Weight loss attempts, emotional eating, internalized shame, and sexual abuse history in adults: A community sample

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Abstract
Childhood sexual abuse (CSA) is a widespread global problem with both immediate and long-term health consequences. Disordered eating has long been proposed as one of the common psychological sequelae of CSA (Hastings & Kern, 1994; Romans, Gendall, Martin, & Mullen, 2001; Smolak, Levine, & Sullins, 1990; Steiger & Zanko, 1990; Weiner & Thompson, 1997), however, the exact mechanism remains unknown. Shame, which can be internalized over time, has also been associated with a history of abuse and has been empirically linked to many forms of psychopathology. In particular, internalized shame has been found to be enmeshed in bulimic psychopathology (Cook, 1991). The present study proposed a model where internalized shame acts as a mediator in the relationship between CSA and emotional eating. Questionnaires were completed by 255 adults (197 female, 58 male) in a community sample. Results indicated that CSA was associated with internalized shame, which was further related to emotional eating. In addition, a mediational model in which internalized shame mediates CSA and emotional eating was supported.

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WEIGHT LOSS ATTEMPTS, EMOTIONAL EATING, INTERNALIZED SHAME, AND SEXUAL ABUSE HISTORY IN ADULTS: A COMMUNITY SAMPLE

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Abstract

Childhood sexual abuse (CSA) is a widespread global problem with both immediate and long-term health consequences. Disordered eating has long been proposed as one of the common psychological sequelae of CSA (Hastings & Kern, 1994; Romans, Gendall, Martin, & Mullen, 2001; Smolak, Levine, & Sullins, 1990; Steiger & Zanko, 1990; Weiner & Thompson, 1997), however, the exact mechanism remains unknown. Shame, which can be internalized over time, has also been associated with a history of abuse and has been empirically linked to many forms of psychopathology. In particular, internalized shame has been found to be enmeshed in bulimic psychopathology (Cook, 1991). The present study proposed a model where internalized shame acts as a mediator in the relationship between CSA and emotional eating. Questionnaires were completed by 255 adults (197 female, 58 male) in a community sample. Results indicated that CSA was associated with internalized shame, which was further related to emotional eating. In addition, a mediational model in which internalized shame mediates CSA and emotional eating was supported.

Keywords: Childhood sexual abuse, internalized shame, emotional eating
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Introduction

Statement of Problem

Obesity has become a leading public health concern in the United States, with approximately 66% of adults classified as overweight or obese (National Center for Health Statistics, 2008). The obesity rate in adults aged 20 years or older has doubled between 1980 and 2002 and the prevalence of overweight children and adolescence aged 6 to 19 years has tripled. The World Health Organization (WHO) recently declared obesity a worldwide health epidemic (The World Health Organization, 2003).

Multiple risk factors for the development and maintenance of obesity have been identified, including exposure to traumatic events during childhood (Bell, Walley, & Froguel, 2005; Maes, Neale, & Eaves, 1997; Marti, Moreno-Aliaga, Hebebrand, & Martinez, 2004). A positive correlation has been found between childhood sexual abuse (CSA) and obesity (Felitti et al., 1998; Gustafson & Sarwer, 2004; Jia, Li, Leserman, Hu, & Drossman, 2004; Williamson, Thompson, Anda, Dietz, & Felitti, 2002). However, despite these findings, the exact mechanism of the relationship between CSA and obesity is unknown. Several possible explanations have been hypothesized, including the mediating role of disordered eating, as well as the role of obesity as an adaptive and self-protective function (Gustafson & Sarwer, 2004). For example, binge eating is common following childhood sexual abuse and is also associated with obesity (de Zwaan, 2001; Rayworth, Wise, & Harlow, 2004). Similarly, emotional eating is also common in individuals with a history of childhood trauma, and is also linked to disordered eating and weight gain (Arnow, 2004; Pine & Cohen, 2002; Wonderlich, Brewerton, Jocic, Dansky, & Abbott, 1997).
The purpose of this study was to explore the relationship between CSA and emotional eating through the potential mediating factors of internalized shame. The current author proposed and examined a model where internalized shame acts as a mediator in the relationship between childhood sexual abuse and emotional eating.
Review of Literature

*Childhood Sexual Abuse (CSA)*

**Definition and Prevalence**

Childhood sexual abuse (CSA) has become a global problem, affecting children of all ages, races, and socioeconomic backgrounds. The World Health Organization (WHO) has estimated that more than 800 million people worldwide may have experienced CSA, with more than 500 million having experienced contact or intercourse types of abuse (The World Health Organization, 2004). In the 2004 World Health Report, prevalence rates of CSA from 39 countries were reported. Although data varied considerably among countries, the prevalence of non-contact abuse for females was 6%, contact 11%, and intercourse was 4%. In males, it was about 2% for all categories combined abuse (The World Health Organization, 2004). In the United States, CSA constituted approximately 9% of the 905,000 substantiated child abuse cases in 2006 (U.S. Department of Health and Human Services, 2008).

Accurate statistics on the prevalence of CSA in the general population have been difficult to calculate because most sexual abuse is not reported at the time it occurs (Sap & Vandeven, 2005). Numerous studies have provided estimates on the rate of CSA in both the clinical and non-clinical population. However, these rates have varied widely as a function of the selection and response rate, the definition used, and the method by which the history of abuse was obtained (Putnam, 2003).

A review by Finkelhor (1994) of large population-based studies in 19 countries found a range of prevalence rates of 7% to 36% for females and 3% to 29% for males. Similarly, Gorey and Leslie (1997) reviewed the results of 16 cross-sectional community studies in North America published between 1969 and 1991. After adjusting for sample-related variation, response rates,
and differences in definitions, the results suggested that 16.8% of women and 7.9% of men were
sexually abused during childhood.

More recent community-based studies have found CSA in 11% to 32% of women and 4%
to 14% of men (Briere & Elliott, 2003; MacMillan et al., 1997; Vogeltanz et al., 1999). Finally,
the Adverse Childhood Experiences (ACE) study sampled 17,337 adult HMO members in the
San Diego, California area. Contact sexual abuse was reported by 25% of females and 16% of
males (Dube et al., 2001).

In recent years, some studies have found that the incidence of sexual abuse in the United
States has declined (Jones & Finkelhor, 2003). However, the negative consequences of CSA
remains, as evident by the higher prevalence of females in clinical populations who have
reported a history of sexual abuse (Owens & Chard, 2003).

Overall, within the literature there has been a lack of agreement on a precise definition of
abuse. Some studies have used specific definitions, defining abuse based on the occurrence of
unwanted physical contact or penetration (Browne & Finkelhor, 1986; Gustafson & Sarwer,
2004; Kendall-Tackett, Williams, & Finkelhor, 1993). Other studies, however, have used broad
descriptions, allowing individuals more latitude in determining if an incident was abuse
(Gustafson & Sarwer, 2004). For example, studies which utilized a broader definition would
categorize incidents such as indecent exposure as abuse. Additionally, the definition of
‘childhood’ and the requirement of an age difference between the abuser and victim have varied
across studies (Gorey & Leslie, 1997; Gustafson & Sarwer, 2004). The lack of standardization in
defining childhood sexual abuse, coupled with the reliance on retrospective, self-report data has
made it difficult to obtain a more precise estimate on the prevalence of childhood sexual abuse.
Consequently, the exact number of children who are sexually abused is unlikely to ever be known (Johnson, 2004).

Disordered Eating and Childhood Sexual Abuse

The aftermath of the trauma, especially childhood sexual abuse, has both short and long-term psychological effects and impacts cognitive, emotional, behavioral, physiological, and interpersonal domains (Briere & Elliott, 2003; Finkelhor, 1990; Gold, 1986; Kendall-Tackett et al., 1993). Initial adjustment to sexual abuse trauma may be evidenced in a spectrum of symptomatology such as: anxiety, fear, anger, hostility, aggression, depression, somatic complaints, and sexually inappropriate behavior (Browne & Finkelhor, 1986; Finkelhor, 1990). Long-term consequences of CSA include posttraumatic stress disorder (PTSD), substance abuse, sexual dysfunction, borderline personality disorder, and increased suicidal behavior (Green, 1993). In a review of the impact of childhood sexual abuse, Kendall-Tackett, Williams, and Finkelhor (1993) reported social withdrawal, isolation, dissociative experiences, eating disorders, self-mutilation, sexual and intimacy difficulties, deviancy and illegal behavior, and academic difficulties as common psychological sequelae of sexual abuse.

