Kenny, 2016). Path models with multiple mediators are typically treated as extensions of single-mediator analyses (MacKinnon, 2000). A multiple-mediator path analysis was conducted to examine the hypothesized mediated effects of internalized shame and avoidance-focused coping strategies on the relationship between ASA contact and disordered eating behaviors, problematic drinking, and problematic drug use concurrently, as this is considered to be a more accurate assessment of mediation effects (MacKinnon, 2008).

**Bootstrapping.** A bootstrapping procedure was completed as part of testing the path model. Researchers define bootstrapping as a general approach that is both a valid and powerful method for testing mediation effects by means of a resampling method (e.g., repeated for a total of 1000 times to produce 1000 estimates of the indirect effect), which creates a sampling distribution to estimate standard errors and percentile-based confidence intervals (Hayes, 2009; Mackinnon, 2008). Shrout and Bolger (2002) also emphasized the importance of bootstrapping methods for distributions of indirect effects in mediation models, as bootstrap tests increase power by detecting whether the sampling distribution of a mediated effect is skewed. The

statistical significance of the mediation (indirect) effect was confirmed if the respective 95% bias-corrected confidence interval did not contain zero.

## CHAPTER III

### RESULTS

**Missing data and outliers.** Prior to conducting analyses, missing data and outliers were addressed. As recommended by Schlomer, Bauman, and Card (2010), Little's (1998) test was conducted to determine if the data were missing completely at random (MCAR). Missing Values Analyses were performed to see which demographic variables were associated with missingness on the study variables. Little's MCAR indicated data were missing completely at random (chi-square = 8.40,  $df = 8$ ,  $p = .39$ ). However, missingness on AUDIT total scores was predicted by DAST total scores,  $t(1, 31) = 4.6$ ,  $p < .001$ . To correct for the missing values, Multiple Imputation was performed for each of the three outcome variables (EAT-26, DAST-10, and AUDIT) separately, with 5 imputations performed for each and correlates of missingness included in the imputation. Path analysis, which utilizes maximum likelihood estimation, accounted for and addressed the remaining missingness in the final sample (Kline, 2016).

Extreme outliers were identified as scores exceeding three interquartile ranges from the median on box plots and were Winsorized to one higher than the highest score (Cox, 2006; Tabachnick & Fidell, 2013). Univariate normality testing revealed that the DAST-10 (problematic drug use measure) had 14 extreme values, but remained outliers beyond three interquartile ranges once Winsorized. The AUDIT (problematic drinking measure) had two extreme outliers, which were Winsorized from 34 to 32, where they fell within three interquartile ranges of the median. For the EAT-26 (eating pathology measure), seven extreme outliers were Winsorized, where they fell within three interquartile ranges of the median. As recommended by Tabachnick and Fidell (2013), multivariate outliers were selected per group, since grouped data analyses (MANOVAs) were performed. Tests of multivariate outliers showed some cases



belonging to the revictimization (CSA; ASA) and contact ASA groups that exceeded cutoffs for Mahalanobis distance; however, these outliers remained in the final analyses, as they were conceptualized as being representative of true differences in the intended target population (Tabachnick & Fidell, 2013). Additionally, performing the main analyses with these variables removed did not change the significance of the outcomes. Following the corrections for normality, no problems with univariate normality remained. Relationships between all dependent variables and proposed covariates were linear.

**Statistical assumptions.** Univariate normality was assessed by means of skewness and kurtosis statistics, histograms, detrended normal q-q plots, and box plots. Normality was also assessed for the dependent variables across each level of the independent variables. Problems with skewness and kurtosis were deemed significant if skewness statistics exceeded the absolute value of two or kurtosis statistics exceeded the absolute value of seven (Curran, West, and Finch, 1996). Cut-offs for detrended normal q-q plots were based on Garson's (2012) recommended +/- 1.96 standard deviation cut-off. Skewness and kurtosis were calculated for all dependent variables and potential covariates (see Table 3). Univariate normality testing revealed that the DAST-10 (problematic drug use measure) was significantly skewed (2.84) and kurtotic (10.22), and violated normality based on the detrended normal q-q plots. After Winsorizing extreme outliers some DAST-10 outliers remained and the variable remained significantly kurtotic (7.32). To correct for this, a square-root transformation was conducted and kurtosis fell within the acceptable range (0.27).

In order to assess potential covariates, frequency distributions of demographic variables were conducted. Means and standard deviations were calculated for all dependent variables and potential covariates (see Table 4). A variable is considered to be confounding if the regression coefficient changes by more than 10 percent after adjusting for the variable (Cohen, Cohen, West, & Aiken, 1983). Based on this definition, no demographic variables were considered confounds.

**Aim 1.** In order to constitute the use of MANOVA and address the assumption of absence of multicollinearity and singularity, outcome variables were expected to be moderately correlated, yet not to exceed the threshold of  $r < .90$ , which would indicate multicollinearity (Tabachnick & Fidell, 2013). Results of Pearson's correlations indicated that all correlations fell below the threshold of multicollinearity, and that outcome variables were not moderately correlated with one another. Multivariate analyses were calculated due to variables demonstrating significant small to moderate associations (Tabachnick & Fidell, 2013).

Preliminary analyses of frequencies suggested that ASA ( $n = 64$ ), revictimization ( $n = 116$ ), and no history ( $n = 171$ ) had sufficient cell size to be included as distinct groups within the grouping variable. A preliminary one-way MANOVA was conducted to examine homogeneity of covariance matrices and homogeneity of variance. Although Box's M Test is known to be conservative for large sample sizes, and values greater than .001 were not considered to be significant (Pallant, 2013), values indicated that the assumption of homogeneity of covariance matrices was violated. Levene's Test was also significant for the EAT-26 (eating pathology measure),  $F(2, 346) = 3.85, p = .02$ , DAST (problematic drug use measure),  $F(2, 346) = 14.20, p < .001$ , and the AUDIT (problematic drinking measure),  $F(2, 346) = 9.30, p < .001$ , which indicate that the assumption of homogeneity of variance was violated for all outcome variables.

Consequently, results should be interpreted with caution and final analyses were based on an alpha level of .01 and Pillai's Trace, as this is more robust to unequal cell size and violations of assumptions (Pallant, 2013; Tabachnick & Fidell, 2013). Additionally, Scheffe post hoc analyses were conducted to explore significant ANOVA results when there are three or more levels, as recommended for unequal sample sizes (Verma, 2013).

**Aim 2.** Tabachnick and Fidell (2013) suggest that if a given cell size is larger than the number of outcome variables ( $n = 3$ ), then the MANOVAs can technically proceed. However, if the cell has only a few (e.g., two) more cases than outcome variables, then power is decreased and the likelihood that the unequal sample size assumption is met decreases drastically (Tabachnick & Fidell, 2013). Preliminary analysis of frequencies suggested that the non-contact ASA group would have insufficient cell size to be included as a distinct group within the ASA level ( $n = 5$ ). To account for cell size disparity, analyses were conducted with and without non-contact ASA as a distinct group within the level of ASA. Outcomes of analyses did not differ, however, the non-contact ASA only level was omitted (e.g., non-contact and contact ASA were summed into one ASA category) because observed power noticeably decreased for the MANOVA that included contact and non-contact ASA as separate levels. As a result, hypothesis 2(a), comparing outcome variable scores across ASA type (i.e., non-contact, contact) could not be examined. Hypothesis 2(b), comparing outcome scores among those who endorsed ASA contact and those that did not endorse sexual abuse could be partially examined, such that differences between ASA only (i.e., contact, non-contact) and no history were examined.

