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RELATIONSHIPS BETWEEN CHILDHOOD TRAUMA AND EATING PATHOLOGY

By

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Relationships Between Childhood Trauma and Eating Pathology

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Past research has demonstrated that a correlation exists between trauma exposure and eating disorder pathology. Specifically, sexual abuse has been implicated in the development of eating disorders, with particular attention focused on bulimia nervosa. However, the relationship between other types of trauma exposure and eating pathology has yet to be delineated, particularly how different types of trauma exposure may be related to disordered eating behaviors. The current study explored this relationship. Results showed while some experiences of trauma history predicted a proportion of the variance associated with disordered eating behaviors, others showed a positive but not significant correlation. Clinical implications, especially those related to standardized trauma assessment and disordered eating behaviors, will be discussed.

## Introduction

### Eating Disorders

Anorexia Nervosa (AN) and Bulimia Nervosa (BN), the two primary eating disorder diagnoses found in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision* (DSM-IV-TR; American Psychiatric Association [APA], 2000), are characterized by a severe distortion in body image and irregular eating-related behaviors (APA, 2000). The lifetime prevalence of AN among females is 0.5% and approximately 0.05% among males, and although the reported prevalence is relatively low, the mortality rate is 10% in the general population making AN the most deadly psychiatric disorder in the United States (APA, 2000; Guisinger, 2003).

The DSM-IV-TR distinguishes AN and BN by the various strategies utilized to compensate for an individual's distorted body image and outcome of the eating behavior on their physique (APA, 2000). Individuals with AN have difficulty maintaining a normal body weight, often due to maladaptive fears of gaining weight as well as unhealthy expectations for a typical body image. As a result of the lack of nutrition and weight loss, amenorrhea will frequently ensue and, in some cases involving prepubertal females, menarche may be delayed. In severe cases, individuals will manifest symptoms of mood disturbances such as depressed mood, social withdrawal, irritability, insomnia, and diminished interest in sex (APA, 2000). There are two types of AN described in the DSM-IV TR: the restricting type of AN is characterized by an absence of binge-eating and purging behaviors; the binge-eating/purging type regularly binge-eat and/or purge, by misusing laxatives, diuretics, enemas, or self-induced vomiting. However, unlike individuals with BN, those with AN binge-eating/purging type are not able to maintain body weight at or above minimally normal levels (APA, 2000).

BN is characterized by recurrent binge eating followed by compensatory behaviors and has a lifetime prevalence of 1%-3% in females and 0.10% to 0.30% in males (APA, 2000). It is partitioned into two subtypes, which are differentiated by the form of compensatory behaviors involved. BN purging type involves one or more of the following compensatory behaviors: self-induced vomiting, the misuse of laxatives, diuretics, or enemas. The nonpurging type of BN includes those individuals who compensate for binge episodes with excessive exercise or extreme fasting between binges. As stated, in comparison to the AN binge-eating/purging type, the binge and purge cycle associated with BN will not always result in drastic weight reduction, and may in fact contribute to weight gain over time (APA, 2000; Herzog et al., 2010).

### **Disordered Eating Behaviors**

Aside from AN and BN, limited research has examined other eating problems which are generally referred to as 'disordered eating' (DE) (Smyth, Heron, Wonderlich, Crosby, & Thompson, 2008). These difficulties may include sub-threshold AN and/or BN, which is typically diagnosed as eating disorder not otherwise specified (EDNOS), and remains the most frequently diagnosed eating disorder based on DSM-IV-TR criteria (APA, 2000). EDNOS describes individuals with symptoms of AN or BN, but do not meet the duration, compensatory behaviors, or restrictive behaviors criteria. In addition, girls/women who continue to have regular menses would not meet criteria for AN and would most likely be described under EDNOS.

Aside from EDNOS, the form of DE that has received a large amount of empirical attention is binge eating disorder (BED; Binge Eating Disorder, 2010). BED consists of recurrent episodes of excessive food intake, which are associated with one or more characteristics: eating very quickly, eating in a secluded environment, and/or feeling disgusted, uncomfortably full,

depressed, and/or guilty after/during an episode. In addition, BED includes having one or more episodes per week for two or more consecutive months (BED, 2010). Although not formally a diagnosis, BED is included in the proposed disorders for the forthcoming *Diagnostic and Statistical Manual for Mental Disorders-Fifth Edition* (DSM-V). Currently those individuals whose symptomology is consistent with BED research criteria would be diagnosed as having EDNOS (Binge Eating Disorder, 2010).

Because BED is not currently a diagnosable disorder under the DSM-IV-TR criteria, the DSM-IV-TR does not provide data on the prevalence of BED (APA, 2000). However, a nationally representative face-to-face household survey (n=9282) was conducted between 2001 and 2003 using the World Health Organization (WHO) Composite International Diagnostic Interview to investigate the prevalence of AN, BN, and BED (Hudson, Hiripi, Pope & Kessler, 2007). The results of this national survey indicated a 3.5% prevalence of BED among adult females and a 2.0% prevalence of BED among adult males. Prevalence for AN and BN was similar in the study sample to what was outlined in the DSM-IV-TR: 0.9% for AN and 1.5% for BN in females, and 0.3% and 0.5% respectively, for males (Hudson, Hiripi, Pope & Kessler, 2007).

AN, BN, and EDNOS encompass the diagnosable ED conditions. Other problematic DE behaviors may include eating pathology that is not as severe or long lasting as the diagnosable eating behaviors. For example, Smyth and colleagues studied DE in a college sample by asking participants to complete the Eating Disorder Questionnaire (EDQ; Smyth et al., 2008). Rather than use a cut-off score to establish diagnostic criteria for AN, BN, or EDNOS, the authors assessed DE by suggesting higher or lower scores were indicative of more/less DE. The EDQ questions assessed a range of behaviors, such as eating small meals, skipping meals, fasting for

non-religious purposes, spitting out food, using diet pills, vomiting, using laxatives, and binge eating. Ranges of behaviors such as these may be more descriptive of eating pathology found in community populations, rather than clinical populations; yet, DE habits remain dangerous in terms of developing serious health problems and/or the development of full threshold AN or BN. The study examined the contribution of multiple specific traumas, and their severity, on eating pathology and found that the number of traumas and severity of the trauma are associated with self-reports of disordered eating behavior (Smyth et al., 2008).

### **ED and DE Measures**

As mentioned, studies differ in their methodology, particularly with respect to measurement of ED and DE behaviors. For instance, the Eating Attitudes Test-26 (EAT-26; Garner, Olmsted, Bohr, & Garfinkel, 1982) is a popular measure of EDs consisting of 26 items that assess three factors: dieting, bulimia and food preoccupation, and oral control (Ocker, Lam, Jensen, & Zhang, 2007). The EAT-26 is an abbreviated version of the original Eating Attitudes Test (EAT; Garner & Garfinkel, 1979), and is considered a valid, reliable, economical, and widely used instrument for measuring symptoms of AN (Garner, Olmsted, Bohr, & Garfinkel, 1982). The EAT-26 does not, however, directly address symptoms of BED, EDNOS, or DE; thus, its uses for non-specific ED behaviors are limited.

Similar to the EAT-26, the Eating Disorder Inventory-3 (EDI-3; Garner, 2004) is a self-report measure that assesses a variety of DE behaviors (Cumella, 2006). It is a 91-item measure that produces 12 subscales, and has three profile validity indicators. The EDI-3 measures symptoms pertinent to the development and maintenance of AN, BN, and EDNOS, specifically. However, the EDI-3 is also lacking in that it does not measure symptoms of BED (Cumella, 2006).

The Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Beglin, 1994) is another measure used to assess DE behavior and accompanying ideations. The questionnaire contains 36 items and, unlike other eating behavior assessments, examines the prevalence of BED as well as AN, BN, and EDNOS. The EDE-Q has a seven-point, forced choice scale and four subscales: *Shape Concern* (e.g., “Has your shape influenced how you think about (judge) yourself as a person?”), *Weight Concern* (e.g., “Have you had a definite fear that you might gain weight?”), *Eating Concern* (e.g., “Have you had a definite fear of losing control over eating?”), and *Restrained Eating* (e.g., “Over the past 28 days, on how many days have you eaten in secret (ie, furtively)?”). Participants respond to each item based on its application to their subjective experiences or behavior, based on a response format of “not at all,” “slightly,” “moderately,” or “markedly”. Scores range from 0-6 on the EDE-Q and higher scores are associated with more severe DE behaviors (Fairburn & Beglin, 1994; McLean, Paxton, & Wertheim, 2010; Peterson et al., 2007).