While disordered eating is a common psychological sequelae of CSA (Hastings & Kern, 1994; Romans, Gendall, Martin, & Mullen, 2001; Smolak, Levine, & Sullins, 1990; Steiger & Zanko, 1990; Weiner & Thompson, 1997), there has been considerable controversy over the role of childhood trauma, particularly sexual abuse, in the etiology of eating disorders. In a meta-analytic study conducted by Rind and associates (1998) a small, yet statistically significant relationship (r=.06) was found between CSA and eating disorders in college students without a clinical diagnosis of an eating disorders. Similarly, a 2002 meta-analysis of 53 studies yielded
similar results ($r = .10$). Moreover, when the clinical eating disorder group was compared to a non-clinical control group, the results were markedly stronger ($r = .21$) (Smolak & Murnen, 2002). However, other investigations have demonstrated no association between CSA and disordered eating (Caspar & Lyubomirsky, 1997; Kent, Waller, & Dagnan, 1999; Kinzl, Traweger, Guenther, & Biebl, 1994) or between CSA and clinical eating disorders (Pribor & Dinwiddie, 1992; Rorty, Yager, & Rossotto, 1994).

A higher prevalence of sexual abuse has been found among individuals with bulimia nervosa (BN), compared to individuals with anorexia nervosa (AN) (Hastings & Kern, 1994; Oppenheimer et al., 1985; Waller, 1991; Williams, Wagner, & Calam, 1992). Similarly, Hastings and Kern (1994) found a higher rate of sexual abuse in individuals with BN (43%) as compared to individuals in the subclinical bulimic (14%) or control groups (6%). Several researchers have also found that severe incest related sexual trauma has been associated with bulimic symptomatology (Bushnell, Well, & Oakley-Browne, 1992; Oppenheimer et al., 1985; Waller, 1991; Williams et al., 1992). Pribor and Dinwiddie (1992) found a 23% prevalence rate for BN among individuals with histories of incest, compared to only a 4% prevalence rate in the control group.

Additionally, researchers have found that the nature of the abuse may be associated with the severity of bulimic behaviors (Bushnell et al., 1992; Pribor & Dinwiddie, 1992; Waller, 1991; Wonderlich et al., 1996). Specifically, individuals with a diagnosis of BN and a history of sexual abuse were found to start binge eating at an earlier age (McCarthy, Goff, Baer, Cioffi, & Herzog, 1994) and to binge more frequently than their nonabused counterparts, especially, if the abuse was incestuous, forceful, and early onset (Waller, 1992). Finally, individuals with BN and a history of sexual abuse were found to be twice as likely to engage in multiple methods of
purging activities as compared to individuals without histories of sexual abuse (Dansky, Brewerton, Kilpatrick, & O’Neil, 1997).

The relationship between CSA and the diagnosis of binge eating disorder (BED) has also been studied with mixed results. In a sample of 145 outpatients with BED, a history of sexual abuse was found in 30.3%, compared to only 18.4% of normal controls (Grilo & Masheb, 2001). Similarly, in a community sample of 162 women with BED, 35.3% reported a history of CSA, compared to only 12.2% among controls (Striegel-Moore, Dohm, Pike, Wilfley, & Fairburn, 2002). In contrast, King, Clark, and Pera (1996) were unable to establish a relationship between CSA and BED. Similarly, Wonderlich and colleagues (2000) examined 20 sexually abused adolescents and were also unable to establish a direct relationship between CSA and BED. Wonderlich suggested that the relationship between CSA and disordered eating may be mediated by several variables, including mood, body image disturbance, drug use, and poor self-esteem.

In particular, mood has been shown to be related to eating disturbance (Abraham & Beumont, 1982; Arnow, Kenardy, & Agras, 1992). Emotional eating refers to the tendency to eat in response to negative emotions and was first reported to be significantly related to bulimia (Van Strien, Schippers, & Cox, 1995). This relationship supports the hypothesis that emotions play a factor in overeating in bulimic subjects. Additionally, emotional eating has also been linked to BED episodes, where BED subjects have reported a significantly greater tendency to eat in response to negative mood states than controls subjects (Eldregde & Agras, 1996).

Finkelhor and Browne (1986) theorized that the violation of physical boundaries from sexual victimization might contribute to greater body dissatisfaction, which in turn may contribute to the body image disturbance found in individuals with an eating disorder. Fullerton and colleagues (1995) reported higher elevations on the Body Dissatisfaction subscale of the
Eating Disorder Inventory in sexually abused individuals as compared to those without histories of sexual abuse. Much of the literature has examined the direct association between CSA and binge eating, however, most studies have yet to investigate emotional eating and consider other possible contributing and mediating factors that might increase the risk of disordered eating (Smolak & Murnen, 2002).

**Obesity and Childhood Sexual Abuse**

Exposure to childhood traumatic events has also been identified as one of the many risk factors for excess weight in adulthood (Bell et al., 2005; Maes et al., 1997; Marti et al., 2004). Studies have found that childhood abuse and parental neglect are associated with increased risk of adulthood obesity (Felitti et al., 1998; Gustafson and Sarwer, 2004; Jia et al., 2004; Lissau & Sorensen, 1994; Williamson et al., 2002). Additionally, exposure to multiple traumatic events has been associated with even greater risk (Felitti et al., 1998).

In a clinic-based study of 231 women, Felitti (1991) found that 60% of participants who reported CSA were 50 or more pounds overweight, compared with only 28% of women who did not report CSA. In a separate study of obese women participating in a weight-loss program, Felitti (1993) found significantly higher rates of childhood abuse in the obese treatment group than in the control group of normal-weight women. Participants also commonly reported overeating to cope with emotional distress and using obesity as a sexually protective device. The Adverse Childhood Experiences (ACE) study sampled 17,337 adult in order to assess the impact of childhood experiences on adult heath behaviors and outcomes. In a sub-sample of 13,177 residents of the San Diego, California area, 21.7% of respondents reported a history of sexual
abuse and were 1.3 times more likely to be obese as adults than those who had no history of CSA (Williamson et al., 2002).

In a recent review of literature, Gustafson and Sarwer (2004) examined the relationship between CSA and obesity. Overall, they found that disordered eating and the psychological reactions to a traumatic experience might account for the added risk of adult obesity, although the exact mechanism of CSA and obesity remains unknown (Gustafson & Sarwer, 2004). One theory that has been proposed is that individuals with a history of CSA may use obesity as an attempt to protect themselves from further abuse, with the belief that being overweight will make them less sexually attractive to potential abusers (Felitti, 1993; Wiederman, Sansone, & Sansone, 1999). Another theory that has been suggested is that comfort or emotional eating may serve as an adaptive function after CSA (Wiederman et al., 1999). Felitti and colleagues (1993) found that many obese women became obese shortly after childhood sexual abuse and the higher body weight seemed to serve a self-protective function.

Additional research on the concept of obesity as an adaptive function for some women who have a history of sexual abuse, has suggested that some individuals avoid specific body weights that correspond to events in their sexual history (Wiederman et al., 1999) and that weight reduction may trigger PTSD symptoms, especially as women approach the weight at which they were abused (King, Clark, & Pera, 1996; Steiger, et al., 2001). In a clinical study of obese women enrolled in a multidisciplinary weight management program that combined behavior therapy and a very-low-calorie diet (VLCD), King and colleagues (1996) found that obese women who reported a history of CSA lost less weight and had more episodes of non-adherence than their non-abused counterparts. Additionally, women with a history of CSA had a significantly higher likelihood of weight regain after 18 months (King et al., 1996).
Subsequently, Wiederman and colleagues (1999) examined the relationships between a history of sexual abuse, body dissatisfaction, and weight-loss failure among obese and non-obese women. Overall, obese women with a history of sexual abuse reported less body dissatisfaction and less weight fluctuation during adulthood than obese women without a history of abuse. Moreover, no differences in body dissatisfaction or weight fluctuation were found among sexually abused and non-abused women who were not obese. Overall, women with a history of CSA appeared to be less dissatisfied with their obesity and less likely to be successful at obtaining and maintaining weight loss (Gustafson & Sarwer, 2004; Weiderman et al., 1999).