Table 3

*Univariate Descriptive Statistics for Dependent Variables and Potential Covariates*

Measure	<i>M (SD)</i>	Skew	Kurtosis
EAT-26	8.56 (9.10)	1.71	3.47
DAST-10	1.16 (1.52)	2.84	10.22
AUDIT	14.35 (4.19)	1.62	3.25
ISS	30.55 (22.85)	.69	-.15
COPE-M	26.66 (6.39)	.09	.10

*Note.*  $N = 420$ ; EAT-26 = eating pathology, scores range from 0-78; DAST-10 = drug use screening, scores range from 0-10, non-transformed values shown; AUDIT = alcohol use screening, scores range from 0-40; ISS = internalized shame, scores range from 0-96; COPE-M= maladaptive coping, scores range from 0-48.

Table 4

*Correlations Between Potential Covariates and Dependent Variables*

Variables	EAT-26	DAST-10	AUDIT	ISS	COPE-M
EAT-26	--				
DAST-10	.20**	--			
AUDIT	.19**	.29**	--		
ISS	.48**	.24**	.21**	--	
COPE-M	.28**	.13*	.15**	.51**	--

*Note.*  $df = 418$ . Intercorrelations for female participants are presented above the diagonal. EAT-26 = eating pathology; DAST-10 = drug use screening, transformed values shown; AUDIT = alcohol use screening; ISS = internalized shame; COPE-M = maladaptive coping.

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

A preliminary one-way MANOVA was conducted to examine homogeneity of covariance matrices and homogeneity of variance. The MANOVA indicated Box's M Test was significant, indicating that the assumption of homogeneity of covariance matrices was violated. Levene's Test was also significant for the DAST (problematic drug use measure),  $F(1, 232) = 4.20, p = .04$ , and the AUDIT (problematic drinking measure),  $F(1, 232) = 6.12, p = .01$ . Thus, the assumption of homogeneity of variance was violated for problematic drug use and drinking but upheld for disordered eating behaviors. Therefore, results should be interpreted with caution and final analyses were based on an alpha level of .01 and Pillai's Trace (Pallant, 2013; Tabachnick & Fidell, 2013).

**Aim 3.** Path analyses cannot proceed with missing data; therefore, the maximum likelihood method of factor extraction was utilized to calculate robust estimates of missing data on imputed data. Lastly, the hypothesized path model was recursive, whereby the number of known values outnumbered the number of free parameters (i.e., over-identified model); consequently, model fit could be identified and analyses could proceed (Tabachnick & Fidell, 2013).

**Descriptive statistics.** Descriptive analyses were conducted to examine endorsement of sexual abuse. The categorical characteristics of sexual abuse of the sample included 41.6% who denied CSA or ASA history, 14.5% who endorsed CSA, 15.5% who endorsed ASA, and 28.2% who were revictimization survivors, which aligns with reported statistics of sexual abuse (Edwards et al., 2015; Fisher et al., 2000). Categories of ASA type (i.e., contact, non-contact) were calculated based on summed SES-SFV scores. Specifically, descriptive statistics for contact ASA were calculated based on unwanted sexual contact, attempted rape, and rape scores, and non-contact ASA statistics were based on attempted and completed coercion scores. Continuous

scoring of sexual abuse indicated a mean of 4.3 instances of CSA (range: 0-60), a mean of 4.5 instances of ASA (range: 0-73), and a mean of 8.4 instances of revictimization (range: 0-140) in the present sample. Further descriptive statistics of study variables can be found in Table 5 and 6.

### Primary Analyses

Overall, it was predicted that disordered eating behaviors and substance use would differ based on the history (i.e., ASA only, no history, revictimization) and type (i.e., contact ASA, non-contact ASA) of sexual abuse. It was also predicted that internalized shame and maladaptive coping strategies would mediate the relationship between ASA contact, disordered eating behaviors, and substance use, whereby internalized shame and maladaptive coping strategies would be positively associated with disordered eating, drinking, and drug use.

**Statistical analysis testing Aim 1.** Study Aim 1 examined group differences of ASA history (i.e., ASA only, no history, revictimization) on disordered eating behaviors, problematic drinking, and problematic drug use among college women. Three outcome variables were used: EAT-26 scores (eating pathology measure), DAST scores (drug use screener), and AUDIT scores (alcohol use screener). The grouping variable was ASA history. A one-way between-groups MANOVA indicated a statistically significant main effect of history on the outcome variables, Pillai's Trace = .13, multivariate  $F(3, 344) = 7.89, p < .001$ , partial eta squared = .06. Observed power to detect the effect exceeded .80 for all variables. Multivariate main effects were identified for all outcome variables, thus univariate results were examined using ANOVAs to identify which groups of a given independent variable have significantly different adjusted mean vectors (Brace, Snelgar, & Kemp, 2012). Follow-up analyses of variance showed significant effects of ASA history on the EAT-26,  $F(2, 346) = 6.37, p = .001$ , partial eta squared = .04, the DAST,  $F(2, 346) = 10.52, p < .001$ , partial eta squared = .06, and the AUDIT,  $F(2,$

346) = 18.72,  $p < .001$ , partial eta squared = .08. Scheffe post hoc analyses revealed that individuals in the revictimization (e.g., CSA + ASA) group reported more dysfunctional eating symptoms on the EAT-26, and greater substance use severity on the DAST-10 and AUDIT, compared to those who denied a history of sexual abuse (see Table 7).

**Statistical analysis testing Aim 2.** Study Aim 2 was to examine group differences of ASA type (i.e., contact, non-contact) on disordered eating behaviors, problematic drinking, and problematic drug use among college women. A one-way between subjects MANOVA revealed a main effect of type of ASA on the outcome variables, Pillai's Trace = .06, multivariate  $F(3, 230) = 4.80$ ,  $p = .004$ , partial eta squared = .06. Observed power to detect the effect was .89. Given violations of the equal cell size assumption prohibiting investigation of mean vector differences of outcome variables between contact ASA, non-contact ASA, and no history, follow-up univariate analyses were consistent with the results of Aim 1, such that the only difference to reach significance was problematic drinking,  $F(1, 232) = 7.20$ ,  $p = .001$ , partial eta squared = .05. Problematic drug use,  $F(1, 232) = 0.99$ ,  $p = .101$  partial eta squared = .01, and disordered eating  $F(1, 232) = 1.33$ ,  $p = .290$  partial eta squared = .01, did not reach significance (see Table 8).



Table 5

*Highest Level of Sexual Abuse Reported by Participant*

	<i>n</i>	%
<i>Childhood Sexual Abuse</i>		
Survivor	60	14.50%
<i>Adult Sexual Abuse</i>		
Contact Sexual Abuse	59	14.3%
Non-Contact Sexual Abuse	5	1.2%
<i>Revictimization</i>	116	28.2%
<i>No History of Childhood or Adult Sexual Abuse</i>	171	41.6%
<i>No Answer</i>	10	2.2%

*Note.*  $N = 420$ ; Percent and  $n$  are given for people who endorsed exposure to sexual experiences. Contact Sexual Abuse = unwanted sexual contact, attempted rape, and rape, Non-Contact Sexual Abuse = attempted coercion, and coercion, Revictimization = child and adult sexual abuse endorsed, No History = non-victim. SES-SFV response scale: 0 = “0 experiences”, 1 = “1 experience”, 2 = “2 experiences”, 3+ = “3 or more experiences.” Scores are mutually exclusive according to the most severe form of abuse indicated.