More recently, researchers studying DE and ED symptomology recognized the absence of a published measure examining DE behaviors, or subthreshold ED and general eating pathology, for English speakers. Therefore, the Disordered Eating Attitude Scale (DEAS; Dos Santos Alvarenga, Scagliusi, & Philippi, (2010) was adapted from Portuguese to English in order to assess individuals’ eating attitudes and relationship with food, as constructs that are related to and describe DE behaviors. The DEAS was developed by examining eating attitudes as a construct that involves individuals’ beliefs, thoughts, feelings, behaviors, and relationship with food and eating (Dos Santos Alvarenga, Scagliusi, & Philippi, 2010). The scale measures DE using 25 Likert-type response items, which comprise five subscales. The five subscales include: *Relationship with food* (e.g., “It is hard to choose what to eat, because I always think I should eat

less or choose the option with fewer calories.”), *Concerns about eating and body weight gain* (e.g., “I worry about how much a certain kind of food or meal will make me gain weight”), *Restrictive and compensatory practices* (e.g., “Do you enjoy the feeling of an empty stomach?”), *Feelings toward eating* (e.g., “Do you have good memories related to food?”), and *Ideas of normal eating* (e.g., “Do you believe that it is normal to eat sometimes just because you are sad, upset or bored?”). The highest (most severe disordered eating) Total Score on the DEAS is 85. Internal consistency was reported at 0.76 for the total scale, indicating an acceptable level, with the test-retest coefficient at  $r = 0.9$  ( $p < 0.001$ ) indicating high reliability (Alvarenga, et al., 2010). Though the DEAS is a newer measure and has not been extensively implemented, thus far it has demonstrated good psychometric properties and the inclusion of DE attitude assessment made it an applicable measure for the current study.

Although there are a number of ED and DE measures used in the ED field, few are comprehensive or assess a wide variety of DE behaviors. The lack of consistent assessment protocols continues to be problematic in terms of establishing accurate prevalence rates of ED behaviors, particularly DE behaviors. The EDE-Q (Fairburn & Beglin, 1994) and DEAS (Alvarenga, et al., 2010) appear to be the exceptions; however, the two measures have not been used conjunctively to assess eating pathology.

### **Childhood Trauma Exposure and DE**

Despite the methodological gaps in the literature, there is a documented relationship between EDs and childhood trauma exposure. The explicit nature of the relationship remains unclear, however, mostly because comparisons are difficult given the state of the assessment research just described. Decades of research have examined trauma exposure and posttraumatic stress disorder (PTSD) in ED populations; yet, there remains little consistency with regard to

measuring eating pathology as well as trauma (Levitt, 2007). Indeed, some researchers suggest that the lack of a gold standard in trauma and ED assessment remains one of the greatest difficulties in studying and treating EDs (Leeson & Nizon, 2010; Levitt, 2007; Tagay, Schlegl, & Senf, 2010).

Among the extant literature examining the two phenomena, Tagay, Schlegl, and Senf (2010) studied the relationship between self-reported trauma exposure and PTSD in ED patients in an outpatient setting (N=101). The authors used the Posttraumatic Stress Diagnostic Scale (PDS; Foa, 1995) to assess traumatic events in their participants and the Impact of Event Scale-Revised (IES-R; Horowitz, Wilner, & Alvarez, 1979) to measure the reactions of the participants to traumatic events. Trauma exposure was partitioned into groups based on the characteristics: interpersonal sexual traumatization, interpersonal nonsexual traumatization, and other kinds of trauma exposure (e.g., accident, fire, natural disaster, life-threatening illness). Results showed 63.3% and 57.7% of the participants with AN and BN, respectively, had experienced at least one traumatic event. The most common traumatic event experienced by participants with AN was sexual assault by a family member or acquaintance (20%) and accidents (20%), followed by non-sexual assault by a family member or acquaintance (16.7%) and sexual assault by a stranger (16.7%). Individuals with BN reported sexual contact at less than 18 years old with someone 5 years or more older than them (25.4%), non-sexual assault by a family member or acquaintance (19.7%), non-sexual assault by a stranger (16.9%), and sexual assault by a stranger (16.9%). Results from this study suggested that individuals who have EDs and have a history of sexual traumatization are likely to develop PTSD symptomology. Further, individuals who experience accidents or non-sexual assault are also at risk for post-trauma symptoms (Tagay et al., 2010).

Similar to Tagay et al. (2010), a previous study by Smolak and Murnen (2002) analyzed the magnitude and consistency of the relationship between child sexual abuse and ED development by conducting a meta-analysis using 53 studies on child sexual abuse and EDs. This study also investigated the problematic methodological factors contributing to inconsistencies in the observed relationship (Smolak & Murnen, 2002). One of the primary benefits of this meta-analysis was that it included samples of participants with AN, BN, as well as BED, using the Eating Disorder Inventory (EDI; Garner, Olmstead, & Polivy, 1983) and EAT (Smolak & Murnen, 2002). Researchers found that the strength of the relationship between child sexual abuse and ED development differed drastically depending on which variables were assigned as either the independent or dependent variable in the research design. Studies that used child sexual abuse as the independent variable (IV) yielded an *r*-value that was more than twice the size of the studies that identified EDs as the IV. The researchers noted that these differences did not seem to be due to diagnostic reliability, but were instead related to the definitions used for EDs throughout the various studies (Smolak & Murnen, 2002). Indeed, the prevalence of individuals presenting both childhood trauma exposure and ED varies extensively from 18 to 85% depending upon the study (Brewerton, 2007; Levitt, 2007).

Further, little consensus exists with respect to which types of trauma exposure may be most highly correlated with EDs; more importantly, these relationships are even less clear for more general DE behaviors. For example, there are a few studies that assess the correlation between EDs and trauma exposure where the traumatic events had no identified perpetrator or interpersonal violence involved. Thus, differing definitions in the ED and trauma literature have contributed to discrepancies across studies, unclear prevalence rates, and making comparisons difficult (Smolak & Murnen, 2002).

## Childhood Trauma Exposure Measures

As mentioned, a number of differing measures have been used in the literature to define trauma exposure in childhood. For example, the Childhood Trauma Questionnaire (CTQ; Bernstein, et al., 1994) is one of the more widely used measures of childhood trauma, and is often used for identifying the comorbidities of childhood trauma with other problems, such as DE behaviors (Allen, Coyne, & Huntoon, 1998; Fosse & Holen, 2006; Kong & Bernstein, 2009; Witkiewitz & Dodge-Reyome, 2001). However, the CTQ does not assess for psychological maltreatment and non-interpersonal trauma (e.g., natural disasters, motor vehicle accident, or crime-related events).

Consequently, some studies supplemented the CTQ with other measures of trauma assessment, such as the Psychological Maltreatment Inventory (PMI; Engels & Moisan, 1994; Reyome & Ward, 2007; Witkiewitz & Dodge-Reyome, 2001). The PMI assesses specifically for psychological maltreatment in childhood (Engels & Moisan, 1994). Like the CTQ, the PMI is a self-report measure. It includes 25 items and is designed to assess child maltreatment with five clinical measures: *Emotional neglect*, *Hostile rejection*, *Isolation*, *Aggression/hostility*, and *Neglect/indifference*. However, the PMI lacks measurement of other forms of trauma exposure.

The Trauma History Questionnaire (THQ; Green, 1996) is a 24-item, self-report questionnaire that accounts for multiple forms of trauma within three subscales: *Crime related events*, *General disaster and trauma*, and *Unwanted physical and sexual experiences*.

Participants indicate “yes” or “no” for each of the 24 traumatic experiences covered. If participants endorse a traumatic experience, they are asked to specify the age they were at the time of the experience, as well as the number of times the event(s) occurred (Mendelsohn & Sewell, 2004). According to recent psychometric evaluations, the THQ has high interrater

reliability, sufficient test-retest reliability (two weeks;  $r$  ranging from 0.36 to 0.89), and stability coefficients in female undergraduate students range from 0.54 to 0.92 over a 2-3 month period (Mueser et al., 2001; Norris & Riad, 1997). The inclusion of multiple forms of childhood trauma and sound psychometric properties makes the THQ one of the more comprehensive and reliable measures of trauma exposure for adults.

### **Theories on the Relationship between Trauma Exposure and Eating Pathology**

Though there are a number of studies examining the relationship between trauma exposure and ED/DE behaviors, few researchers have proposed theories explaining the relationship. Most of the existing theories target child sexual abuse. In addition, theorists have typically targeted EDs, rather than DE more generally, despite the potential for a higher prevalence of DE behaviors.

One prominent theory that evaluates the relationship between trauma exposure and ED/DE is the objectification theory (Fredrickson & Roberts, 1997). The basis of this theory suggests, “girls and women are typically acculturated to internalize an observer’s perspective as a primary view of their physical selves” (Fredrickson & Roberts, 1997, p. 173). Specifically, women’s bodies are objectified in a way that causes them to monitor their body image while ignoring their biological needs, in order to acquire or maintain certain societal standards. One researcher suggests that the “common thread” which unites the “culture of thinness, sexual harassment, and limited achievement opportunities for women” is how women are defined predominantly as bodies instead of beings (Smolak & Murnen, 2001, p.101). According to this theory, women’s bodies exist in a sociocultural context that sexually objectifies them and evaluates their bodies as only existing for the use and enjoyment of others (Fredrickson & Roberts, 1997). Further, because of this objectification, contemporary women are vigilantly

aware of their outward appearance and will ignore their biological needs, such as hunger, in order to satisfy society's "feminine ideal" (Brumberg, 1997). This objectification theory brings the influence of society into the relationship between trauma and DE behaviors. However, this theory does not account for those DE behaviors that do not result in a figure that is idealized by society, and it does not directly incorporate the applicability of societies objectification of males contributing to male DE behavior.