The relationship between CSA and obesity remains complex and controversial. CSA has been found to be associated with disordered eating, which, in turn, can increase the risk for later obesity (de Zwaan, 2001; Gustafson & Sarwer, 2004; Johnson, Cohen, Kasen, & Brook, 2002; Stunkard & Allison, 2003; Wonderlich et al., 1997). However, the relationship between CSA and disordered eating may be mediated by several variables, including mood. For example, some researchers suggest that disordered eating behaviors are used as coping methods to deal with the negative emotions that a traumatic event can produce (Wonderlich et al., 2001). Other researchers have found that obesity is associated with depression (Zametkin et al., 2004) and that depression and emotional eating increase the risk for binge eating (Marcus & Kalarchian, 2003; Stice, Presnell, & Spangler, 2002). Grilo and colleagues (2005) found that child abuse was associated with higher depression among obese adults seeking bariatric surgery, and that those who binge ate were more depressed than those who did not. In addition to depression, body image disturbances, anxiety, powerlessness, feelings of inadequacy, low self-esteem, dissociative responses, distorted thinking, and feelings of shame have been found in both sexually abused and eating disordered populations (Root & Fallon, 1989; Schechter, Schwartz, & Greenfeld, 1987).
The shame, guilt, embarrassment frequently noted in victims of sexual abuse is often seen in individuals who engage in disordered eating, especially those who binge eat and those who binge and purge in secrecy (Kendall-Tackett et al, 1993; Finkelhor, 1993).

**Internalized Shame**

*Definition and Prevalence*

Internalized shame or trait shame (Goss, Gilbert, & Allan, 1994) has been defined as a sense of incompetence and inferiority that results from enduring and intense levels of shame during development (Claesson & Sohlberg, 2002). Often the terms guilt and shame have been used interchangeably in the literature (Gross et al., 1994). However, Kaufman (1996) differentiated the terms by defining guilt as the sense that one has done something wrong which can be repaired, whereas shame is when there is something wrong with the self and there is nothing that can be done about it. Prevalence rates of internalized shame in the general population are unavailable, however, since the development of the Internalized Shame Scale (Cook, 1991), researchers have started to investigate the many areas in which internalized shame may occur.

*Childhood Sexual Abuse and Internalized Shame*

Child abuse has long been associated with subsequent feelings of shame, which can be internalized over time (Andrews, Berwin, Rose, & Kirk, 2000; Feiring, Taska, & Chen, 2002; Feiring, Taska, & Lewis, 1998). In a study of 92 female inpatients in an alcohol treatment program, Wiechelt and Sales (2001) found that a history of sexual abuse was associated with higher levels of internalized shame. Similarly, Soderquist (1993) examined childhood abuse and shame in women using a sample size of 261 individuals. The researcher found that shame scores
were significantly higher in adults who reported an abusive childhood, physical, verbal or sexual. It has been hypothesized that feelings of shame may be particularly common in the aftermath of abuse due to the secretive and hidden nature of sexual abuse (Deblinger & Runyon, 2005).

Bodily shame has also been to be significantly associated with reports of physical and sexual abuse (Andrews, 1995). In addition to the relationship between body shame and abuse, shame has been found to mediate the relationship between abuse and depression. Feiring and Taska (2005) investigated the impact of child sexual abuse and feelings of shame. It was reported that individuals who endorsed feelings of shame about the abuse, they had poorer long-term outcomes, such as higher levels of depression and PTSD (Feiring & Taska, 2005).

**Disordered Eating and Internalized Shame**

Shame has been empirically linked to many forms of psychopathology (Broucek, 1991; Cook, 1991; Murray, Waller, & Legg, 2000). In particular, internalized shame has also been found to be enmeshed in bulimic psychopathology (Cook, 1991). In both clinical and nonclinical populations, higher levels of internalized shame were associated with increased levels of bulimic psychopathology (Cook, 1991; Murray, Waller, & Legg, 2000). Similarly, Reynolds (1991), studied 28 females diagnosed as either BN or AN and found a significant relationship between the severity of disordered eating and the level of internalized shame.

Cook (1991) reported women scoring high on internalized shame were occupied with thinness and had a high level of body dissatisfaction. In a study conducted by Frank (1991), it was discovered that women with eating disorders experienced a greater amount of shame in relation to eating than normal or depressed women. Additionally, it was found that such shame experienced by the individuals differentiated the eating disorders from other psychopathology.
The relationship between internalized shame and emotional eating has yet to be examined within the literature.

**Emotional Eating**

**Definition and Prevalence**

Emotional eating has been defined as eating in response to emotions, as opposed to eating in response to physiological cues of hunger, eating on a schedule, or eating socially (Bekker, van de Meerendonk, & Mollerus, 2004). Often associated with low self-esteem, feelings of inadequacy and eating disorder psychopathology (Taylor, Parker, Bagby, & Bourke, 1996; Waller & Matoba, 1999), emotional eating has been shown to be particularly prevalent in obese individuals, women with eating disorders and normal-weight dieters (Argas & Telch, 1998; Spoor, Bekker, Van Strien & van Heck, 2007; Van Strien & Ouwens, 2003). Emotional eating has also been associated with poor weight control and high BMI (Blair, Lewis, & Booth, 1990). Furthermore, McCrone and colleagues (2000) found that women with early onset of obesity reported significantly greater negative affect eating and eating in response to emotional arousal rather than hunger. For many who engage in emotional eating, the eating behavior may be the result of an inappropriate coping style (Carver, Scheiver, & Weintraub, 1989; Henderson & Huon, 2002). While numerous studies have documented an association between negative affect and overeating, the exact mechanism by which negative affect influences overeating is unknown.

**Theories of Emotional Eating.** For emotional eaters, the eating behavior may represent a method of coping (Carver et al., 1989; Henderson & Huon, 2002), where food is used to avoid stress or negative feelings. Hawkins and Clement (1984) proposed that emotional eaters learn over time that overeating alleviates their adverse mood states, which can lead to a cycle of
inadequate coping. Another theory is that emotional overeating is used as an escape mechanism in situations that cause adverse self-awareness (Heatherton & Baumeister, 1991). Psychosomatic theories have suggested that obese individuals who are emotional eaters, lack awareness and the capability to identify their moods and emotions, which leads to difficulty responding to emotional states related to hunger and satiety (Van Strien & Ouwens, 2003). It has also been proposed that emotional eating may be linked to dieting (Polivy, Herman, & McFarlane, 1994). Herman and Polivy (1980) found that among restrained eaters, negative affect acted as a trigger for overeating episodes. However, a significant correlation between emotional eating and restrictive attitudes has not been found (Waller & Osman, 1998).

Overall, for individuals who emotionally eat, the act of eating is used as a method of coping with or avoiding negative emotions or stress, to the extent that the behavior becomes abnormal or problematic (Carver et al., 1989; Henderson & Huon, 2002; Lindeman & Stark, 2001; Polivy & Herman, 1999).