Table 6

*Descriptive Information of Study Measures by Sexual Abuse History*

SES Category	EAT-26 <i>M (SD)</i>	DAST-10 <i>M (SD)</i>	AUDIT <i>M (SD)</i>	ISS <i>M (SD)</i>	COPE-M <i>M (SD)</i>
CSA only	8.35 (9.17)	.92 (1.54)	14.25 (4.15)	30.70 (23.05)	37.95 (9.93)
ASA only	8.48 (9.17)	1.21 (1.54)	15.01 (4.15)	34.34 (23.0)	39.70 (9.93)
Revictimization	11.25 (9.17)	1.75 (1.54)	15.86 (4.15)	41.66 (23.0)	42.61 (9.93)
No Hx	7.02 (9.17)	.87 (1.54)	13.17 (4.15)	22.21(23.0)	37.10 (9.93)
Total	8.57 (9.12)	1.17 (1.53)	14.35 (4.15)	30.56 (22.91)	26.70 (6.40)

*Note.*  $N = 420$ ; EAT-26 = eating pathology, scores range from 0-78; DAST-10 = drug use screening, non-transformed values shown, scores range from 0-10; AUDIT = alcohol use screening, scores range from 0-40; ISS = internalized shame, scores range from 0-96; COPE-M= maladaptive coping, scores range from 0-48.

Table 7

*Estimated Marginal Means: History of Sexual Abuse*

SA Type	Revictimization	ASA Only	No History
AUDIT	15.82 <sup>a</sup>	15.00 <sup>b</sup>	13.10 <sup>c</sup>
DAST-10	1.79 <sup>a</sup>	1.23 <sup>ab</sup>	.90 <sup>b</sup>
EAT-26	11.40 <sup>a</sup>	8.93 <sup>ab</sup>	7.06 <sup>b</sup>

*Note.*  $N = 420$ ; SA = Sexual abuse. ASA = Adult sexual abuse. EAT-26 = eating pathology, scores range from 0-78; DAST-10 = drug use screening, scores range from 0-10, transformed scores were used; AUDIT = alcohol use screening, scores range from 0-40. Means with different superscript letters (<sup>a,b,c</sup>) within the same row are significantly different ( $p < .01$ ).

Table 8

*Estimated Marginal Means: Type of Sexual Abuse*

ASA History	Contact or Non-Contact ASA Endorsed (ASA History)	Contact or Non-Contact ASA History Denied (No ASA History)
AUDIT	15.00 <sup>a</sup>	13.10 <sup>b</sup>
DAST-10	1.23	.90
EAT-26	8.93	7.06

*Note.*  $N = 420$ ; ASA = Adult sexual abuse. AUDIT = Alcohol use disorders identification test; DAST = Drug abuse screening test, transformed scores shown; EAT-26 = Eating attitudes test. Means with different superscript letters (<sup>a,b</sup>) within the same row are significantly different ( $p < .01$ ) among ASA history and no ASA history groups.

**Statistical analysis testing Aim 3.** Study Aim 3 was to examine a conceptual model whereby the indirect relationship between ASA contact and disordered eating, problematic drinking, and problematic drug use is mediated by internalized shame and maladaptive coping strategies. Hypotheses 3a and 3b examined whether internalized shame mediated the relationship between adult contact sexual abuse, disordered eating behaviors, and substance use, such that ASA contact was expected to be positively associated with internalized shame and internalized shame was hypothesized to be positively associated with outcome variables (see Figure 1). In order to determine whether internalized shame mediated the relationship between adult contact sexual abuse and the outcome variables, a path analysis was conducted. To test the significance of the indirect (mediated) effects, results of a bootstrapping procedure were used and significance of the indirect effect was confirmed if the respective 95% bias-corrected confidence interval did not contain zero (Preacher et al., 2007; Shrout & Bolger, 2002).

**Direct effects.** A series of significant direct effect pathways were detected within this model. ASA contact was significantly associated with ISS scores (internalized shame measure), and consistent with hypotheses 3a and 3b, ISS scores were positively associated with EAT-26 (eating pathology measure) scores, DAST (problematic drug use measure) scores, and AUDIT (problematic drinking measure) scores.

**Indirect effects.** In order to assess hypotheses 3a and 3b, indirect effects were tested using bootstrapped standard errors. Internalized shame was found to fully mediate the relationship between ASA contact and eating pathology,  $\beta = .023$  with 95% BC CI [.010, .040], problematic drug use,  $\beta = .011$  with 95% BC CI [.004, .020], and partially mediated problematic drinking,  $\beta = .010$  with 95% BC CI [.003, .020]. Full mediation is indicated if the relationship between ASA contact and an outcome variable becomes zero when the mediator (i.e.,

internalized shame) is included in the relationship, whereas partial mediation is indicated when this relationship is diminished but not to zero (Tabachnick & Fidell, 2013). Results provided support for Hypotheses 3a and 3b (see Figure 2 for model; Tables 9, 10, and 11 for indirect effects).

Hypotheses 4a and 4b examined whether maladaptive coping strategies mediated the relationship between adult contact sexual abuse, disordered eating behaviors, and substance use, such that ASA contact was hypothesized to be positively associated with maladaptive coping strategies, and maladaptive coping was hypothesized to be positively associated with outcome variables (see Figure 1). To determine whether maladaptive coping strategies mediated the relationship between ASA contact, disordered eating behaviors, and substance use, a path analysis was conducted.

**Direct effects.** Few significant direct effect pathways were detected within this model (see Figure 2). Specifically, ASA contact was not significantly associated with COPE-M scores (maladaptive coping measure), and COPE-M scores were not associated with DAST scores (problematic drug use measure). COPE-M scores were positively associated with EAT-26 (eating pathology measure), and AUDIT (problematic drinking measure) scores.

**Indirect effects.** In order to examine Hypotheses 4a and 4b, indirect effects using bootstrapped standard errors were tested. Maladaptive coping was not found to mediate the relationship between ASA contact and eating pathology,  $\beta = .001$  with 95% BC CI [.000, .002], drinking severity scores,  $\beta = .004$  with 95% BC CI [.000, .006], nor drug use severity scores,  $\beta = .001$  with 95% BC CI [.000, .001]. Results did not provide support for Hypotheses 4a or 4b (see Figure 2 for model; Tables 12, 13, and 14 for indirect effects).