Sansone, Wiederman, Tahir, and Buckner (2009) examined childhood trauma and somatic preoccupation using a cross-sectional sample of 113 individuals seeking non-emergency medical care in an outpatient care facility. They found a correlation between physical and emotional abuses in childhood and somatic preoccupation (including DE behaviors) in adulthood (Sansone, Wiederman, Tahir, & Buckner, 2009). The researchers presented two primary theories as to the reasons for this relationship. The first theory addressed the negative and malignant nature of physical and emotional abuses and their contributions to victims feeling poorly about themselves. More specifically, in contrast to physical and emotional abuses, other forms of childhood trauma (e.g. sexual abuse, witnessing violence, etc.) may have more "variation with regard to the emotional tone of the perpetrator" (Sansone et al., 2009, p. 229). The authors stated,

With regard to childhood sexual abuse, while clearly inappropriate, oppressive, possibly violent and painful, and morally wrong, the perpetrator is not *necessarily* projecting a negative emotion onto the victim. In other words, this type of abuse is not necessarily accompanied by the message to the victim, 'you are bad, despicable, and unworthy' (Sansone et al., 2009, p. 229).

Also, according to this theory, youth who witness violence may be less likely to develop somatic concerns such as EDs/DE because the perpetrator is not necessarily targeting the child; therefore, the child may not feel personally responsible or ‘bad’ about the event. Thus, according Sansone, et al.’s (2009) theory, the message a child receives from a perpetrator during trauma exposure may affect whether or not they go on to develop ED or DE behaviors.

Sansone et al. (2009) added that a child’s body image perception may be a link between childhood trauma and somatic preoccupation. For example, if a child experiences verbal or physical abuse, they may attribute it to their physical self. For example a child might hear multiple times that they are “bad”, and may internalize the “badness” critique assuming that “my body, which is me, is bad” (Sansone et al., 2009, p. 230). This secondary theory attributes the relationship between certain types of childhood trauma (physical and emotional abuse) and somatic preoccupation to a mediating variable, namely, body image disturbance.

Unfortunately, Sansone et al.’s theories do not adequately explain the relationship between EDs/DE and childhood trauma stemming from situations in which there is no perpetrator targeting the child specifically (e.g. natural disaster, domestic violence against adult partner only). Indeed, individuals with BED lose control over the amount and frequency of their eating, but do not have the weight loss results that accompany AN and, to a lesser extent, BN and EDNOS; thus, the preoccupation with weight and body image that may be more likely to accompany Sansone et al.’s proposed mediating variable of body image disturbance is less likely to be present. In contrast, Levitt (2007) recently proposed a theory of self-regulation that incorporates BED as well as AN and BN into its application (Levitt, 2007). Levitt’s self-regulatory theory proposes that individuals with EDs and histories of trauma exposure have a difficult time feeling in control of their lives and consequently develop methods to feel in control

of certain parts of their lives, even if the control results in unhealthy behaviors. Levitt (2007) incorporated this theory in his intervention approach to treating individuals with ED and histories of childhood trauma exposure. He stated,

Many symptoms, for example, have developed as a result of earlier TEs [trauma exposures] and serve as either a response to the TE and/or represent an effort to provide protection from past/future TEs. For example, one result of an overwhelming experience might be difficulty with mood management; the ED may be utilized to provide a semblance of affect control. In sum, the patient has learned to regulate him/her self in the aftermath of earlier experience(s) with some of their presenting symptoms (e.g., the ED) serving to regulate or protect themselves, albeit with some negative repercussions (Levitt, 2007, p. 366).

This self-regulatory theory expands upon previous research such that it is more comprehensive and provides a composite for various forms of trauma exposure as well as various forms of eating pathology, including EDs, BED, EDNOS, and DE.

### **Hypotheses**

Given the gaps in the research involving assessment of different types of trauma exposure and eating pathology, as well as the lack of a common theory to describe the relationship, the current study examined multiple hypotheses. First, in order to assess both EDs as well as DE behaviors, the EDE-Q (Fairburn & Beglin, 1994; see Appendix A) and DEAS (Dos Santos Alvarenga, Scagliusi, & Philippi, 2010; see Appendix A) were administered. Based on past research, it was hypothesized that a history of childhood trauma exposure involving sexual trauma, physical abuse, as well as female gender, will be the strongest predictors of eating pathology. However, it was also hypothesized that other forms of trauma exposure, such as

witnessing domestic violence, crime-related events and general disaster would also significantly contribute to the overall model.

## **Method**

### **Participants**

Participants were recruited from undergraduate psychology courses at a medium-sized, northwestern university. Participants received course credit for their participation in research. According to Cohen's  $d$  at an alpha level of .05, with a power of .80, and the ability to detect medium effect sizes using hierarchical regression with a maximum of 6 predictors, a total of 97 participants were needed (Cohen, 1992). Institutional Review Board approval was obtained prior to beginning the study.

One hundred and two individuals – 64 females and 38 males – participated in this study. Participants' age ranged from 17 to 54 years (mean age = 21.36, SD = 6.23). Participants were primarily White (83.3%), with a minority multiracial (11.8%), American Indian (2.0%), Native Hawaiian or Other Pacific Islander (1.0%), Hispanic or Latino (1.0%), or other (1.0%). The sexual orientation of the participants was primarily heterosexual (89.2%), with a minority bisexual (5.9%), questioning (2.9%), or gay/lesbian (1.0%). See Table 1 for participant sociodemographic information.

### **Measures**

#### *Eating Disorder Measures*

Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Belgin, 1994; see Appendix C). As described above, the EDE-Q is a 36-item questionnaire that assesses ED behaviors. The response format is a seven-point forced choice scale, and has four subscales that assess for various symptoms and behaviors indicative of AN, BN, EDNOS, and BED (McLean

et al., 2010). According to a recent study, internal consistency among 723 undergraduate women, aged 18 to 25 years, ranged from 0.78 for the *Eating Concern* subscale to 0.93 for the *Shape Concern* subscale (Luce, Crowther, & Pole, 2008). Test-retest correlations ranged from 0.81 to 0.94 for the four subscales and from 0.57 to 0.70 for the frequency of key behavioral features, including binge eating, self-induced vomiting, and laxative misuse (Luce, Crowther, & Pole, 2008). The EDE-Q was also validated as a screening instrument for adult women, where Cronbach's alphas ranged from 0.79 for Restrained Eating to 0.91 for Shape Concern (Mond, Hay, Rodgers, Owen, & Beumont, 2004). Examples of items on the EDE-Q within each of the four subscales include: "Have you had a definite desire to have a totally flat stomach?" (*Shape concern*), "How dissatisfied have you been with your weight?" (*Weight concern*), "Have you had a definite fear of losing control over eating?" (*Eating concern*), "Have you tried to follow definite rules regarding your eating (for example, a calorie limit) in order to influence your shape or weight (whether or not you have succeeded)?" (*Restrained eating*) (Fairburn & Belgin, 1994).

Disordered Eating Attitudes Scale (DEAS; Dos Santos Alvarenga, Scagliusi, & Philippi, 2010; see Appendix B). In order to further operationalize DE as a construct, and to circumvent possible threats to validity, the DEAS was administered along with the EDE-Q. The DEAS was recently translated from Portuguese into English and, unlike other ED measures, the DEAS is unique in that it was created to tap into the construct of DE, rather than ED alone, by assessing general eating attitudes (Dos Santos Alvarenga, Scagliusi, & Philippi, 2010). Two studies have included assessment of the psychometric properties of the DEAS. Dos Santos Alvarenga, Scagliusi, & Philippi, (2010) evaluated the original Portuguese DEAS via exploratory factor analysis and convergent validity (0.75) among a sample of 196 female university students in Brazil. The questionnaire was found to be a reliable evaluation of beliefs, feelings, thoughts,

behaviors, and relationship with food (Dos Santos Alvarenga, Scagliusi, & Philippi, 2010) Later, researchers translated and evaluated the English version of the DEAS in a sample of 224 female undergraduate students at the University of Minnesota. The English version of the DEAS had an internal consistency of 0.76, as well as was significantly correlated with the Eating Attitudes Test-26 ( $r = 0.65$ ) and Restraint Scale ( $r = 0.69$ ). Test-retest was 0.90 (Alvarenga et al., 2010). Though the DEAS is a relatively new measure, it has demonstrated strong psychometric characteristics and was an appropriate measure for the current study.