Disordered Eating and Emotional Eating. Eating in response to mood has been associated with binge eating disorder (BED), bulimia nervosa (BN), and obesity (Abraham & Beumont, 1982; Arnow et al., 1992; Lindeman & Stark, 2001). Emotional eating and BED has been found to be highly correlated and often co-occur (Davis, Freeman, & Garner, 1988). In the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) binge eating is defined as an episode of food consumption that is larger than what most people would eating in a similar amount of time and in similar circumstances, in conjunction with a feeling of loss of control over eating during the episode (APA, 2000). The diagnosis of BED requires that binge episodes occur at least twice weekly for 6 months and be distressing to the person (APA, 2000). Whereas, emotional eating is concerned with the emotional causes of or precursors to eating
behavior and less on the amount of food consumed or the sense of loss of control. However, since these criteria are not mutually exclusive, it is common for an overlap in occurrences of BED and emotional eating (Davis et al., 1988). However, it should be noted, that not all individual's with BED engage in emotional eating, and not all emotional eaters experience the loss of control or consume the large about of food necessarily for a binge eating episode.

Correlations between negative affect and bulimic behaviors have been shown to exist in both clinical and nonclinical populations (Arnow, Kenardy, & Agras, 1995; Eldredge & Agras, 1996; Grissett & Fitzgibbon, 1996; Waller & Osman, 1998). Vervaet and colleagues (2003) found that individuals with BN reported more incidents of emotional eating than those with anorexia nervosa (AN). For individuals with AN, emotional eating was more common among those who purged than those who do not (Vervaet et al., 2003). Several researchers have suggested that the binging and purging behaviors of BN serve the function of reducing awareness of negative and intolerable cognitions and emotions (Lacey, 1986; Pitts & Waller, 1993; Root & Fallon, 1989). Conversely, Heatherton and Baumeister (1991) proposed that binge eating occurs after there has been a reduction in an individual's level of awareness, with a consequent reduction in inhibition. McManus and Waller (1995) concluded that both theories are likely to occur in the same individual, although at different stages in the development of binge eating.

In general, emotional eating often leads to increased caloric consumption. For example, Agras and Telch (1998) found that among overweight individuals, negative affect was a strong predictor of binge eating. Although individuals who emotional eat trend towards higher levels of body fat, not all emotional eaters are overweight (Eldredge & Agras, 1996). The relationship between negative affect and eating is two-fold. First, negative mood is the precipitating factor in eating (Arnow et al., 1992) and second the consequence of overeating is often additional
negative mood, such as guilt or depression (Elmore & de Castro, 1990). The cyclical nature of emotional eating as a way to escape negative affect can escalate quickly into a destructive coping mechanism.

**Obesity**

*Definition and Prevalence*

Obesity has been measured in a variety of ways in the past; however, there has been a recent standardization through the calculation of body mass index (BMI). Body mass index is calculated by dividing body weight in kilograms by the square of height in meters (kg/m²). The most recent BMI classification system for adults developed by The World Health Organization (2004) has led to widespread acceptance of the following categories: underweight (BMI < 18.5), normal weight range (BMI = 18.5 – 24.99), overweight (BMI = 25.0 – 29.99), and obese (BMI > 30.0 or higher).

Approximately 66% of adults in the United States are classified as overweight or obese (National Center for Health Statistics, 2008). The obesity rate in adults aged 20 years or older has doubled between 1980 and 2002 and the prevalence of overweight children and adolescence aged 6 to 19 years has tripled. The World Health Organization (2004) recently declared obesity a worldwide health epidemic. The most recent data from the National Health and Nutrition Examination Survey (NHANES) indicated no significant change in the prevalence of obesity in women, however, the prevalence in men continued to increase significantly between 1999 and 2004 (Ogden et al., 2006). The most recent estimate is that now approximately 32% of the U.S. population can be classified as obese (Ogden et al., 2006).
Health Consequences of Obesity

Obesity is associated with increased risks for a number of medical conditions including Type II diabetes, hypertension, coronary heart disease, gallbladder disease, several cancers, and osteoarthritis (Bray, 2004; Must et al., 1999). Risk factors associated with obesity have been estimated to cause approximately 280,000 deaths annually (Allison, Fontaine, Manson, Stevens, & VanItallie, 1999). These factors tend to increase with increasing body weight in nearly all gender, racial, and socioeconomic groups (Manson et al., 1995; Pi-Sunyer, 1998). At a BMI of 30 kg/m² the risk of mortality increases by approximately 30% and at a BMI of 40 kg/m² by 100% or more (Manson et al., 1995; Stevens et al., 1998; Troiano, Frongillo, Sobal, & Levitsky, 1996). Furthermore, medical costs for obesity have been estimated as high as $78.5 billion dollars, approximately 9.1 percent of total annual U.S. medical expenditures (Finkelstein, Fiebelkorn, & Wang, 2003).

Current Research Project Aims

The goal of the present study is to more fully identify the nature of the relationship existing between reported childhood sexual abuse and emotional eating. Given previous research findings, the present study proposes a model where internalized shame acts as a mediator in the relationship between childhood sexual abuse and emotional eating. Although recent studies have examined internalized shame as a mediator for bulimic psychopathology (Murray & Waller, 2002; Murray, Waller, & Legg, 2000), no researchers to date have investigated internalized shame as a meditator in the relationship between childhood sexual abuse and emotional eating. Evidence in support of the relationship may have implications for the treatment and testing of eating disorder patients, obesity, and the mental health community as a whole.
Hypotheses

**Hypothesis 1**
Participants who report a history of childhood sexual abuse as measured by the The Childhood Trauma Questionnaire (CTQ) will have a higher body mass index (BMI) and higher weight fluctuations as reflected in participants' BMI (weight in kilograms divided by the square of height in meters, kg/m²) and maximum weight fluctuation during adulthood calculated by \[(\text{Highest BMI/Lowest BMI}) - 1\] × 100.

**Hypothesis 2**
Participants who report a history of childhood sexual abuse as measured by the CTQ will endorse higher levels of emotional eating, compared to participants without a history of childhood sexual abuse as measured by the Emotional Eating Scale (EES).

**Hypothesis 3**
Participants who report a history of childhood sexual abuse as measured by the CTQ will demonstrate higher levels internalized shame, compared to participants without a history of childhood sexual abuse as evidenced by the Internalized Shame Scale (ISS).

**Hypothesis 4**
Internalized shame as measured by the ISS will mediate the relationship between childhood sexual abuse and emotional eating as evidence by the CTQ and EES.
Method

Participants

Participants in the present study were 255 individuals who were recruited with flyers, newspaper ads, and on online social networking sites. Participants were actively recruited in the Pacific Northwest and Southeast region of the United States. All participants read the informed consent and selected “Yes, I agree” prior to participating in the survey. The mean age of the participants was 36.95, with a standard deviation of 11.53. The range of age was from 18 to 65. The gender identification of participants was predominately female, with 197 females (77.3%), 56 males (22%), and 2 participants who identified as other (0.8%). The ethnic breakdown of the participants in this study included 226 (88.6%) Caucasians, 12 (4.7%) Hispanic or Latina, 5 (2.0%) African Americans, 6 (2.4%) Asian Americans, 3 (1.2%) Native American or Alaskan, 3 (1.2%) participants who identified as other. According to the guidelines by Bernstein and Fink (1998) for classifying score on the CTQ sexual abuse subscale, 59 participants (23%) reported having experienced CSA of at least moderate severity. The characteristics of CSA and non-CSA participants are shown in Table 1. Of the 255 participants who provided current height and weight, 117 (45.9%) participants met accepted criterion for obesity, 59 (23.1%) qualified as overweight, 75 (30.2%) were normal weight, and 2 participants met criterion for being underweight (.80%). For the purpose of this study, body mass index (BMI) was categorized into non-obese (<30kg/m2) and obese (>30 kg/m2). The characteristics of obese and non-obese participants are shown in Table 2.
**Measures**

**Demographic data form and General Information**

Participants were asked to identify their race/ethnicity on the demographic form. There were no hypothesized differences for racial or ethnic differences in this study. Participants were also asked general information about their age, gender, marital status, education, and income. Current BMI was assessed by asking participants their current weight and height. Weight discrepancy and weight fluctuations were calculated by asking participants their highest, lowest, and ideal adult weights. Maximum weight fluctuation during adulthood was calculated \[(\text{Highest BMI}/\text{Lowest BMI}) - 1\] × 100, whereby higher scores indicate a relatively greater degree of maximum weight fluctuation (range) during adulthood. It was hypothesized that participants with a BMI greater than 29.9 would report higher rates of childhood sexual abuse and would have larger weight fluctuations.