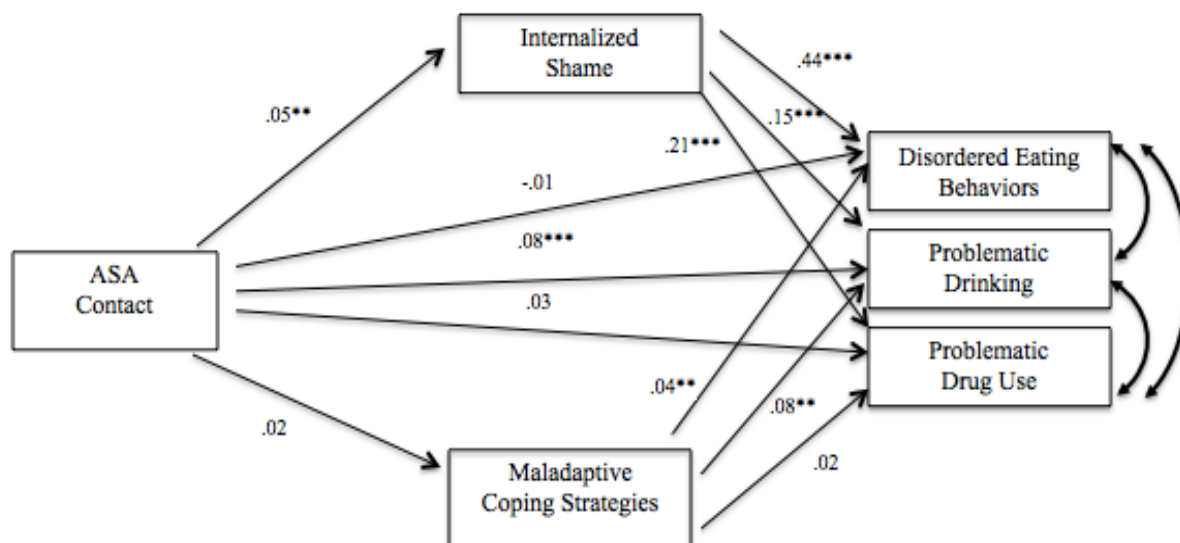


Figure 2. Results of the path model for Aim 3 with adult sexual abuse (ASA) contact as the predictor variable, internalized shame (ISS) and maladaptive coping strategies (COPE-M) as the mediators, and disordered eating behaviors (EAT-26), problematic drinking (AUDIT), and problematic drug use (DAST-10) as the outcome variables. Transformed problematic drug use values shown. Standardized path coefficients shown, where  $*p < .05$ ,  $**p < .01$ ,  $***p < .001$ .

Table 9

*Indirect Effect of Adult Sexual Abuse Contact on Eating Pathology via Internalized Shame*

Eating Pathology	$\beta$	SE	95% CI
Total Effect	0.02	0.02	[-.02, .06]
Total Indirect	0.02	0.01	[.01, .04]
Direct Effect	-0.01	0.02	[-.04, .03]

Note.  $N = 420$ ; Eating Pathology = Eating Attitudes Scale; Adult Sexual Abuse Contact = Sexual Experiences

Survey – short form victimization). Standardized path coefficients are shown.



Table 10

*Indirect Effect of Adult Sexual Abuse Contact on Problematic Drinking via Internalized Shame*

Problematic Drinking	$\beta$	SE	95% CI
Total Effect	0.09	0.02	[.04, .14]
Total Indirect	0.01	0.00	[.00, .02]
Direct Effect	0.08	0.02	[.03, .13]

*Note.*  $N = 420$ ; Problematic Drinking = Alcohol Use Disorder Identification Test; Adult Sexual Abuse

Contact = Sexual Experiences Survey – short form victimization). Standardized path coefficients are shown.

Table 11

*Indirect Effect of Adult Sexual Abuse Contact on Problematic Drug Use via Internalized Shame*

Problematic Drug Use	$\beta$	SE	95% CI
Total Effect	0.20	0.11	[-.02, .41]
Total Indirect	0.01	0.00	[.00, .02]
Direct Effect	0.03	0.02	[-.02, .08]

*Note.*  $N = 420$ ; Problematic Drug Use = Drug Abuse Screening Test, transformed scores were used; Adult

Sexual Abuse Contact = Sexual Experiences Survey – short form victimization). Standardized path coefficients are shown.

Table 12

*Indirect Effect of Adult Sexual Abuse Contact on Eating Pathology via Maladaptive Coping*

Eating Pathology	$\beta$	SE	95% CI
Total Effect	0.04	0.02	[-.00, .09]
Total Indirect	0.00	0.00	[-.00, .00]
Direct Effect	-0.01	0.02	[-.04, .03]

*Note.*  $N = 420$ ; Eating Pathology = Eating Attitudes Scale; Adult Sexual Abuse Contact = Sexual Experiences

Survey – short form victimization). Standardized path coefficients are shown.

Table 13

*Indirect Effect of Adult Sexual Abuse Contact on Problematic Drinking via Maladaptive Coping*

Problematic Drinking	$\beta$	SE	95% CI
Total Effect	0.08	0.02	[.03, .12]
Total Indirect	0.00	0.00	[.00, .01]
Direct Effect	0.08	0.02	[.03, .12]

*Note.*  $N = 420$ ; Problematic Drinking = Alcohol Use Disorder Identification Test; Adult Sexual Abuse

Contact = Sexual Experiences Survey – short form victimization). Standardized path coefficients are shown.

Table 14

*Indirect Effect of Adult Sexual Abuse Contact on Problematic Drug Use via Maladaptive Coping*

Problematic Drug Use	$\beta$	SE	95% CI
Total Effect	0.02	0.02	[-.03, .07]
Total Indirect	0.00	0.00	[.00, .00]
Direct Effect	0.03	0.02	[-.02, .08]

*Note.*  $N = 420$ ; Problematic Drug Use = Drug Abuse Screening Test, transformed scores were used; Adult Sexual

Abuse Contact = Sexual Experiences Survey – short form victimization). Standardized path coefficients are shown.

## CHAPTER IV

### DISCUSSION

Given research suggesting the importance of the presence (i.e., history) and severity (i.e., type) of sexual abuse experienced on psychological functioning and health-risk comorbidities (Dansky et al., 1997; Lau & Kristensen, 2010), the current study sought to 1) examine the association of history (i.e., ASA only, no history, revictimization) and 2) type (i.e., contact, non-contact) of ASA on health-risk behaviors among college women, and 3) assess two potential mediators (i.e., internalized shame, maladaptive coping) to the relationship between ASA contact and disordered eating, problematic drinking, and problematic drug use. Previous literature has focused on adult sexual abuse within the context of revictimization; however, to our knowledge, the majority of this research focused on older adult samples, and no study has examined the mediating influence of internalized shame and maladaptive coping behaviors on eating pathology and substance abuse among survivors of ASA contact. The ultimate purpose of this research was to aid in the clinical evaluation, conceptualization, and treatment of sexual trauma in college women, and inform health-risk prevention interventions for college women who have recently been sexually assaulted.

Overall, it was predicted that women who endorsed experiencing sexual revictimization would report more eating pathology and problematic substance use (i.e., drinking, drug use) than those who endorsed a history of ASA only, and those who did not endorse a history of sexual abuse. It was also predicted that women who endorsed experiencing ASA contact would report engaging in more health-risk behaviors (i.e., disordered eating, problematic drinking, problematic drug use) than those who experienced non-contact ASA and than those who did not endorse any history of sexual abuse. Lastly, the proposed conceptual model was examined to

determine whether internalized shame and maladaptive coping strategies mediated the relationship between the most severe type of ASA (i.e., contact) and disordered eating, problematic drinking, and problematic drug use.