#### *Childhood Trauma Measure*

Trauma History Questionnaire (THQ; Green, 1996; see Appendix D). The THQ is a 24-item measure that assesses for exposure to four trauma exposure categories, including *Crime-related events*, *Physical and Sexual experiences*, *General disaster trauma*, and *Other events*. Recent research examining the psychometric properties of the THQ has found that the questionnaire has high interrater reliability, sufficient test-retest reliability, and stability coefficients in female undergraduate students (Mueser et al., 2001; Norris & Riad, 1997). The THQ's assessment of multiple forms of trauma within 24 items distinguishes it from other trauma exposure measures in its comprehensiveness combined with conciseness, and made it applicable for the current study.

#### *Demographic Measure*

Demographic Questionnaire (DQ; unpublished measure; see Appendix A). A demographic questionnaire was developed for the current study. Participants were asked to provide their gender, age, religious affiliation, and sexual orientation.

## **Procedure**

Participants recruited from the undergraduate psychology course participant pool were administered an informed consent form as a group, outlining the process, risks, and contact information for the study. Participants were notified that participation is voluntary and all responses will be anonymous. Following the informed consent, participants were asked to complete the study measures in random, counter-balanced order, as well as a brief demographic questionnaire, in private rooms. After completing the measures, participants were debriefed about the purpose of the study and will be provided with contact information if they should have any questions. Additionally, all participants were given a list of referral agencies, including the University's counseling center, for coping with any distress resulting from participation in the study.

## **Results**

### **Predictors of Disordered Eating Behaviors**

A stepwise regression was conducted to examine predictors of DE behaviors using Statistical Package for the Social Sciences 20.0 (SPSS: An IBM Company). Gender, EDE-Q Total scores, experiences of sexual abuse as measured by the *THQ Sexual abuse* subscale, and experiences of physical abuse as measured by the *THQ Physical abuse* subscale were entered as predictors in the first step. Empirical research has demonstrated a significant relationship between gender and EDs (APA, 2000; Darcy, Doyle, Lock, Peebles, Doyle, & Le Grange, 2012), as well as perpetrator-specific forms of trauma exposure and EDs (Sansone, Wiederman, Tahir, & Buckner, 2009; Tagay et al., 2010). Other forms of trauma, including crime-related events, general disaster trauma, and other “extraordinarily stressful” events, as measured by the *THQ*

*Other* subscale, was entered as a predictor in the second step. The dependent variable was participants' DEAS Total scores.

As expected, scores on the EDE-Q were positively correlated with disordered eating behavior scores on the DEAS. At the bivariate level, physical abuse and sexual abuse were both related to other forms of trauma ( $r = .23$  and  $r = .25$ , respectively;  $p < .05$ ). A significant correlation between EDE-Q Total and DEAS Total was found,  $r = .64$ ,  $p < .01$ . See Table 3 for a summary of bivariate correlations between variables. However, regression analyses indicated non-significant ( $p > .05$ ) correlations between DEAS Total scores and trauma variables. See Table 4 for a summary of partial correlations between variables. The stepwise regression was unable to be conducted, as no significant correlations were found between gender, physical abuse, sexual abuse, other forms of trauma, and DEAS Total score.

Given that the regression findings did not support the main hypothesis, the potential for multicollinearity was assessed. The variance inflation factor was  $< 5$ , indicating multiple correlation with other variables is low (Field, 2009).

In order to further assess possible relationships among the measures, variables representing the five factors of the DEAS (*Relationship with food*, *Concerns about food and weight gain*, *Restrictive and compensatory practices*, *Feelings toward eating*, and *Idea of normal eating*) were computed based on exploratory factor analysis originally conducted by Alvarenga, Scagliusi, and Philippi (2010; see Table 2). These five subscales were incorporated into regressions as dependent variables for further analysis. Though no effect of Other forms of trauma (as measured by *THQ Other* subscale) was noted for Subscales 2-5 of the DEAS, results showed a significant correlation between Subscale 1 (*Relationship with food*) and *Other forms of trauma* ( $p < .05$ ). See Table (Table 3). DEAS Subscale 2 (*Concerns about food and weight gain*)

was correlated with *THQ Sexual abuse* total scores. DEAS Subscales 3 (*Restrictive and compensatory practices*), 4 (*Feelings toward eating*), and 5 (*Idea of normal eating*) were not significantly correlated with THQ trauma subscales. See Table 3.

### **Discussion**

The current study examined the relationships between childhood trauma exposure, symptoms of EDs, and DE behaviors. Specifically, the study assessed which forms of trauma exposure were significantly predictive of scores on a measure of DE behaviors. It was predicted that results would show that gender and certain types of trauma (i.e., physical and sexual abuse) would explain a significant proportion of the variance in DEAS total scores. In addition, it was predicted that other forms of trauma exposure (i.e., including crime-related events, general disaster trauma, and other stressors) would also explain a significant proportion of the variance in EDE-Q and DEAS total scores. Though there were significant correlations between *Sexual Abuse* and *Other Abuse* scores and DE behavior, there was a positive but non-significant correlation between *Physical Abuse* and DE. Thus, the two hypotheses were only partially supported by the correlations tested.

Although past theories have attempted to explain the relationship between EDs/DE behaviors and trauma exposure, few have accounted for all forms of eating pathology and/or eating pathology related to various forms of trauma exposure. For example, Smolak & Murnen (2002) hypothesized that the relationship between child sexual abuse and EDs may be due to multiple mediating and moderating factors making it difficult to ascertain the consistency of the child sexual abuse – ED relationship (Smolak & Murnen, 2002, p. 147). This theory does not address other forms of child abuse, however it emphasizes the difficulty in assessing a causal link between trauma and eating pathology without better specified research models to measure

and define the constructs. Levitt's self-regulatory theory (2007), which explains all eating pathology in terms of an individual's attempt to acquire some semblance of control in his/her life following a traumatic experience, may be the most comprehensive theory explaining DE after any trauma exposure. The current study overcame some of these limits by breaking down eating pathology into separate subscales to examine specific DE behaviors and ideations. Further, this is the first study to examine all types of trauma separately according to specific DE variations.

By breaking trauma experiences and DE behaviors into specific constructs, more specified relationships were found. Similar to what Levitt (2007) hypothesized in his self-regulatory theory, these data suggest that individuals who experience trauma have a difficult time feeling in control of their lives and consequently develop methods to feel more in control. Specifically, results suggest that a history of sexual abuse was correlated with the *Concerns about food and weight gain* subscale of the DEAS (Subscale 2). SA was positively, but not significantly, correlated with other DE behaviors and ideations (Subscale 1 (*Relationship with food*), 3 (*Restrictive and compensatory practices*), 4 (*Feelings toward eating*), and 5 (*Idea of normal eating*)). Items contributing to the *Concerns about food and weight gain* subscale include: "Do you count the calories of everything you eat", "I quit eating a kind of food if I find out it has more calories than I thought," "I worry all the time about what I am going to eat, how much to eat, how to prepare food and whether I should eat or not", and "I worry about how much a certain kind of food or meal will make me gain weight". These data suggest that individuals, in a community sample, who experienced sexual abuse strive to have strict control over certain aspects of their eating. Therefore, though they may not go to the extremes of restricting their diet or other compensatory behaviors, they are strict in their conscientiousness of their diet and calorie consumption in order to be in more control.

Though no effect of *Other forms of trauma* (as measured by THQ Other Subscale) was noted for Subscales 2-5 of the DEAS, results showed a significant correlation between Subscale 1 (*Relationship with food*) and *Other forms of trauma* ( $p < .05$ ). Items corresponding to the *Relationship with food* subscale of the DEAS include: “Does eating make you feel ‘dirty’”, “Would you like to not need to eat”, “My relationship with food messes up my life as a whole”, “I dream of a pill that would replace food”, “I try eating less in front of others in order to overeat when I am alone”, and “I am angry when I feel hungry”. These findings suggest that individuals with histories of general trauma exposure may struggle with maintaining a healthy relationship with food. For these individuals the idea of eating or having to eat seems selfish so they “dream of a pill that would replace food”. They do not struggle as much with understanding what normal eating is or restrictive and compensatory practices. However their history of experiencing certain types of trauma has contributed to simply not wanting to experience hunger or having to eat. Indeed, for survivors of general trauma, having to eat may feel trivial. For example, though a person who survived Hurricane Katrina might still feel physical pleasure and satiation when eating, as well as be able to delineate what healthy eating is, they feel guilty or self-indulgent in doing something that others less fortunate are not able.

Past research into the phenomenon of survivor’s guilt and eating pathology have yielded mixed results. Vilas (1997) did not find a significant correlation between survivor guilt and eating disorder symptomatology, but found significant relationships between eating pathology and self-hate, guilt, and shame ( $p < .05$ ) (Vilas, 1997). In contrast, correlational research by Orzolek-Kronner (2001) found marginal elevations in self-reports of survivor guilt in sample of women with diagnosed EDs in relation to non-clinical and clinical (non-ED) samples (Orzolek-Kronner, 2001). It should be noted, however, that in both of these studies the trauma exposure

variable related to survivor guilt was not specified by type. These data suggest a need for further investigation to understand the role of guilt and different forms of trauma in the development of DE behaviors.