**Childhood Trauma Questionnaire**

The Childhood Trauma Questionnaire (CTQ) was developed to assess childhood maltreatment in five areas: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect (Bernstein & Fink, 1998). Trauma frequency ratings are made on a 5-point Likert scale: never true, rarely true, sometimes true, often true, and always true. Most items are phrased in objective terms (e.g., “When I was growing up, someone touched me in a sexual way or made me touch them”), whereas other items require subjective evaluation (e.g., “When I was growing up, I believe I was sexually abused”). Cutoff scores for none-to-low, low-to-moderate, moderate-to-severe, and severe-to-extreme exposure are provided for each scale. For the purpose of this study, a moderate-to-severe cutoff score was used to classify participants as positive for sexual
abuse history. Being identified as positive for a category corresponds with endorsing a substantive number of experiences as often true. The CTQ has shown acceptable reliability and validity in both clinical and community populations (Bernstein et al., 2003). Bernstein and colleagues (2003) found moderate levels of agreement between therapist observation ratings and CTQ scores (as high as .59 for physical abuse) and good internal consistency scores (physical abuse=0.83 to 0.86, emotional abuse=0.84 to 0.89, and sexual abuse=0.92 to 0.95). The CTQ has also shown adequate convergent validity in that its indices significantly correlate with another measure of childhood trauma, the Childhood Trauma Interview (Bernstein et al., 1994). Additionally, good specificity and sensitivity of cutoff scores to classify maltreated subjects has been reported (Bernstein & Fink, 1998; Berstein et al., 2003).

Internalized Shame Scale

The Internalized Shame Scale (ISS) was designed to measures the extent to which subjects have internalized hurtful levels of shame (Cook, 1991). The assessment consists of 30 items that use a Likert scale ranging from one (never) to five (almost always). The 30 items consists of 24 negatively worded questions which make up the shame scale and 6 positively worded questions which make up the self-esteem scale. The self-esteem scale was included to increase face validity and is not intended to be a valid measure of self-esteem (Cook, 1991); therefore, the self-esteem scale is not included in this study. Possible scores range from 0 to 96, with higher scores indicating more severe levels of shame. Scores above 50 indicate frequent experiences of internalized shame (Cook, 1991). The ISS has shown acceptable reliability and validity. Alpha reliability score for the total scale was .96 and nine week test retest reliability coefficient was 0.84 (Cook, 1991).
The Emotional Eating Scale (EES) was designed to assess an individual's tendency to eat in specific negative mood states. The EES uses a 5-point scale, scored from 0-4: “no desire to eat;”; “a small desire to eat;” “a moderate desire to eat;” “a strong desire to eat;” and “an overwhelming urge to eat.” A higher score indicates a greater tendency to eat in response to emotional antecedents (Waller & Osman, 1998). Research has demonstrated the EES to have adequate psychometric properties (i.e., internal consistency, test-retest reliability, construct validity, criterion, and discriminate validity) and a stable factor structure (Arnow et al., 1995; Agras, 1995).

Procedure

Participants were actively recruited in the Pacific Northwest and Southeast region of the United States with flyers, newspaper ads, and on online social networking sites. Participants were invited to complete a confidential online survey questionnaire. The questionnaire included questions about 1) basic demographic information, 2) general distress 3) questions about internalized shame, 4) history of childhood abuse, and 5) questions about emotional eating.

Upon visiting the Survey Monkey website which contained the questionnaire items, participants read briefly about the purpose of the study and the recommendation that the survey be completed in a private and quiet place of their choosing. Participants were informed the survey would take approximately 20 minutes to complete. Participants were informed the consent and had the option of selecting “Yes, I agree” before proceeding to the survey or “No, I do not agree” and exiting out of the study. At the end of the survey, participants were sent to a separate survey where they were able to indicate interest in receiving the results of the study.
Email addresses provided to receive study results were collected on a separate survey and there was no way to connect the addresses with the completed questionnaires.

Data analysis

When data collection was complete, the data was downloaded into a Microsoft Excel document on the primary investigator’s computer. Data was analyzed using the SPSS program and was checked for missing data points. Individuals who did not complete a significant proportion of questionnaire items (i.e. less than 80% completion) were excluded from data analysis.

Frequencies and descriptive statistics were run to interpret information about the sample. A chi-square analysis was utilized to examine possible differences between the childhood sexual abuse (CSA) and non-abused groups on demographic variables. T-tests were also utilized to examine group differences on continuous demographic variables (see Table 1). Additionally, characteristics of obese and non-obese participants were compared (see Table 2) and correlations between study variables were calculated using the Pearson coefficient or Spearman's $p$ (see Table 3). A one-way analysis of variance (ANOVA) was performed to analyze the dependent variables of BMI and weight fluctuations as related to the independent variable of history of childhood sexual abuse.

Tests for mediation were first explored using correlation analyses, followed by a series of linear regressions following the methods of Baron and Kenny (1986). The diagram in Figure 1 illustrates the tested model. Baron and Kenny set forth the following criteria for mediation to be possible: (1) the independent variable (CSA) must be significantly related to the mediator (internalized shame); (2) the independent variable (CSA) must be significantly related to the
dependent variable (emotional eating); (3) the mediator (internalized shame) must be significantly related to the dependent variable (emotional eating); and (4) the relationship between the independent variable (CSA) and the dependent variable (emotional eating) must be reduced when the mediator (internalized shame) is included in the regression equation. Perfect mediation is revealed only if the independent variable has no effect when the mediator is added to the model. Partial mediation is revealed if the significant effect of the independent variable drops notably when the mediator is added to the model. Additionally, the Sobel test (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; Sobel, 1990) was performed in order to carry out a formal assessment of the significance of the mediation. Regression analyses were also conducted to investigate the effects of childhood sexual abuse, internalizes shame, and emotional eating in obese participants.
Results

Demographic Comparisons

Data was examined for possible differences between the childhood sexual abuse (CSA) and non-abuse groups on demographic variables. A chi-square analysis revealed no significant differences for ethnicity, sexual orientation, relationship status, and education level, but a significant difference in gender \((t(2.12) = -2.77, p < .001)\) was found (see Table 1). Correlations between internalized shame, a history of CSA and emotional eating, are presented in Table 3. As predicted, CSA (measured using the CTQ sexual abuse subscale) correlated significantly and positively with emotional eating (as measured by the EES).

Hypothesis 1: Participants who report a history of childhood sexual abuse as measured by the The Childhood Trauma Questionnaire (CTQ) will have a higher body mass index (BMI) and higher weight fluctuations as reflected in participants' BMI (weight in kilograms divided by the square of height in meters, kg/m²) and maximum weight fluctuation during adulthood calculated by \([(\text{Highest BMI}/\text{Lowest BMI}) - 1] \times 100\).

This hypothesis was supported by the analysis. The mean BMI for participants who reported a history of sexual abuse was 33.34 with a standard deviation of 8.82, whereas the mean BMI for participants with no reported history of abuse was 29.96 with a standard deviation of 8.04. Using an alpha level of \(p<.05\) to determine significance, BMI was found to be statistically significantly higher for participants who reported a history of abuse \((F(1,253)=-2.18, p<0.01)\).

The degree of fluctuation ranged from 0% to 186.76% (Mean = 49.01, SD = 33.11). An ANOVA was performed in order to explore whether obesity or history of sexual abuse were related to degree of weight fluctuation. There was a main effect for history of sexual abuse \([F(1,
251) = 12.01, p < .001, partial $n^2$=.046] and obesity [F(1, 251) = 73.59, p < .001, partial $n^2$=.227]. Although the interaction of sexual abuse and obesity was not statistically significant [F(1, 251) = 3.51, p > .05, partial $n^2$=.014].