### **Aim 1: ASA History and Health-Risk Behaviors**

In order to replicate and extend prior research suggesting that multiple instances of sexual abuse across a lifespan (i.e., revictimization) may be associated with poor mental and physiological health outcomes, hypotheses comparing history of sexual abuse (i.e., ASA only, no history of sexual abuse, and revictimization) were evaluated (Lau & Kristensen, 2010; Messman-Moore, Brown, & Koelsch, 2005). Analyses suggested that there were significant differences on outcome variables across history of ASA, such that participants who endorsed a history of revictimization scored significantly higher on all outcome variables compared to those who endorsed no history of sexual abuse. Once ASA contact and non-contact levels were combined to create the ASA only group, MANOVAs demonstrated significant differences on problematic drinking, such that participants who endorsed a history of ASA only scored significantly higher on the problematic drinking measure (i.e., AUDIT) compared to those who endorsed no history of sexual abuse, but not problematic drug use or eating pathology. The disparities of reported health-risk behaviors among participants with revictimization history was expected and aligns with research suggesting a compound effect of trauma, such that prior abuse is typically most severe in terms of contact and number of offenders in those who are revictimized (Lau & Kristensen, 2010). Such a compound effect of trauma may explain the elevated means across outcome variables given that this group reported the highest mean trauma symptomology scores among the sample and the notable association between trauma symptomology, disordered eating behaviors (e.g., binge eating), and substance use (Keane, 1983; Stewart et al., 1998).

Regarding the lack of differences in eating pathology and problematic drug use between those endorsing ASA only and those without history of sexual abuse, there may be factors in the current study that contributed to these results. Pertaining to eating pathology, one such factor is that the current study did not differentiate between subclinical and clinical levels of disordered eating. The decision to incorporate participants with and without clinical eating pathology originated from literature suggesting the prevalence and harmful impact of subclinical disordered eating behaviors among college women (Berg et al., 2009; Johnson et al., 2002). While incorporating subclinical levels of eating pathology extends prior research and is reliably assessed by the EAT-26 measure (Garner et al., 1982), it may be possible that fewer participants engaged in subclinical and clinical disordered eating behaviors, and that the proposed differences may have been more salient in a higher-risk college sample.

In considering factors that may have impacted null differences in problematic drug use scores, one such factor is the DAST-10 (problematic drug use measure), such that there is a possibility of a floor effect of the DAST-10 affecting the results of the current study. Specifically, the low sample mean ( $M = 1.12$ ) suggests a restricted range and lack of variability in self-reported drug use among the college sample, which could have potentially impeded the ability to find significant differences between ASA only and no history groups. While it is possible that the majority of the present sample engages in minimal drug use, the restricted range may also be a result of alternative explanations. First, this measure excludes questions pertaining to alcohol and tobacco use, and focuses on illicit substances (e.g., cocaine) and excessive/non-medical use of prescription and over-the-counter medications (McCabe et al., 2006; Skinner, 1982). Specifically, the exclusion of alcohol and tobacco and focus on illicit and higher-risk substance use may have resulted in an underrepresentation of problematic drug use, since alcohol



and tobacco are among the most prevalent drugs used by college students (Frazier et al., 2005; McCabe et al., 2006). This measure is also face-valid, which also could have resulted in underrepresentation of actual drug use behaviors due to possible response bias.

### **Aim 2: ASA Type and Health-Risk Behaviors**

To replicate and extend prior research suggesting that severity (i.e., type) of sexual abuse may also result in poor mental and physiological health outcomes, hypotheses comparing type of sexual abuse (i.e., contact, non-contact) were attempted to be evaluated (Messman-Moore et al., 2005). Significant differences between contact and non-contact adult sexual abuse on outcome variables were unable to be examined due to insufficient non-contact cell size and inadequate power. This may be explained in part by the nature of the measure used to differentiate types of sexual abuse (SES-SFV) as responses on the SES-SFV are mutually exclusively scored to ensure that the most severe form of endorsed abuse is coded. Thus, many more non-contact abuses were endorsed, but participants who experienced any sexual abuse involving physical contact were recoded into “contact.” Further, the SES-SFV scoring resulted in Unwanted Sexual Contact, Attempted Rape, and Rape categories all being “contact” ASA in this study. On the other hand, only Attempted Coercion, and Coercion were categorized as “non-contact” ASA. Based on these definitions, any unwanted sexual behavior aside from coercion was categorized as contact ASA. While the primary advantage of using this established measure of sexual experiences lays in its reliability and validity, this measure likely served as an underrepresentation of less severe forms of sexual abuse, such as non-contact sexual abuse (e.g., sexual harassment), which is considered to be the most prevalent form of sexual abuse encountered by women (CDC, 2014). When choosing measures for this study, it was noted that very few validated measures of sexual abuse exist and the SES is one of the only measures that uses legal definitions of sexual abuse. As one

of the major criticisms of sexual abuse research throughout the years has been a lack of consensus on definitions and valid measurements, future research may benefit from the development and validation of additional measures of sexual victimization that capture both non-contact and contact abuse adequately (Tripp & Petrie, 2001).

### **Aim 3: ASA Contact, Internalized Shame, Maladaptive Coping, and Health-Risk Behaviors**

**Internalized shame.** Scores from mental and health-risk assessments were used to investigate the association between ASA contact, disordered eating, and substance use and the role of internalized shame in this relationship. As expected, ISS scores (internalized shame measure) were positively associated with EAT-26 (eating pathology measure) scores, DAST (problematic drug use measure) scores, and AUDIT (problematic drinking measure) scores, and mediated the relationship between ASA contact and all outcome variables. This finding suggests that being exposed to contact (i.e., Unwanted Sexual Contact, Attempted Rape, Rape) sexual abuse in early adulthood is associated with more internalized shame, and that internalized shame explains the association between ASA contact, eating pathology, and substance use. This is consistent with prior research demonstrating that internalized shame is an expected consequence of multiple forms of abuse, to include sexual abuse, and is a maintaining factor in eating pathology and substance abuse (Kaufman, 1992; Tangney et al., 1992; Vidal & Petrak, 2007).

In considering these results, there is reason to continue research efforts focused on addressing internalized shame as a potential factor that may contribute to the development and maintenance of problematic health-risk behaviors. Continued research efforts in this area are particularly important because the construct of internalized shame is still relatively novel and understudied (Tangney et al., 1992). Further, internalized shame is considered to be distinct from trait shame, yet currently the ISS is the only validated measure known to the authors that

measures this important construct (Cook, 1994). As a result, future work may also benefit from further defining and understanding the nature of internalized shame, especially in the context of sexual abuse, and its distinction from shame. Lastly, the utility of continued efforts to conceptualize and measure internalized shame is supported by its relation to social-emotional learning and empowerment-based training, which are two approaches thought to positively impact sexual victimization prevention efforts (CDC, 2016).

**Maladaptive coping.** The present study also investigated the mediating role of maladaptive coping strategies on aforementioned outcome variables. Maladaptive coping strategies were positively associated with eating pathology and problematic drinking, but not problematic drug use. ASA contact was not associated with maladaptive coping strategies, and maladaptive coping strategies did not mediate the relationship between ASA contact, eating pathology, and problematic substance use as expected. These unexpected findings could suggest the possibility of unaccounted factors better explaining the relationship between ASA contact and the health outcome variables. That is, there may be other variables besides shame that explain the association between ASA contact and negative health outcomes. There is also a possibility of an unknown relationship (e.g., direct effect) between internalized shame and maladaptive coping strategies that may have contributed to the inability to find a direct effect between ASA contact and maladaptive coping strategies. For example, the relationship between ASA contact and maladaptive coping could have been moderated by internalized shame. Given these findings, there may be utility in future work focusing on understanding the association between ASA, avoidance-focused coping strategies, and internalized shame.