Findings from this study may have clinical implications regarding how eating behaviors are incorporated into standardized trauma assessments. Though the prevalence of individuals presenting both childhood trauma exposure and ED/DE varies extensively (Brewerton, 2007), exploring eating pathology should be a standard protocol in the assessment of a traumatized individual. Further, eating assessment should not be limited to diagnosable EDs. Instead, as results from this study suggest, a variety of DE behaviors should be considered.

In addition to assessment, findings from the current study may have implications for treatment. In general, the concept of “trauma” necessitates the inclusion of the patient’s experience and interpretation of the event(s) (Levitt 2007). Indeed, the efficacious treatments available for trauma exposure address that individual’s unique assessment of the experience, coping process, and possible subsequent pathologies. However, standard assessments for traumatic stress do not routinely include identification of DE, nor do evidence-based treatment protocols. Thus, future research may emphasize the blending of these two literature bases in order to avoid missing a subset of trauma-exposed individuals who are suffering from DE cognitions and behaviors.

### **Limitations and Future Directions**

The sampling procedure and the use of retrospective reporting are two limitations of this study. Specifically, though DE behaviors are prevalent in the college-age populations, this subject pool only included college students with little ethnic, age, or socioeconomic status (SES) diversity (mostly middle to upper class White, young adults). The demographics of the subject

pool may make generalizing findings to a larger, more diverse population difficult. However, despite the low demographic variability, this study provides valuable information about the college-age population.

In addition to generalizability limitation, each of the three measures used in this study (EDE-Q, DEAS, and THQ) have some component of retrospective reporting in their questions (e.g. EDE-Q, “Over the past 28 days, how many times have you made yourself sick (vomit) as a means of controlling your shape or weight?”, DEAS “Have you ever spent one or more days with out eating or having only liquids because you believed you could lose weight?”, THQ “Have you ever experienced a natural disaster such as a tornado, hurricane, flood, major earthquake, etc., where you felt you or your loved ones were in danger of death or injury?”). It has been suggested that some aspects of retrospective reporting about traumatic events can be unreliable and inconsistent (Krinsley, Gallagher, Weathers, Kutter, & Kaloupek, 2003). Studies have found that recollections of retrospective reporting can be varied in severity and number of traumas reported (Krinsley et al., 2003). Though the psychometric properties of each of these measures suggest that the test-retest reliability and validity of these measures are sound, further research should incorporate a longitudinal prospective design to more clearly depict the progression of the trauma exposure-DE relationship.

## References

- Allen, J. G., Coyne, L., & Huntoon, J. (1998). Complex posttraumatic stress disorder in women from a psychometric perspective. *Journal of Personality Assessment, 70*(2), 277-298. doi:10.1207/s15327752jpa7002\_7
- Alvarenga, M. S., Pereira, R. F., Scagliusi, F. B., Philippi, S. T., Estima, C. C. P., & Croll, J. (2010). Psychometric evaluation of the disordered eating attitude scale (DEAS). English version. *Appetite, 55*(2), 374-376. doi:10.1016/j.appet.2010.07.003
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (Revised 4th ed.). Washington, DC: Author.
- Bernstein, D., Fink, L., Handelsman, L., Foote, J., Lovejoy, M., Wenzel, K., Sapareto, E., & Ruggiero, J. (1994). Initial reliability and validity of a new retrospective measure of child abuse and neglect. *American Journal of Psychiatry, 151*, 1132-1136. 1995 -00092-001
- Binge Eating Disorder. (2010). In *American Psychiatric Association DSM-V Development*. Retrieved from <http://www.dsm5.org/ProposedRevisions/Pages/proposedrevision.aspx?rid=372>
- Blake, K., Cangelosi, S., Johnson-Brooks, S., & Belcher, H. M. E. (2007). Reliability of the GAF and CGAS with children exposed to trauma. *Child Abuse & Neglect, 31*(8), 909-915. doi:10.1016/j.chiabu.2006.12.017
- Borman, S. I. (2005). The relationship between perceived trauma and disordered eating in college men and women. ProQuest Information & Learning). *Dissertation Abstracts International: Section B: The Sciences and Engineering, 66* (Electronic; Print). (2005-99014-249)
- Brewerton, T. D. (2007). Eating disorders, trauma, and comorbidity: Focus on PTSD. *Eating Disorders: The Journal of Treatment & Prevention, 15*(4), 285-304. doi:10.1080/10640260701454311

- Brumberg, J. (1997). *The body project: An intimate history of American girls*. New York: Random House.
- Cohen, J (1992). "A power primer". *Psychological Bulletin* **112**: 155–159. doi:10.1037/0033-2909.112.1.155
- Copeland, W. E., Keeler, G., Angold, A., & Costello, E. J. (2007). Traumatic events and posttraumatic stress in childhood. *Archives of General Psychiatry*, *64*(5), 577-584. doi:10.1001/archpsyc.64.5.577
- Cumella, E.J. (2006). Review of the eating disorder inventory-3. *Journal of Personality Assessment*, *87*(1), 116-117. doi:10.1207/s15327752jpa8701\_11
- Darcy, A. M., Doyle, A. C., Lock, J., Peebles, R., Doyle, P., & Le Grange, D. (2012). The eating disorders examination in adolescent males with anorexia nervosa: How does it compare to adolescent females? *International Journal of Eating Disorders*, *45*(1), 110-114. doi: <http://dx.doi.org.weblib.lib.umt.edu:8080/10.1002/eat.20896>
- Dos Santos Alvarenga, M., Scagliusi, F. B., & Philippi, S. T. (2010). Development and validity of the disordered eating attitude scale (DEAS). *Perceptual and Motor Skills*, *110*(2), 379-395. doi:10.2466/PMS.110.2.379-395
- Engels, M., & Moisan, D. (1994). The psychological maltreatment inventory: Development of a measure of psychological maltreatment in childhood for use in adult clinical settings. *Psychological Reports*, *74*(2), 595-604.
- Fairburn, C. G., & Bèglin, S. J. (1994). Assessment of eating disorders: Interview or self-report questionnaire? *International Journal of Eating Disorders*, *16*(4), 363-370.
- Field, A.P. (2009). *Discovering statistics using SPSS* (3<sup>rd</sup> ed.). London Sage Publications Ltd.
- Foa, E. (1995). *Posttraumatic Stress Diagnostic Scale*. Minneapolis: National Computer System, Inc.

- Fosse, G. K., & Holen, A. (2006). Childhood maltreatment in adult female psychiatric outpatients with eating disorders. *Eating Behaviors*, 7(4), 404-409.  
doi:10.1016/j.eatbeh.2005.12.006
- Fredrickson, B. L., & Roberts, T. (1997). Objectification theory: Toward understanding women's lived experiences and mental health risks. *Psychology of Women Quarterly*, 21(2), 173-206. doi:10.1111/j.1471-6402.1997.tb00108.x
- Garner, D.M. (2004). *Eating Disorder Inventory-3. Professional Manual*. Lutz, FL: Psychological Assessment Resources, Inc.
- Garner, D. M., & Garfinkel, P. E. (1979). The eating attitudes test: An index of the symptoms of anorexia nervosa. *Psychological Medicine: A Journal of Research in Psychiatry and the Allied Sciences*, 9(2), 273-279. doi:10.1017/S0033291700030762
- Garner, D. M., Olmstead, M. P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders*, 2(2), 15-34. doi:10.1002/1098-108X(198321)2:2<15::AID-EAT2260020203>3.0.CO;2-6
- Garner, D. M., Olmsted, M. P., Bohr, Y., & Garfinkel, P. E. (1982). The eating attitudes test: Psychometric features and clinical correlates. *Psychological Medicine: A Journal of Research in Psychiatry and the Allied Sciences*, 12(4), 871-878.  
doi:10.1017/S0033291700049163
- Green, B. L. (1996). Trauma History Questionnaire. In B. H. Stamm (Ed.), *Measurement of stress, trauma, and adaptation* (pp. 366-369). Lutherville, MD: Sidran Press.
- Guisinger, S. (2003). Adapted to flee famine: Adding an evolutionary perspective on anorexia nervosa. *Psychological Review*, 110(4), 745-761. doi:10.1037/0033-295X.110.4.745
- Herzog, D. B., Thomas, J. G., Kass, A. E., Eddy, K. T., Franko, D. L., & Lowe, M. R. (2010). Weight suppression predicts weight change over 5 years in bulimia nervosa. *Psychiatry Research*, 177(3), 330-334. doi:10.1016/j.psychres.2010.03.002