Hypothesis 2: Participants who report a history of childhood sexual abuse as measured by the CTQ will endorse higher levels of emotional eating, compared to participants without a history of childhood sexual abuse as measured by the Emotional Eating Scale (EES).

This hypothesis was supported by the analysis. The mean emotional eating score for participants who reported a history of sexual abuse was 67.05 with a standard deviation of 23.92, whereas the mean emotional eating scores for participants with no reported history of abuse was 54.78 with a standard deviation of 23.08. Using an alpha level of $p<.05$ to determine significance, emotional eating was found to be statistically significantly higher for participants with a reported a history of CSA (F(1, 253) =.557, $p<0.01$). See table 4 for more information.

Hypothesis 3: Participants who report a history of childhood sexual abuse as measured by the CTQ will demonstrate higher levels internalized shame, compared to participants without a history of childhood sexual abuse as evidenced by the Internalized Shame Scale (ISS).

This hypothesis was supported by the analysis. The mean internalized shame score for participants who reported a history of sexual abuse was 40.61 with a standard deviation of 21.52; whereas the mean internalized shame scores for participants with no reported history of abuse was 29.32 with a standard deviation of 20.15. Using an alpha level of $p<.05$ to determine significance, internalized shame was found to be statistically significantly higher for participants who reported a history of abuse (F(1,253)=.215, $p<0.001$). See table 4 for more information.
Hypothesis 4: Internalized shame as measured by the ISS will mediate the relationship between childhood sexual abuse and emotional eating as evidence by the CTQ and EES.

This hypothesis was supported by the analysis. According to Baron and Kenny (1986), mediational effects cannot be identified unless statistically significant associations exist among independent and dependent variables, independent and mediator variables, and mediator and dependent variables. Additionally, when the effect of the mediator variable on the dependent variable is controlled, the effect is diminished or is no longer significant. Perfect mediation would occur if experimental condition had no effect on changes in emotional eating after the mediator variable was controlled. As shown in Figure 1, reported CSA predicted a significant amount of variance in emotional eating scores (path c: Beta=.22, R square=.05, p<.001). Total CSA was also significantly associated with internalized shame (path a; Beta=.21, R square=.05, p<.001. Internalized shame also showed a statistically significant association with emotional eating (path b: Beta=.61, R square=.38, p<.001).

A final series of regression analyses was conducted to determine whether the mediator variables (internalized shame) significantly attenuated the effect of CSA on emotional eating. CSA was entered into an equation first and internalized shame second in order to examine internalized shame as a potential mediator between CSA and emotional eating. Results indicated that CSA was no longer a significant predictor of emotional eating (Beta=.08, R square=.38, p>.05).

Sobel’s test for indirect effects, which was used to test the statistical significance of internalized shame as a mediating variable, yielded a value of 328 (p<.001) for the model in which emotional eating a served as the outcome variable. Thus, internalized shame was found to
be a statistically significant mediator of the relationship between history of CSA and emotional eating.
Table 1. Demographic Characteristics of Abused and Non-abused Groups

<table>
<thead>
<tr>
<th></th>
<th>Total Sample [mean (SD)] (n = 255)</th>
<th>CSA Group [mean (SD)] (n = 59)</th>
<th>Non-CSA Group [mean (SD)] (n = 196)</th>
<th>t</th>
<th>p</th>
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<td>Age (yrs)</td>
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<td>36.62 (11.99)</td>
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<td>&gt;0.05</td>
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<tr>
<td>BMI (kg/m²)</td>
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<td>33.34 (8.82)</td>
<td>29.9 (8.04)</td>
<td>2.12</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>χ²</td>
<td>p</td>
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Table 2. Demographic Characteristics of Obese and Non-obese Groups

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<th>Non-Obese Group [mean (SD)] (n = 138)</th>
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<td>p</td>
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<td>16.2</td>
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### Table 3.

Means, Standard Deviations, and Bivariate Correlations of Indicators.

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<tr>
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<td>.192**</td>
<td>.157*</td>
<td>.244**</td>
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<tr>
<td>EES</td>
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<td>.426**</td>
<td>.401**</td>
<td></td>
</tr>
<tr>
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</tr>
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<td>Weight Fluctuation</td>
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<td></td>
<td></td>
<td></td>
<td>1.00</td>
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<table>
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<td>44.17</td>
<td>29.31</td>
<td>3.76</td>
<td>&lt; 0.001</td>
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</table>

Note. CTQSA = Sexual Abuse subscale of the Childhood Trauma Questionnaire; EES = Emotional Eating Scale; ISS = Internalized Shame Scale; BMI = Body Mass Index; Weight Fluctuation = % discrepancy between current and ideal BMI

### Table 4.

Distribution of Scores Based on Experience of CSA

<table>
<thead>
<tr>
<th></th>
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<th>Non-CSA Group (n=196)</th>
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<td>M</td>
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<td>CTQSA</td>
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<td>EES</td>
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<td>BMI</td>
<td>33.34</td>
<td>8.82</td>
<td>29.96</td>
</tr>
<tr>
<td>Weight Fluctuation</td>
<td>65.09</td>
<td>39.63</td>
<td>44.17</td>
</tr>
</tbody>
</table>

Note. CTQSA = Sexual Abuse subscale of the Childhood Trauma Questionnaire; EES = Emotional Eating Scale; ISS = Internalized Shame Scale; BMI = Body Mass Index; Weight Fluctuation = % discrepancy between current and ideal BMI
Figure 1.
The Mediation Model

Figure 2.

Figure 2: Results of regression analyses for internalized shame. The $\beta$s between parentheses indicate the effect of the predictor when the mediator is in the model.
Discussion

General

Research has linked childhood sexual abuse (CSA) with internalized shame (e.g., Andrews, Berwin, Rose, & Kirk, 2000; Feiring, Taska, & Chen, 2002; Feiring, Taska, & Lewis, 1998), and internalized shame with disordered eating (Cook, 1994; Murray, Waller, & Legg, 2000). However, the literature has not examined the specific relationship between childhood sexual abuse, internalized shame and emotional eating. The mediation model in the present study was an attempt to establish this relationship by determining a pathway from childhood sexual abuse to emotional eating, via the mediating influence of internalized shame. The hypotheses that internalized shame would mediate the relationship between CSA and emotional eating was supported by the results.

As evidenced by previous research and the current study, sexual abuse is a painful and all too often common event in the history of many people. In the current study, approximately 23% of participants reported a history of childhood sexual abuse as measured by the Childhood Trauma Questionnaire (CTQ). These findings were in line with recent community-based studies assessing the prevalence of CSA (Briere & Elliott, 2003; Dube et al., 2001; MacMillan et al., 1997; Vogeltanz et al., 1999). Additionally, the current study found CSA in 26% of women and 11% of men, which was also in line with literature on childhood abuse (Briere & Elliott, 2003; Dube et al., 2001; MacMillan et al., 1997; Vogeltanz et al., 1999).

As predicted in the first hypothesis, participants with a history of CSA reported a significantly higher average body mass index (33.34 kg/m²) compared to the non-abused participants (29.96 kg/m²). The degree of weight fluctuation during adulthood calculated by
[(Highest BMI/Lowest BMI) − 1] × 100 was also significantly higher for participants with a history of CSA (65.1%) compared to participants who did not endorse an abuse history (44.2%). A history of CSA was related to higher BMI and higher rates of obesity and was independent of age, race/ethnicity, sexual orientation, and educational level. These findings were in line with the literature connecting childhood abuse and obesity (Williamson, Thompson, Anda, Dietz, & Felitti, 2002; Thomas, Hypponen, & Power, 2008). For example, in a representative sample of adult women and men participating in the Adverse Childhood Experiences Study, those with a history of CSA were 1.3 times more likely to be obese as adults than those who had no history of CSA (Dube et al., 2001). The overall degree of weight fluctuation found in the current study ranged from 0% to 186.76% (Mean = 49.01, SD = 33.11). Individuals with a history of sexual abuse and individuals who were obese reported significantly higher degrees of weight fluctuation; however, the interaction of sexual abuse and obesity was not statistically significant. Therefore, individuals who were obese and reported a history of CSA reported less weight fluctuation than their obese non-abused peers. These findings supported previous research which has found obese women with a history of CSA appear to be less successful at obtaining weight loss, thereby minimizing the degree of weight fluctuation (Gustafson & Sarwer, 2004; Weideman et al., 1999). It has also been hypothesized that obesity may also serve an adaptive function for women who were sexually abused, in particular, because weight may discourage unwanted sexual attention (Wiederman Sansone, & Sansone, 1999).