It may also be true that measures used to assess coping and drug use contributed to these findings. The three subscales of the COPE (coping measure) that were summed to designate

“less useful coping responses” subscales included Behavioral Disengagement, Focusing on Venting of Emotions, and Mental Disengagement. The authors suggest that these may signify maladaptive, avoidance focused coping strategies (Carver et al., 1989). However, it is possible that these subscales did not adequately or entirely reflect the construct of maladaptive coping. For example, the substance use coping subscale was not included in the COPE-M (maladaptive coping subscales) despite literature suggesting that substance use to cope is considered to be avoidance-focused and maladaptive to long-term recovery (Frazier et al., 2005; Ullman & Najdowski, 2009). In considering the absence of a relationship between maladaptive coping and drug use, the DAST-10 measure may have impacted these findings. Just as restricted range, exclusion of alcohol and tobacco, focus on more severe forms of drugs, and face validity of the DAST-10 could have underrepresented problematic drug use in Aim 1, these same factors may also pertain to Aim 3.

### **Limitations**

There are limitations to the current study. First, it is important to acknowledge the cross-sectional nature of the design. Conditions already existed and data were collected at one time-point, therefore results from the present study can only be viewed as correlational and cannot imply causation (Tabachnick & Fidell, 2013). Second, sample size disparity across groups, particularly among contact and non-contact ASA groups, likely contributed to violated assumptions of homogeneity of variance and homogeneity of covariance matrices. Robustness of MANOVA tests is only guaranteed if there is approximate equality between cell sizes, therefore robustness to violations of assumptions was not guaranteed and is a limitation in the present study (Pallant, 2013; Tabachnick & Fidell, 2013). Third, the sequential order of the Qualtrics survey did not vary across participants, such that the questionnaires that were most vital to

primary analyses (e.g., SES-SFV; EAT-26) were prioritized in ascending order. Randomization of the ordering of questionnaires may have generated fewer incomplete responses, as many of the questions within the questionnaires that were most vital to primary analyses can be viewed as intrusive. As all data were based on self-report, this may have contributed to missingness or response bias. In particular, the validity of assessing sexual abuse through self-report has been questioned by some researchers. Koss and Gidycz (1985) dispelled these concerns by finding a large positive correlation of .73 ( $p < .001$ ) between self-reports of sexual victimization and responses told to an interviewer months apart. However, the possibility of response bias remains, as this could also occur in structured interview settings (Koss & Gidycz, 1985). Another limitation to the present study surrounds generalizability. Demographic characteristics suggest that the present sample consisted of an approximately even distribution between Caucasian and African-American participants, which is representative of the population in southeastern Virginia. However, this sample may not be generalizable to college women across the United States (U.S. Census Bureau, 2016). Future work may benefit from utilizing larger, more diverse sample sizes. It may also be advantageous to replicate this design among clinical college samples, as the current study focused on subclinical levels of shame, coping, and health-risk behaviors, which could have impacted results. Lastly, the present study focused on interpersonal trauma by means of sexual abuse. It did not account for non-sexual trauma that occurred in childhood or adulthood. It is possible that exposure to non-sexual traumatic events, such as physical abuse, may be related to consumptive health-risks, including disordered eating and problematic substance use since both non-interpersonal and interpersonal traumas predict PTSD, but only interpersonal traumas that occur between individuals (e.g., combat) predict using drugs and alcohol to cope (Ehring & Quack, 2010; Green et al., 2000; Ullman et al., 2013). Not

accounting for interpersonal traumas that are non-sexual in nature is a limitation in the present study and should be considered for future studies.

### **Clinical Implications and Future Directions**

Currently, health-risk prevention and intervention efforts on college campuses have varying effectiveness among college students and target prevalent issues such as sexual assault, binge drinking, and drug use independently, treating each as a separate issue (Baer, Kivlahan, Blume, McKnight, & Marlatt, 2001; Vladutiu, Martin, & Macy, 2011). For some individuals there may be an association that could inform more tailored treatments. As evidenced by the results of the present study, sexual abuse is prevalent among college campuses and may contribute to the development of subclinical or clinical comorbidities, further impeding psychological well-being. Continued sexual assault prevention efforts are vital and ongoing, though the efficacy of the majority of sexual assault and other health-risk prevention and intervention efforts on college campuses are rarely evaluated (CDC, 2016; Vladutiu et al., 2011). In addition to continuing intervention efforts, future work may benefit from evaluating the efficacy of existing interventions on college campuses and collecting data on comorbid health-risks to better inform future interventions. Specifically, future research efforts are needed to develop effective strategies for improving the efficacy of health-risk prevention interventions for those who have recently been sexually assaulted. The CDC's Division of Violence Prevention (2016) issued a report suggesting strategies for prevention of sexual violence on campus. Among the proposed strategies was the incorporation of sexual violence prevention with other prevention programs, to better address shared risk factors (e.g., sexually transmitted infection prevention) and associated adverse effects (e.g., drug and alcohol abuse) (CDC, 2016). The findings of this study support this suggestion. In particular, based on the mediating role of internalized shame in

the present study, informing university and community providers of the increased risk that internalized shame presents to the development of risk behaviors can help providers working with this population better treat survivors' unique mental health needs. Community outreach efforts may also benefit from incorporating psychoeducation on internalized shame and protective factors, such as self-care, self-compassion and positive coping behaviors, to existing and future intervention programs. Future research assessing these variables utilizing different methodologies, such as longitudinal designs, would also increase confidence in these findings as well as increase the ability to make stronger conclusions.

## CHAPTER V

### CONCLUSIONS

This study aimed to contribute to literature clarifying the relationship between adult sexual abuse, disordered eating behaviors, and substance use among college women. While there is much future work to be done in this domain, this study contributes to our current understanding of sexual abuse and health-risk behaviors among college students. Specifically, this study highlights the importance of considering history of sexual abuse when examining possible comorbid health-risk behaviors, particularly in reference to drinking behaviors with those endorsing recent histories of adult sexual abuse, and eating pathology and substance use among those with histories of repeated sexual abuse (revictimization) across childhood/adolescence and adulthood. The mediating role of internalized shame suggests the importance of shame in the development and treatment of health-risk behaviors, and the positive association of maladaptive coping strategies with eating pathology and problematic drinking highlight the importance of educating college students on adaptive coping mechanisms and continued research efforts in this area.



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## APPENDIX A

### DEMOGRAPHICS

*Please answer all questions and clearly indicate your answer.*

**1) What is your age in years?** \_\_\_\_\_

**2) How do you identify your gender?**

\_\_\_\_ Female

\_\_\_\_ Male (Disqualified from study)

\_\_\_\_ Transgender, Transsexual or Intersex

\_\_\_\_ Other: \_\_\_\_\_

**3) In what country were you born?** \_\_\_\_\_

**4) Which of the following best describes your racial or ethnic background? (Please select all that apply):**

\_\_\_ African American

\_\_\_ Asian American (Please specify: \_\_\_\_\_)

\_\_\_ European American

\_\_\_ Latino/a American (Please specify: \_\_\_\_\_)

\_\_\_ Middle Eastern American (Please specify: \_\_\_\_\_)

\_\_\_ Native American/American Indian or Alaskan Native

\_\_\_ Other (Please specify: \_\_\_\_\_)