- Horowitz, M. J., Wilner, N., & Alvarez, W. (1979). Impact of event scale: A measure of subjective stress. *Psychosomatic Medicine*, 41, 209–218.
- Hudson, J. I., Hiripi, E., Pope, H. G., Jr., & Kessler, R. C. (2007). The prevalence and correlates of eating disorders in the national comorbidity survey replication. *Biological Psychiatry*, 61(3), 348-358. doi:10.1016/j.biopsych.2006.03.040
- Hund, A. R., & Espelage, D. L. (2005). Childhood sexual abuse, disordered eating, alexithymia, and general distress: A mediation model. *Journal of Counseling Psychology*, 52(4), 559-573. doi:10.1037/0022-0167.52.4.559
- Kolko, D. J., Herschell, A. D., Costello, A. H., & Kolko, R. P. (2009). Child welfare recommendations to improve mental health services for children who have experienced abuse and neglect: A national perspective. *Administration and Policy in Mental Health and Mental Health Services Research*, 36(1), 50-62. doi:10.1007/s10488-008-0202-y
- Kong, S., & Bernstein, K. (2009). Childhood trauma as a predictor of eating psychopathology and its mediating variables in patients with eating disorders. *Journal of Clinical Nursing*, 18(13), 1897-1907. doi:10.1111/j.1365-2702.2008.02740.x
- Krinsley, K. E., Gallagher, J. G., Weathers, F. W., Kutter, C. J., & Kaloupek, D. G. (2003). Consistency of retrospective reporting about exposure to traumatic events. *Journal of Traumatic Stress*, 16(4), 399-409. doi:10.1023/A:1024474204233
- Leeson, F., & Nixon, R. D. V. (2010). Therapy for child psychological maltreatment. *Clinical Psychologist*, 14(2), 30-38. doi:10.1080/13284207.2010.500311
- Levitt, J. L. (2007). Treating eating disorder patients who have had traumatic experiences: A self-regulatory approach. *Eating Disorders: The Journal of Treatment & Prevention*, 15(4), 359-372. doi:10.1080/10640260701454378
- Luce, K.H., Crowther, J.H., & Pole, M. (2008). Eating disorder examination questionnaire (EDE-Q): Norms for undergraduate women. *International Journal of Eating Disorders*, 41(3), 273-276. doi:10.1002/eat.20504

- Mahon, J., Winston, A. P., Palmer, R. L., & Harvey, P. K. (2001). Do broken relationships in childhood relate to bulimic women breaking off psychotherapy in adulthood? *International Journal of Eating Disorders*, 29(2), 139-149. doi:10.1002/1098-108X(200103)29:2<139::AID-EAT1003>3.0.CO;2-I
- McLean, S. A., Paxton, S. J., & Wertheim, E. H. (2010). Factors associated with body dissatisfaction and disordered eating in women in midlife. *International Journal of Eating Disorders*, 43(6), 527-536. doi:10.1002/eat.20737
- Mendelsohn, M., & Sewell, K. W. (2004). Social attitudes toward traumatized men and women: A vignette study. *Journal of Traumatic Stress*, 17(2), 103-111. doi:10.1023/B:JOTS.0000022616.03662.2f
- Mond, J.M., Hay, P.J., Rodgers, B., Owen, C., & Beumont, P.J.V. (2004). Validity of the eating disorder examination questionnaire (EDE-Q) in screening for eating disorders in community samples. *Behavior Research and Therapy*, 42(5), 551-567. doi:10.1016/S0005-7967(03)00161-X
- Mueser, K. T., Rosenberg, S. D., Fox, L., Salyers, M. P., Ford, J. D., & Carty, P. (2001). Psychometric evaluation of trauma and posttraumatic stress disorder assessments in persons with severe mental illness. *Psychological Assessment*, 13(1), 110-117. doi:10.1037/1040-3590.13.1.110
- Norris, F. H., & Riad, J. K. (1997). Standardized self-report measures of civilian trauma and posttraumatic stress disorder. In J. P. Wilson, & T. M. Keane (Eds.), (pp. 7-42). New York, NY, US: Guilford Press.
- Ocker, L. B., Lam, E. T. C., Jensen, B. E., & Zhang, J. J. (2007). Psychometric properties of the eating attitudes test. *Measurement in Physical Education and Exercise Science*, 11(1), 25-48. doi:10.1207/s15327841mpee1101\_2
- Orzolek-Kronner, C. A. *The relationship between attachment patterns and guilt in the function of eating disorder symptoms: Can symptoms be proximity-seeking?* *Dissertation Abstracts*

- International Section A: Humanities and Social Sciences*, . (619712993; 2001-95009-038).
- Peterson, C. B., Crosby, R. D., Wonderlich, S. A., Joiner, T., Crow, S. J., Mitchell, J. E., . . . le Grange, D. (2007). Psychometric properties of the eating disorder examination-questionnaire: Factor structure and internal consistency. *International Journal of Eating Disorders*, 40(4), 386-389. doi:10.1002/eat.20373
- Reyome, N. D., & Ward, K. S. (2007). Self-reported history of childhood maltreatment and codependency in undergraduate nursing students. *Journal of Emotional Abuse*, 7(1), 37-50. doi:10.1300/J135v07n01\_03
- Sansone, R. A., Wiederman, M. W., Tahir, N. A., & Buckner, V. R. (2009). A re-examination of childhood trauma and somatic preoccupation. *International Journal of Psychiatry in Clinical Practice*, 13(3), 233-237. doi:10.1080/13651500802621551
- Smolak, L., & Murnen, S. K. (2001). Gender and eating problems. In R. H. Striegel-Moore, & L. Smolak (Eds.), ( pp. 91-110). Washington, DC, US: American Psychological Association. doi:10.1037/10403-005
- Smolak, L., & Murnen, S. K. (2002). A meta-analytic examination of the relationship between child sexual abuse and eating disorders. *International Journal of Eating Disorders*, 31(2), 136-150. doi:10.1002/eat.10008
- Smyth, J. M., Heron, K. E., Wonderlich, S. A., Crosby, R. D., & Thompson, K. M. (2008). The influence of reported trauma and adverse events on eating disturbance in young adults. *International Journal of Eating Disorders*, 41(3), 195-202. doi:10.1002/eat.20490
- Tagay, S., Schlegl, S., & Senf, W. (2010). Traumatic events, posttraumatic stress symptomatology and somatoform symptoms in eating disorder patients. *European Eating Disorders Review*, 18(2), 124-132. doi:10.1002/erv.972

U.S. Department of Health and Human Services, Administration on Children, Youth and Families (2010). *Child Maltreatment 2008*. Washington, DC: Author. Retrieved from <http://www.acf.hhs.gov/programs/cb/pubs/cm08/summary.htm>

Vilas, N. A. *Interpersonal guilt and eating disorder symptomatology in college women*. *Dissertation Abstracts International: Section B: The Sciences and Engineering*, . (619243702; 1997-95002-414).

Witkiewitz, K., & Dodge-Reyome, N. (2001). Recollections of childhood psychological maltreatment and self-reported eating disordered behaviors in undergraduate college females. *Journal of Emotional Abuse*, 2(1), 15-29. doi:10.1300/J135v02n01\_03

Table 1

*Sociodemographic Variables*

Characteristics	Frequency (%)	THQ SA	THQ PA	THQ Other	EDE-Q Total	DEAS Total
<b>Gender</b>						
Female	64 (62.7)	.53	.31	2.6	42.6	86.8
Male	38 (37.3)	.16	.45	2.9	25.7	81.4
<b>Race (<i>n</i> = 102)</b>						
White, non- Hispanic	85 (83.3)	.34	.32	2.6	37.9	85.3
Multiracial	12 (11.8)	.92	.75	3.3	23.4	78.6
American Indian/AK Native	2 (2.0)	0	.5	2.5	33.5	86.5
Hispanic/ Latino	1 (1.0)	0	0	1	11	78
Native HI/ Pacific Islander	1 (1.0)	0	0	1	49	110
Arab	1 (1.0)	0	0	4	79	98
<b>Sexual Orientation (<i>n</i> = 102)</b>						
Heterosexual	91 (89.2)	.38	.37	2.5	35.3	84.5

Bisexual	6	.5	.5	3.7	41.8	96
	(5.9)					
Gay/Lesbian	1	2	0	4	14	75
	(1.0)					
Questioning	3	0	0	3	53.3	82.5
	(2.9)					
Other	1	0	0	1	64	87
	(1.0)					

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*Note.* Values in parentheses are percentages.