The second hypothesis was statistically supported, as participants with a history of CSA reported higher levels of emotional eating as measured by the Emotional Eating Scale (EES) compared to their non-abused counterparts. A history of CSA was also related to higher levels of emotional eating independent of current BMI. These findings are in line with previous research
on CSA and disordered eating (Hastings & Kern, 1994; Romans, Gendall, Martin, & Mullen, 2001; Smolak, Levine, & Sullins, 1990; Steiger & Zanko, 1990; Weiner & Thompson, 1997). However, the role of CSA in the etiology of eating disorders remains controversial. Several recent studies have suggested that the type of abuse, severity, and age of onset are more accurate predictors of disordered eating (Bushnell et al., 1992; McCarthy et al., 1994; Pribor & Dinwiddie, 1992; Waller, 1991; Wonderlich et al., 1996). For the purpose of this study, CSA was determined by using the moderate-to-severe cutoff score in order to classify participants as abused or non-abused. The type of sexual abuse (incest, stranger, authority figure) and age of abuse were not ascertained in the current study.

By definition, emotional eaters engage in eating as a response to negative emotions. Previous research has demonstrated that eating serves as an escape mechanism for many people with disordered eating (Bekker et al., 2004), and the maladaptive coping style of suppressing negative emotions with food can quickly escalate of emotional eating and/or binge eating. A handful of studies also have assessed the possibility that emotional distress mediates the link between CSA and other adverse outcomes (Becker-Lausen, Sanders, and Chinsky, 1995; Briere, 1988; Ireland & Widom, 1994). Becker and colleagues (1995) found that depressive symptoms mediated the association between childhood maltreatment and interpersonal difficulties, whereas dissociative symptoms mediated the relationship between childhood maltreatment and revictimization. Future studies may want to focus on the role of severe emotional distress as related to disordered eating and internalized shame.

Shame has been identified as a common reaction and symptom of the aftermath of CSA and third hypothesis examined the levels of internalized shame as measured by the Internalized Shame Scale (ISS) among participants with and without a history of CSA. As predicted,
participants with a reported history of CSA endorsed higher levels of internalized shame compared to the non-abused group. Previous research has shown that child abuse has long been associated with subsequent feelings of shame, which can be internalized over time (Andrews, Berwin, Rose, & Kirk, 2000; Feiring, Taska, & Chen, 2002; Feiring, Taska, & Lewis, 1998). The current study is in line with both clinical (Wiechelt & Sales, 2001) and community-based studies (Soderquist, 1993) which have found that history of sexual abuse is associated with higher levels of internalized shame. The secretive and hidden nature of sexual abuse has been hypothesized to be a major factor in the development of internalized shame among childhood sexual abuse survivor (Deblinger & Runyon, 2005). Also, the traumatic stigmatization associated with CSA can result in a sense of powerlessness and self-blame. Recent research has also focused on the possible mediating effect that shame could have in influencing a child's recovery from abuse (Feiring et al., 2002).

Bodily shame has also been to be significantly associated with reports of physical and sexual abuse (Andrews, 1995). Andrews (1995) found that both physical and sexual abuse were positively correlated with bodily shame, and in turn bodily shame was associated with symptoms of depression and bulimia. Based on the established association between shame and psychological maladjustment, it has been suggested that shame may have a link in the relationship between CSA and emotional distress (Whiffen & MacIntosh, 2005). The current study focused on internalized shame and did not measure bodily shame, which could be an interesting component to analysis in future research.

The fourth hypothesis examined the potential mediating role of internalized shame on CSA and emotional eating. Although recent studies have examined internalized shame as a mediator for bulimic psychopathology (Murray & Waller, 2002; Murray, Waller, & Legg, 2000),
no researchers to date have investigated internalized shame as a mediator in the relationship between childhood sexual abuse and emotional eating. Separate regression analyses were conducted to test the hypothesized mediation relationships. Internalized shame was hypothesized to partially mediate the relationship between CSA and emotional eating. The results of the current study found support for this hypothesis, beyond the prediction of partial mediation, in that full mediation was obtained.

The first regression analysis demonstrated that CSA predicted a significant amount of variance in emotional eating scores. As mentioned earlier, these results are in line with previous research which has shown a link between CSA and disordered eating (Hastings & Kern, 1994; Romans, Gendall, Martin, & Mullen, 2001; Smolak, Levine, & Sullins, 1990; Steiger & Zanko, 1990; Weiner & Thompson, 1997). The second regression analysis demonstrated that the total CSA was also significantly associated with internalized shame. These findings support previous clinical and community-based studies which has found that history of sexual abuse is associated with higher levels of internalized shame (Soderqust, 1993; Wiechelt & Sales, 2001). While previous research has examined the link between internalized shame and bulimic psychopathology (Cook, 1991; Murray, Waller, & Legg, 2000), no study to date has examined the relationship between internalized shame and emotional eating. The third regression analysis conducted in the current study, showed a statistically significant association between internalized shame and emotional eating. As previously mentioned, Cook (1991) found that women who scored high on internalized shame had a high level of body dissatisfaction. However, Cook did not examine the etiology of the participant's internalized shame. A final series of regression analyses was conducted to determine whether the mediator variables (internalized shame) significantly attenuated the effect of CSA on emotional eating. Internalized shame was found to
be a statistically significant mediator of the relationship between history of CSA and emotional eating. These findings substantiate the view that internalized shame may result from exposure to traumatic and shameful events, which in turn impacts an individual's need to cope with negative affect by avoiding through the process of emotional eating. These findings may also have clinical implications, as it may be valuable to examine all variables during assessment and treatment planning phases. Such an approach could help tailor interventions and lead to more effective treatment.

Although the proposed model, whereby internalized shame mediates the relationship between childhood sexual abuse and emotional eating, was proven, it is important to consider the limitations of this study when interpreting the findings. The first limitation is the sample size. While the overall sample size of participants was adequate to conduct the required data analysis, larger sample sizes are typically desirable because of the increase in statistical power. A more limiting factor is the discrepancy in group sizes. While it is not surprising the CSA group is smaller, future research may attempt to make the group sizes more even.

A second limitation to the study relates to generalizability. While participants were recruited from the Northwest and Southeast regions of the United States, the sample was comprised mostly of Caucasians (88.6%) and women (77.3%). Having a diverse and representative sample allows for greater confidence in generalizing study results.

Finally, the current study relied solely on self-report measurements. Future research should attempt to incorporate multiple reporter data (e.g., in person measuring of height and weight, court records, peer reporting). Additionally, being able to conduct a psychiatric interview
to assess eating pathology and being able to assess and control for other psychopathology could also be beneficial going forward.

*Future Research Directions*

The mediational model proposed and tested in this study provides a number of new research possibilities. First, the current study should be replicated with a larger and more diverse population, in order to further examine the model's validity. Second, more information is needed about the relationship between internalized shame and whether variables such as bodily shame also mediate the relationship between CSA and emotional eating. Finally, examining differences across sex could also be a potential direction for future research.
References

*Psychological Medicine, 12*, 625-635.


Appendix A – Informed Consent

PACIFIC UNIVERSITY
INFORMED CONSENT TO ACT AS A RESEARCH PARTICIPANT

Informed Consent Form

1. Study Title
EATING PATTERNS AND SEXUAL ABUSE HISTORY IN A COMMUNITY SAMPLE

2. Study Personnel

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<th>Faculty Advisor</th>
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3. Study Location and Dates

The study is anticipated to begin November 2008 and to be completed by July of 2011. The location of the study will be the SurveyMonkey.com online, secure, encrypted website.