**5) How do you identify for your sexual orientation?**

\_\_\_ Asexual: I am not sexually attracted to either men or women

\_\_\_ Bisexual: I am sexually attracted to both men and women

\_\_\_ Gay/Lesbian: I am sexually attracted only to same-sex individuals

\_\_\_ Heterosexual: I am sexually attracted to only opposite-sex individuals

\_\_\_ Other: \_\_\_\_\_

**6) How do you identify your religious affiliation?**



- Buddhist  
 Christian: \_\_\_\_\_  
 Islamic  
 Jewish  
 Pagan  
 Agnostic  
 Atheist  
 Other

**7) What is your current standing in college? (please select one):**

- Freshman  
 Sophomore  
 Junior  
 Senior  
 Graduate  
 Unsure

**8) What is your current height?**

\_\_\_\_\_ feet \_\_\_\_\_ inches (OR \_\_\_\_\_ meters)

**9) What is your current weight?**

\_\_\_\_\_ pounds (OR \_\_\_\_\_ kilograms)

**10) Are you currently pregnant or breastfeeding? (please select one)**

\_\_\_\_\_ Yes \_\_\_\_\_ No

**11) Are you currently taking any psychiatric medications? (please select one)**

\_\_\_\_\_ Yes \_\_\_\_\_ No

## APPENDIX B

### SEXUAL EXPERIENCES SURVEY-SHORT FORM VICTIMIZATION

The following questions concern sexual experiences that you may have had that were unwanted. We know that these are personal questions, so we do not ask your name or other identifying information. Your information is completely confidential. We hope that this helps you to feel comfortable answering each question honestly. Select the box showing the number of times each experience has happened to you. 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 select both scenario boxes.

	How many times since your 18 <sup>th</sup> birthday?	How many times before age 18?
1. <b>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 (<i>but did not attempt sexual penetration</i>) by:</b>	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.		
b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.		
c. Taking advantage of me when I was too drunk or out of it to stop what was happening.		
d. Threatening to physically harm me or someone close to me.		
e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.		
2. <b>Someone had oral sex with me or made me have oral sex with them without my consent by:</b>		
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.		
b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.		

c. Taking advantage of me when I was too drunk or out of it to stop what was happening.

d. Threatening to physically harm me or someone close to me.

e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.

	How many times since your 18 <sup>th</sup> birthday?	How many times before age 18?
3. <b>A man put his penis into my vagina, or someone inserted fingers or objects without my consent by:</b>	0 1 2 3+	0 1 2 3+

Telling lies, threatening to end the relationship, threatening to spread rumors

a. about me, making promises I knew were untrue, or continually verbally

pressuring me after I said I didn't want to.

Showing displeasure, criticizing my sexuality or attractiveness,

b. getting

angry but not using physical force, after I said I didn't want to.

Taking advantage of me when I was too drunk or out of it to

c. stop

what was happening.

d. Threatening to physically harm me or someone close to me.

Using force, for example holding me down with their body

e. weight,

pinning my arms, or having a weapon.

4. **A man put his penis into my butt, or someone inserted fingers or objects without my consent by:**

Telling lies, threatening to end the relationship, threatening to spread rumors

a. about me, making promises I knew were untrue, or continually verbally

pressuring me after I said I didn't want to.

b. Showing displeasure, criticizing my sexuality or attractiveness, getting

angry but not using physical force, after I said I didn't want to.

Taking advantage of me when I was too drunk or out of it to stop

c. what

was happening.

d. Threatening to physically harm me or someone close to me.

e. Using force, for example holding me down with their body weight,

pinning my arms, or having a weapon.

**Even though it didn't happen, someone TRIED to have oral sex with me, or make me have oral sex with them without my consent by:**

5. 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.
6. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.
7. Taking advantage of me when I was too drunk or out of it to stop what was happening.
8. Threatening to physically harm me or someone close to me.
9. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.

How many times since your 18 <sup>th</sup> birthday?				How many times before age 18?			
0	1	2	3+	0	1	2	3+

**Even though it didn't happen, a man TRIED to put his penis into my vagina, or someone tried to stick in fingers or objects without my consent by:**

10. 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.
11. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.
12. Taking advantage of me when I was too drunk or out of it to stop what was happening.
13. Threatening to physically harm me or someone close to me.
14. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.

**Even though it didn't happen, a man TRIED to put his penis into my butt, or someone tried to stick in objects or fingers without my consent by:**

15. 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.
16. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.
17. Taking advantage of me when I was too drunk or out of it to stop what was happening.
18. Threatening to physically harm me or someone close to me.
19. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.

8. My age is \_\_\_\_\_ years and \_\_\_\_\_ months.

9. Did any of the experiences described in this survey happen to you 1 or more times?

\_\_\_\_ Yes \_\_\_\_ No

10. What was the sex of the person or persons who did them to you?

\_\_\_\_ Female only

\_\_\_\_ Male only

\_\_\_\_ Both females and males

\_\_\_\_ I reported no experiences

11. Have you ever been raped?

\_\_\_\_ Yes \_\_\_\_ No

## APPENDIX C

## INTERNALIZED SHAME SCALE

	0 Never	1 Seldom	2 Sometimes	3 Often	4 Almost Always
1. I feel like I am never quite good enough.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I feel somehow left out.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I think that people look down on me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. All in all, I am inclined to feel that I am a success.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I scold myself and put myself down.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I feel insecure about others' opinions of me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Compared to other people, I feel like I somehow never measure up.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I see myself as being very small and insignificant.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I feel I have much to be proud of.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I feel intensely inadequate and full of self-doubt.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. I feel as if I am somehow defective as a person, like there is something basically wrong with me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. When I compare myself to others I am just not as important.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. I have an overpowering dread that my faults will be revealed in front of others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. I feel I have a number of good qualities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. I see myself striving for perfection only to continually fall short.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	0 Never	1 Seldom	2 Sometimes	3 Often	4 Almost Always
16. I think others are able to see my defects.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. I could beat myself over the head with a club when I make a mistake.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. On the whole, I am satisfied with myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. I would like to shrink away when I make a mistake.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. I replay painful events over and over in my mind until I am overwhelmed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. I feel I am a person of worth at least on an equal plane with others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. At times I feel like I will break into a thousand pieces.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. I feel as if I have lost control over my body functions and my feelings.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. Sometimes I feel no bigger than a pea.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. At times I feel so exposed that I wish the earth would open up and swallow me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. I have the painful gap within me that I have not been able to fill.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. I feel empty and unfulfilled.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. I take a positive attitude toward myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. My loneliness is more like emptiness.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. I feel like there is something missing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## APPENDIX D

## THE EATING ATTITUDES TEST

Fill in a response for each of the following statements:

	Never	Rarely	Sometimes	Often	Usually	Always
1. Am terrified of being overweight.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Avoid eating when I am hungry.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Find myself preoccupied with food.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Have gone on eating binges where I feel that I may not be able to stop.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Cut my food into small pieces.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Aware of the calorie content of the foods that I eat.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Particularly avoid food with a high carbohydrate content (i.e. bread, rice, potatoes, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Feel that others would prefer if I ate more.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Vomit after I have eaten.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Feel extremely guilty after eating.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Am preoccupied with a desire to be thinner.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Think about burning up calories when I exercise.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Other people think that I am too thin.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Fill in a response for each of the following statements:

	Never	Rarely	Sometimes	Often	Usually	Always
14. Am preoccupied with the thought of having fat on my body,	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Take longer than others to eat my meals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Avoid foods with sugar in them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Eat diet foods.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. Feel that food controls my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. Display self-control around food.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. Feel that others pressure me to eat.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. Give too much time and thought to food.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. Feel uncomfortable after eating sweets.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. Engage in dieting behavior.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. Like my stomach to be empty.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. Have the impulse to vomit after meals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. Enjoy trying new rich foods.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In the past 6 months have you:

	Never	Once a month or less	2-3 times a month	Once a week	2-6 times a week	Once a day or more
Gone on eating binges where you feel that you may not be able to stop?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ever made yourself sick (vomited) to control your weight or shape?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ever used laxatives, diet pills or diuretics (water pills) to control your weight or shape?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exercised more than 60 minutes a day to lose or to control your weight?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The last four questions asked about eating and exercise behaviors in the last 6 months.