Table 2

*DEAS Subscale Factor Loadings*

Item	Factor 1 <sup>a</sup>	Factor 2 <sup>b</sup>	Factor 3 <sup>c</sup>	Factor 4 <sup>d</sup>	Factor 4 <sup>e</sup>
1	-.02	.04	.15	-.05	.61
2	-.03	.15	-.14	.62	.00
3	.08	-.02	.20	.53	-.14
4	-.08	.14	.69	-.09	-.13
5	-.02	.63	-.20	.18	-.12
6	.05	.02	.50	.45	.11
7	.10	.14	.73	.09	.05
8	.53	.17	-.09	.04	-.11
9	.24	.14	-.014	.70	.01
10	.48	.05	.28	.44	.31
11	-.06	.14	-.14	.03	.72
12	.21	.47	.54	.05	.02
13	.53	.50	.35	-.02	.03
14	.12	.70	.20	-.07	.24
15	.20	.66	.16	.10	.11
16	.28	.73	.25	.21	.04
17	.71	.06	-.05	.08	.07
18	.57	.50	.15	.09	-.10
19	.52	.18	.11	.08	-.41
20	.42	.38	.33	.02	.08
21	.81	.13	.04	-.10	-.09
22	.76	.25	-.06	.12	.04
23	.57	-.09	.47	.08	.18

24	.67	-.02	.21	.10	-.15
25	.74	.14	.14	.29	.07

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<sup>a</sup>Relationship with food

<sup>b</sup>Concerns about food and weight gain

<sup>c</sup>Restrictive and compensatory practices

<sup>d</sup>Feelings toward eating

<sup>e</sup>Idea of normal eating

*Note.* Results of the Exploratory Factor Analysis for the Disordered Eating Attitude Scale

(DEAS; Alvarenga, Scagliusi, & Philippi (2010))



EDEQ	-	.164	.245*	.056	.096	.962**	.705**	.740**	.952**	1						
Weight	.254**															
DEAS	-.189	.027	.112	.172	-.087	.644**	.569**	.642**	.585**	.563**	1					
Total																
DEAS	-.224*	.002	.182	.111	-.124	.773**	.580**	.796**	.705**	.682**	.870**	1				
ss1																
DEAS	-.218*	-.102	-.085	-.025	-.093	.608**	.676**	.551**	.557**	.532**	.678**	.636**	1			
ss2																
DEAS	-.152	.165	.125	.173	.107	.571**	.615**	.471**	.535**	.512**	.621**	.467**	.401**	1		
ss3																
DEAS	-.027	.151	.134	.208*	.068	.203*	.133	.135	.230*	.206*	.432**	.294**	.153	.267**	1	
ss4																
DEAS	.043	-.105	-.059	.047	-.138	-	-.290**	-.168	-	-	.253*	-.086	-.183	-.235*	-.149	1
ss5							.290**				.326**	.310**				

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

Table 4

*Summary of Partial Correlations with DEAS Total Scores*

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	Gender	Physical Abuse	Sexual Abuse	Other Trauma
Partial Correlation	-.031	.140	-.079	-.111
Significance	.770	.185	.454	.294

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Table 5

*Trauma Subscales as Predictors of DEAS Subscale 1*

Predictor	<i>B</i>	<i>SE (B)</i>	$\beta$
Step 1			
EDE-Q Total	.181	.015	.773**
Step 2			
EDE-Q Total	.183	.015	.780**
THQ Other Abuse	-.797	.299	-.180*

*Note.*  $R^2 = .630$

\* $p < .05$

\*\* $p < .001$

Table 6

*Trauma Subscales as Predictors of DEAS Subscale 2*

Predictor	<i>B</i>	<i>SE B</i>	$\beta$
Step 1			
EDE-Q Total	.053	.007	.608**
Step 2			
EDE-Q Total	.057	.007	.657**
THQ Sexual Abuse	-.826	.335	-.223*

*Note.*  $R^2 = .439$

\* $p < .05$

\*\* $p < .001$

## **Appendix A**

### Demographic Questionnaire

## Demographic Form

1. What is your current age? \_\_\_\_\_
  
2. How would define your gender?
  - Female
  - Male
  - Transgender
  - Gender neutral
  - Intersex
  - Other: Please describe \_\_\_\_\_
  
3. What is your racial group? (*You may check more than one*)
  - American Indian/Alaska Native
  - Asian
  - Native Hawaiian or Other Pacific Islander
  - Black or African American
  - Hispanic or Latino
  - White, non-Hispanic or Latino
  - Other: \_\_\_\_\_
  
4. How do you define your sexual orientation?
  - Heterosexual
  - Gay / Lesbian
  - Bisexual
  - Questioning
  
5. Describe your religious affiliation, if any: \_\_\_\_\_

## **Appendix B**

### Disordered Eating Attitude Scale (DEAS)

## Disordered Eating Attitude Scale – DEAS

1) Mark with an X how healthy and necessary you consider consumption of each kind of food below:

### **Sugar**

- Eating this food often is healthy and necessary.
- Eating this food occasionally is healthy and necessary.
- Not eating this food is healthy and necessary.

### **French Fries**

- Eating this food often is healthy and necessary.
- Eating this food occasionally is healthy and necessary.
- Not eating this food is healthy and necessary.

### **Oil**

- Eating this food often is healthy and necessary.
- Eating this food occasionally is healthy and necessary.
- Not eating this food is healthy and necessary.

### **Breads**

- Eating this food often is healthy and necessary.
- Eating this food occasionally is healthy and necessary.
- Not eating this food is healthy and necessary.

### **Rice**

- Eating this food often is healthy and necessary.
- Eating this food occasionally is healthy and necessary.
- Not eating this food is healthy and necessary.

**Beans**

- Eating this food often is healthy and necessary.
- Eating this food occasionally is healthy and necessary.
- Not eating this food is healthy and necessary.

**Pasta**

- Eating this food often is healthy and necessary.
- Eating this food occasionally is healthy and necessary.
- Not eating this food is healthy and necessary.

**Red meat**

- Eating this food often is healthy and necessary.
- Eating this food occasionally is healthy and necessary.
- Not eating this food is healthy and necessary.

**Whole milk**

- Eating this food often is healthy and necessary.
- Eating this food occasionally is healthy and necessary.
- Not eating this food is healthy and necessary.

**Cheese**

- Eating this food often is healthy and necessary.
- Eating this food occasionally is healthy and necessary.
- Not eating this food is healthy and necessary.

**Vegetables**

- Eating this food often is healthy and necessary.
- Eating this food occasionally is healthy and necessary.
- Not eating this food is healthy and necessary.

### **Fruits**

- Eating this food often is healthy and necessary.
- Eating this food occasionally is healthy and necessary.
- Not eating this food is healthy and necessary.

### **White meat**

- Eating this food often is healthy and necessary.
- Eating this food occasionally is healthy and necessary.
- Not eating this food is healthy and necessary.

2) Do you feel pleasure when you eat?

- Yes.      No.

3) Does eating ever feel unnatural to you?

- Yes.      No.

4) Have you ever spent one or more days without eating or having only liquids because you believed you could lose weight?

- Yes.      No.

5) Do you count the calories of everything you eat?

- Yes.      No.

6) Do you enjoy the feeling of an empty stomach?

- Yes.      No.

7) Do you “skip” meals to avoid putting on weight?

- Yes.      No.

8) Does eating make you feel “dirty”?

- Yes.      No.

9) Do you have good memories related to food?

- Yes.      No.

10) Would you like to not need to eat?

- Yes.      No.

11) Do you believe that it is normal to eat sometimes just because you are sad, upset or bored?

- Yes.      No.

12) When you eat more than usual, what is your behavior afterwards?

- Restart eating as usual.
- Assume you have lost control and keep eating even more.
- Decide to go on a diet to compensate.
- Use some kind of compensation, such as physical activity, vomiting, laxatives and diuretics.

## PART II

13) I feel guilty when I eat something that I thought I should not eat for some reason.

- Always
- Usually
- Often
- Sometimes
- Rarely/Never

14) I quit eating a kind of food if I find out it has more calories than I thought.

- Always
- Usually
- Often
- Sometimes
- Rarely/Never

15) I worry all the time about what I am going to eat, how much to eat, how to prepare food and whether I should eat or not.

- Always
- Usually
- Often
- Sometimes
- Rarely/Never

16) I worry about how much a certain kind of food or meal will make me gain weight.

- Always
- Usually
- Often
- Sometimes
- Rarely/Never

17) I am angry when I feel hungry.

- Always
- Usually
- Often
- Sometimes
- Rarely/Never

18) It is hard to choose what to eat, because I always think I should eat less or choose the option with fewer calories.

- Always
- Usually
- Often
- Sometimes
- Rarely/Never

19) When I desire a specific kind of food, I know I won't stop eating until I have finished with it.

- Always
- Usually
- Often
- Sometimes
- Rarely/Never

20) I would like to have my appetite and eating behavior under total control.

- Always
- Usually
- Often
- Sometimes
- Rarely/Never

21) I try eating less in front of others in order to overeat when I am alone.

- Always
- Usually
- Often
- Sometimes
- Rarely/Never

22) I am afraid to start eating and not be able to stop.

- Always
- Usually
- Often
- Sometimes
- Rarely/Never

23) I dream of a pill that would replace food.

- Always
- Usually
- Often
- Sometimes
- Rarely/Never

24) I get nervous and/or lose my self-control at parties and buffets, due to a great amount of foods available.

- Always
- Usually
- Often
- Sometimes
- Rarely/Never

25) My relationship with food messes up my life as a whole.

- Always
- Usually
- Often
- Sometimes
- Rarely/Never

## **Appendix C**

Eating Disorder Examination Questionnaire (EDE-Q)

## Eating Questionnaire

Instructions: The following questions are concerned with the past four weeks (28 days) only. Please read each question carefully. Please answer all the questions. Thank you. Questions 1 to 12: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days) only.

On how many of the past 28 days...

0 = No days

1 = 1-5 days

2 = 6-12 days

3 = 13-15 days

4 = 16-22 days

5 = 23-27 days

6 = Every day

1. Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)?