4. Study Invitation and Purpose

You are invited to be in a research study that has been approved by the Institutional Review Board at Pacific University. The purpose of this study is to access the relationship between weight loss attempts, internalized shame, and history of abuse. You were invited to participate because you are an adult over the age of 18 and have not had bariatric surgery in the past and are not currently seeking bariatric surgery for weight loss. Please read this form carefully and ask any questions you may have before agreeing to be in this study. This study is being conducted by Jennifer R. Antick, Ph.D, and Elizabeth Jones, B.A.

5. Study Materials and Procedures

If you agree to be in this study, you will be asked to complete an electronic questionnaire that will take approximately 20 minutes. The questionnaire will include questions about (1) basic demographic information, (2) feelings of depression, anxiety, and shame, (3) history of child maltreatment and (4) eating behaviors and experiences. It is recommended that you complete the survey in a private and quiet
place of your choosing where internet access is available. Answers to the questions are not stored until the entire questionnaire is completed, so if you are unable to finish the survey you may return at a later time and begin again. If you experience any distress during or after completion of the survey, a toll free 24-hour crisis line number will be provided for you to call.

6. Participant Characteristics and Exclusionary Criteria

Only participants who are 18 years old, who have not had bariatric surgery in the past and are not currently seeking bariatric surgery, who are able to provide informed consent, and those who have access to the internet will be included in the study. The survey will be given exclusively online, therefore access to the internet is needed in order to participate in the 20 minute study.

7. Anticipated Risks and Steps Taken to Avoid Them

This is an anonymous survey. The investigators of this study are not collecting information regarding the computer you use, or any identifying information that may be available on your computer. Further, your completion of this study is completely nonproprietary; we will not have any access to your name or other identifying information and will not be linking your name to the responses you provide. If you are interested in the results the information you provide will be taken in a separate survey, your information provided on the survey will not be connected to your personal information. Due to the fact that a questionnaire format is utilized in this study and no identifying information is being requested, it is likely that the participants will incur little risk. It is important to note that transmission of information over the Internet, despite the use of a secure, encrypted web system, cannot be guaranteed to be entirely secure, however, again no identifying information will be requested during the course of this study. Additionally, all unidentified data collected during the study will be downloaded and stored in a password protected excel and SPSS database. The database will be available to the investigators and faculty advisors only. If you would like to request the results of the study you will be directed to a separate survey, where may provide an e-mail or mailing address that will be stored in a separate password protected database. Addresses will be kept separate from the data collected, so responses can remain anonymous.

8. Anticipated Direct Benefits to Participants

There are no direct benefits to participants.

9. Clinical Alternatives (i.e., alternative to the proposed procedure) that may be advantageous to participants

Not Applicable

10. Participant Payment

You will not receive payment or compensation for your participation.

11. Medical Care and Compensation In the Event of Accidental Injury
During your participation in this project it is important to understand that you are not a Pacific University clinic patient or client, nor will you be receiving complete mental health care as a result of your participation in this study. If you are injured during your participation in this study and it is not due to negligence by Pacific University, the researchers, or any organization associated with the research, you should not expect to receive compensation or medical care from Pacific University, the researchers, or any organization associated with the study.

12. Adverse Event Reporting Plan

If you are experiencing distress during or after completing this survey, please seek support from friends, family, a physician or mental health specialist. If you need immediate assistance please call the 24-hour National Crisis Hotline at 1-800-273-8255 or TTY: 1-800-799-4TTY (4889). These resources will be given again at the end of the survey or you may click “Exit Survey” at the top of the page at any time and you will be provided with the phone numbers.

13. Promise of Privacy

The records of this study will be kept private and be handled confidentially. If you request the results of the study you will be required to submit your e-mail or mailing address. Addresses will be kept separate from data collected so responses can remain unidentified. Data will be kept in a password protected computerized database and will be available to the investigators only. If the results of the study are submitted for publication or public presentation, any information that could make it possible to identify individual participants will be eliminated.

14. Voluntary Nature of the Study

Your decision whether or not to participate will not affect your current or future relations with Pacific University. If you decide to participate, you are free to not answer any question or withdraw at any time without prejudice or negative consequences. If you withdraw early any data collected will be destroyed.

15. Contacts and Questions

The researcher(s) will be happy to answer any questions you may have at any time during the course of the study. Complete contact information for the researchers is noted on the first page of this form. If the study in question is a student project, please contact the faculty advisor. If you are not satisfied with the answers you receive, please call Pacific University’s Institutional Review Board, at (503) 352 – 2112 to discuss your questions or concerns further. All concerns and questions will be kept in confidence.
## 16. Statement of Consent

I have read and understand the above. All my questions have been answered. I am 18 years of age or over and agree to participate in the study. I have been offered a copy of this form to keep for my records.

<table>
<thead>
<tr>
<th>Participant’s Signature</th>
<th>Date</th>
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</thead>
<tbody>
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</table>

<table>
<thead>
<tr>
<th>Investigator’s Signature</th>
<th>Date</th>
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<tbody>
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</table>

## 17. Participant contact information

This contact information is required in case any issues arise with the study and participants need to be notified and/or to provide participants with the results of the study if they wish.

Would you like to have a summary of the results after the study is completed?  ____Yes  ____No

Participant’s name: (Please Print) ___________________________

Street address: __________________

Telephone: __________________

Email: __________________
Appendix B - Survey

DIRECTIONS: Please read each questions carefully and respond

1) What is your gender? Male/Female

2) Please specify the state in which you currently reside:

3) Please specify your current age?

4) What is your ethnicity?
   - Euro-American/White
   - African American
   - Asian
   - Hispanic/Latin American
   - Native American/Alaskan
   - Other

5) What is your sexual orientation?
   - Heterosexual
   - Homosexual
   - Bisexual
   - Other

6) What is your relationship status?
   - Single
   - Cohabitating
   - Married
   - Separated
   - Divorce
   - Widowed

7) What is your educational level?
   - Some high school
   - High school graduate
   - Some college
   - College graduate
   - Some post-graduate course work
   - Completed post graduate degree

8) What is your family's annual income in the past year:
   - $0 - $10,000
   - $10,000 - $19,000
   - $20,000 - $29,000
   - $30,000 - $39,000
   - $40,000 - $49,000
   - $50,000 - $59,000
   - $60,000 - $69,000
   - $70,000 or more
   - I don't know

9) What is your current height in feet and inches?

10) What is your current weight in pounds?

11) What has been your highest adult weight in pounds?

12) What has been your lowest adult weight in pounds?

13) What is your ideal body weight in pounds?
Appendix C - Advertisements to Solicit Participants

Newspaper Ad to Solicit Participants

Has losing weight been a lifelong battle for you?

Do you think you are an emotional eater?

We are conducting an anonymous online survey to assess the relationship between weight loss attempts and emotional eating as related to childhood experiences and we NEED your help!

Please go to the website below and complete the anonymous and confidential survey.

*The anonymous survey will take approximately 15 to 20 minutes to complete. The investigators of this study will not collect information regarding the computer being used, or any identifying information that may be available on the computer. Further, completion of this study is completely nonproprietary; investigators will not have any access to your name or other identifying information connected to any of the participants responses.*

*Approved by Pacific University's Institutional Review Board.*
Newspaper Ad to Solicit Participants

Has losing weight been a lifelong battle for you? We are conducting an online survey to assess the relationship between weight loss attempts and emotional eating as related to childhood experiences and we NEED your help!

For more information please visit: www.BmedResearch.net

Craigslist Ad to Solicit Participants

* Are you overweight?
  * Do you eat when you are stressed? Upset? Lonely?
    * Did you have a challenging childhood?

If you answered yes to any of the above questions, then we need your help!

We are conducting a confidential online survey to assess the relationship between weight loss attempts and emotional eating as related to childhood experiences.

Please go to www.BmedResearch.net and complete the confidential survey.

Your help is greatly appreciated!