**IF you answered that you had engaged in any of the aforementioned behaviors (e.g., gone on eating binges, made yourself sick to control your weight or shape, etc.), at approximately what age did you FIRST start doing these behaviors?**

Please type the age in years that you first started doing this in the text box below.

**\*IF you did not engage in any of these behaviors, please TYPE N/A in the text box below**

**Lost 20 pounds or more in the past 6 months**

- Yes
- No

**APPENDIX E**  
**DRUG ABUSE SCREENING TEST**

These questions refer to the past 12 months:

	No	Yes
Have you used drugs other than those required for medical reasons?	<input type="radio"/>	<input type="radio"/>
Do you abuse more than one drug at a time?	<input type="radio"/>	<input type="radio"/>
Are you always able to stop using drugs when you want to?	<input type="radio"/>	<input type="radio"/>
Have you had "blackouts" or "flashbacks" as a result of drug use?	<input type="radio"/>	<input type="radio"/>
Do you ever feel bad or guilty about your drug use?	<input type="radio"/>	<input type="radio"/>
Does your spouse (or parents) ever complain about your involvement with drugs?	<input type="radio"/>	<input type="radio"/>
Have you neglected your family because of your use of drugs?	<input type="radio"/>	<input type="radio"/>
Have you engaged in illegal activities in order to obtain drugs?	<input type="radio"/>	<input type="radio"/>
Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?	<input type="radio"/>	<input type="radio"/>
Have you had medical problems as a result of your drug use (e.g., memory loss, hepatitis, convulsions, bleeding, etc.)?	<input type="radio"/>	<input type="radio"/>

## APPENDIX F

## ALCOHOL USE DISORDERS IDENTIFICATION TEST

Because alcohol use can affect your health and can interfere with certain medications and treatments, it is important that we ask some questions about your use of alcohol. Your answers will remain confidential so please be honest.

Select the box that best describes your answer to each question.

	Never	Monthly or less	2-4 times a month	2-3 times a week	4 or more times a week
How often do you have a drink containing alcohol?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Select the box that best describes your answer to each question.

	1 or 2	3 or 4	5 or 6	7 to 9	10 or more
How many drinks containing alcohol do you have on a typical day when you are drinking?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
How often do you have six or more drinks on one occasion?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often during the last year have you found that you were not able to stop drinking once you had started?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often during the last year have you failed to do what was expected of you because of drinking?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often during the last year have you had a feeling of guilt or remorse after drinking?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often during the last year have you been unable to remember what happened the night before because of your drinking?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	No	Yes, but not in the last year	Yes, during the last year
Have you or someone else been injured because of your drinking?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## APPENDIX G

## COPING ORIENTATION TO PROBLEMS EXPERIENCED

	I usually don't do this at all	I usually do this a little bit	I usually do this a medium amount	I usually do this a lot
I try to grow as a person as a result of the experience.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I turn to work or other substitute activities to take my mind off things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I get upset and let my emotions out.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to get advice from someone about what to do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I concentrate my efforts on doing something about it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I say to myself "this isn't real."	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I put my trust in God.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I laugh about the situation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I admit to myself that I can't deal with it, and quit trying.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I restrain myself from doing anything too quickly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I discuss my feelings with someone.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I use alcohol or drugs to make myself feel better.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I get used to the idea that it happened.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I talk to someone to find out more about the situation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I keep myself from getting distracted by other thoughts or activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I daydream about things other than this.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I get upset, and am really aware of it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I seek God's help.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make a plan of action.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make jokes about it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I accept that this has happened and that it can't be changed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I hold off doing anything about it until the situation permits.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to get emotional support from friends or relatives.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I just give up trying to reach my goal.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I take additional action to try to get rid of the problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to lose myself for a while by drinking alcohol or taking drugs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I refuse to believe that it has happened.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I let my feelings out.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I try to see it in a different light, to make it seem more positive.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I talk to someone who could do something concrete about the problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I sleep more than usual.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to come up with a strategy about what to do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I focus on dealing with this problem, and if necessary let other things slide a little.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I get sympathy and understanding from someone.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I drink alcohol or take drugs, in order to think about it less.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I kid around about it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I give up the attempt to get what I want.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I look for something good in what is happening.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think about how I might best handle the problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I pretend that it hasn't really happened.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make sure not to make matters worse by acting too soon.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try hard to prevent other things from interfering with my efforts at dealing with this.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



I go to movies or watch TV, to think about it less.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I accept the reality of the fact that it happened.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I ask people who have had similar experiences what they did.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel a lot of emotional distress and I find myself expressing those feelings a lot.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I take direct action to get around the problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to find comfort in my religion.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I force myself to wait for the right time to do something.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make fun of the situation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I reduce the amount of effort I'm putting into solving the problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I talk to someone about how I feel.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I use alcohol or drugs to help me get through it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I learn to live with it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I put aside other activities in order to concentrate on this.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think hard about what steps to take.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I act as though it hasn't even happened.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do what has to be done, one step at a time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I learn something from the experience.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I pray more than usual.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## VITA

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### Education

- M. S.** Experimental Psychology (*expected December 2017*)  
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- B. A.** Psychology (awarded May 2012)  
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### RESEARCH INTERESTS

- 
- Prevention of Illness and Promotion of Health Behaviors
  - Sexual Trauma and Health-Risk Behaviors

### Selected Publications and Poster Presentations

Myers, J., Kokkinos, P., Chan, K., Dandekar, E., **Yilmaz, B.**, Nagare, A., Faselis, C., & Soofi, M. (2017). Cardiorespiratory fitness and reclassification of risk for incidence of heart failure: The veterans exercise testing study. *Circulation: Heart Failure, 10*, 1-8. doi: 10.1161/CIRCHEARTFAILURE.116.003780

**Yilmaz, B.**, Will, K.E., Maple, E.L., & Perkins, A.M. (2017, September). *The Development and Initial Validation of a Distracted Driving Survey for Teen Drivers*. Paper presented at the 2017 Society for Advancement of Violence and Injury Research, Ann Arbor, MI.

Robbins, A. T., **Yilmaz, B.**, Kelley, M. L., Hollis, B., & Bravo, A. (2016, November). Moral Injury as a Mediator between Combat and Facets of Hazardous Drinking Among U.S. Military Personnel and Veterans. Poster presented at the 2016 meeting of the International Society of Traumatic Stress Studies, Dallas, TX.

**Yilmaz, B.**, Wilson, .E., Brown, K.E., Murakami, J.M., & Latner, J.D. (2014, August). *The Efficacy of a Brief non-Dieting Intervention Designed to Improve Eating- and Weight Related Attitudes and Behaviors across the Weight Spectrum: A RCT*. Paper presented at the 2014 International Conference on Eating Disorders, New York, NY.