0    1    2    3    4    5    6

2. Have you gone for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight?

0    1    2    3    4    5    6

3. Have you tried to exclude from your diet any foods that you like in order to influence your shape or weight (whether you have succeeded or not)?

0    1    2    3    4    5    6

4. Have you tried to follow definite rules regarding your eating (for example, a caloric limit) in order to influence your shape or weight (whether you have succeeded or not)?

0    1    2    3    4    5    6

5. Have you had a definite desire to have an empty stomach with the aim of influencing your shape or weight?

0    1    2    3    4    5    6

6. Have you had a definite desire to have a totally flat stomach?

0    1    2    3    4    5    6

7. Has thinking about food, eating or calories made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?

0    1    2    3    4    5    6

8. Has thinking about shape or weight made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?

0  1  2  3  4  5  6

9. Have you had a definite fear of losing control over eating?

0  1  2  3  4  5  6

10. Have you had a definite fear that you might gain weight?

0  1  2  3  4  5  6

11. Have you felt fat?

0  1  2  3  4  5  6

12. Have you had a strong desire to lose weight?

0  1  2  3  4  5  6

**Questions 13-18. Please fill in the appropriate number in the boxes on the right. Remember that the questions only refer to the past four weeks (28 days).**

---

Over the past four weeks (28 days).....

13. Over the past 28 days, how many times have you eaten what other people would regard as an unusually large amount of food (given the circumstances)?

0  1  2  3  4  5  6

14. On how many of these times did you have a sense of having lost control over your eating (at the time that you were eating)?

0  1  2  3  4  5  6

15. Over the past 28 days, on how many days have such episodes of overeating occurred (i.e., you have eaten an unusually large amount of food and have had a sense of loss of control at the time)?

0  1  2  3  4  5  6

16. Over the past 28 days, how many times have you made yourself sick (vomit) as a means of controlling your shape or weight?

0  1  2  3  4  5  6

17. Over the past 28 days, how many times have you taken laxatives as a means of controlling your shape or weight?

0  1  2  3  4  5  6

18. Over the past 28 days, how many times have you exercised in a “driven” or “compulsive” way as a means of controlling your weight, shape, or amount of fat, or to burn off calories?

- 0    1    2    3    4    5    6

**Questions 19 to 21: Please circle the appropriate number. Please note that for these questions the term “binge eating” means eating what others would regard as an unusually large amount of food for the circumstances, accompanied by a sense of having lost control over eating.**

19. Over the past 28 days, on how many days have you eaten in secret (i.e., furtively)?

...Do not count episodes of binge eating.

- 0    1    2    3    4    5    6

20. On what proportion of the times that you have eaten have you felt guilty (felt that you’ve done wrong) because of its effect on your shape or weight?

...Do not count episodes of binge eating.

- None of the time       A few of the time       Less than half the time  
 Half of the time       More than half of the time  
 Most of the time       Every time

21. Over the past 28 days, how concerned have you been about other people seeing you eat?

...Do not count episodes of binge eating.

- Not at all       Slightly       Moderately       Markedly

---

**Questions 22 to 28: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days).**

---

Over the past 28 days.....

0= Not at all

1-2 = Slightly

3-4 = Moderately

5-6 = Markedly

22. Has your weight influenced how you think about (judge) yourself as a person?

- 0    1    2    3    4    5    6

23. Has your shape influenced how you think about (judge) yourself as a person?

- 0    1    2    3    4    5    6

24. How much would it have upset you if you had been asked to weigh yourself once a week (no more, or less often) for the next four weeks?

0    1    2    3    4    5    6

25. How dissatisfied have you been with your weight?

0    1    2    3    4    5    6

26. How dissatisfied have you been with your shape?

0    1    2    3    4    5    6

27. How uncomfortable have you felt seeing your body (for example, seeing your shape in the mirror, in a shop window reflection, while undressing or taking a bath or shower)?

0    1    2    3    4    5    6

28. How uncomfortable have you felt about others seeing your shape or figure (for example, in communal changing rooms, when swimming, or wearing tight clothes)?

0    1    2    3    4    5    6

---

What is your weight at present? (Please give your best estimate.) \_\_\_\_\_

What is your height? (Please give your best estimate.) \_\_\_\_\_

If female: Over the past three-to-four months have you missed any menstrual periods?

\_\_\_\_\_

If so, how many? \_\_\_\_\_

Have you been taking the "pill"? \_\_\_\_\_

---

Thank You.

---

## **Appendix D**

### Trauma History Questionnaire (THQ)

## TRAUMA HISTORY QUESTIONNAIRE

The following is a series of questions about serious or traumatic life events. These types of events actually occur with some regularity, although we would like to believe they are rare, and they affect how people feel about, react to, and/or think about things subsequently. Knowing about the occurrence of such events, and reactions to them, will help us to develop programs for prevention, education, and other services. The questionnaire is divided into questions covering crime experiences, general disaster and trauma questions, and questions about physical and sexual experiences.

For each event, please indicate (circle) whether it happened, and if it did, the number of times and your approximate age when it happened (give your best guess if you are not sure). Also note the nature of your relationship to the person involved, and the specific nature of the event, if appropriate.

### Crime-Related Events

		If Yes	
		# of	Approx.
		Times	Age
1.	Has anyone ever tried to take something directly from you by using force or the threat of force, such as a stick-up or mugging?	No   Yes	_____   _____
2.	Has anyone ever attempted to rob you or actually robbed you (i.e. stolen your personal belongings)?	No   Yes	_____   _____
3.	Has anyone ever attempted to or succeeded in breaking into your home when you weren't there?	No   Yes	_____   _____
4.	Has anyone ever tried to or succeeded in breaking into your home while you <u>were</u> there?	No   Yes	_____   _____

**General Disaster and Trauma**

5. Have you ever had a serious accident at work, in a car or somewhere else? No Yes \_\_\_\_\_

If yes, please specify

---

6. Have you ever experienced a natural disaster such as a tornado, hurricane, flood, major earthquake, etc., where you felt you or your loved ones were in danger of death or injury? No Yes \_\_\_\_\_

If yes, please specify

---

7. Have you ever experienced a "man-made" disaster such as a train crash, building collapse, bank robbery, fire, etc., where you felt you or your loved ones were in danger of death or injury? No Yes \_\_\_\_\_

If yes, please specify

---

8. Have you ever been exposed to dangerous chemicals or radioactivity that might threaten your health? No Yes \_\_\_\_\_
9. Have you ever been in any other situation in which you were seriously injured? No Yes \_\_\_\_\_  
If yes, please specify  
 \_\_\_\_\_
10. Have you ever been in any other situation in which you feared you might be killed or seriously injured? No Yes \_\_\_\_\_  
If yes, please specify  
 \_\_\_\_\_
11. Have you ever seen someone seriously injured or killed? No Yes \_\_\_\_\_  
If yes, please specify who  
 \_\_\_\_\_
12. Have you ever seen dead bodies (other than at a funeral) or had to handle dead bodies for any reason? No Yes \_\_\_\_\_  
If yes, please specify  
 \_\_\_\_\_

13. Have you ever had a close friend  
or family member murdered, or  
killed by a drunk driver? No Yes \_\_\_\_\_
- If yes, please specify  
relationship (e.g.mother,  
grandson,etc.)\_\_\_\_\_
14. Have you ever had a spouse,  
romantic partner, or child die? No Yes \_\_\_\_\_
- If yes, please specify  
relationship\_\_\_\_\_
15. Have you ever had a serious  
or life-threatening illness? No Yes \_\_\_\_\_
- If yes, please specify  
\_\_\_\_\_
16. Have you ever received news of a  
serious injury, life-threatening  
illness or unexpected death  
of someone close to you?  
If yes, please indicate No Yes \_\_\_\_\_
- \_\_\_\_\_
17. Have you ever had to engage in  
combat while in military service  
in an official or unofficial war  
zone? No Yes \_\_\_\_\_
- If yes, please indicate where.  
\_\_\_\_\_

**Physical and Sexual Experiences**

- |  | <u>If Yes</u> | Was it    | Approx.       |
|--|---------------|-----------|---------------|
|  |               | repeated? | how often     |
|  |               |           | & what age(s) |
| 18. Has anyone ever made you have intercourse, oral or anal sex against your will?<br><br><u>If yes</u> , please indicate the nature of relationship with person (e.g. stranger, friend, relative, parent, sibling)_____                       | No    Yes     | _____     | _____         |
| 19. Has anyone ever touched private parts of your body, or made you touch theirs, under force or threat?<br><br><u>If yes</u> , please indicate nature of relationship with person (e.g. stranger, friend, relative, parent, sibling)<br>_____ | No    Yes     | _____     | _____         |
| 20. Other than incidents mentioned in Questions 18 and 19, have there been any other situations in which another person tried to force you to have unwanted sexual contact?  | No    Yes     | _____     | _____         |
| 21. Has anyone, including family members or friends, ever attacked you with a gun, knife or some other weapon?   | No    Yes     | _____     | _____         |



