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## Coping Self-Efficacy as a Moderator in the Relationship Between Trauma and Disordered Eating

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COPING SELF-EFFICACY AS A MODERATOR IN THE  
RELATIONSHIP BETWEEN TRAUMA AND DISORDERED EATING

by

BETHANY OWENS RAYMOND

(Under the Direction of C. Thresa Yancey)

ABSTRACT

Disordered eating behaviors are associated with a myriad of detrimental health and mental health consequences (Ackard et al., 2003; Bryla, 2003; Karkkainen et al., 2018; Quick & Byrd-Bredbenner, 2013). Previous research identifies trauma as a risk factor for disordered eating behaviors and eating disorders (Brewerton, 2007). For instance, individuals with eating disorders are more likely to report trauma than individuals with no such history (Lejonclou et al., 2014). However, because not all individuals with a history of trauma exhibit disordered eating, it is important to identify what factors might moderate this relationship. The current study aims to investigate coping-self efficacy as a potential moderator in the relationship between trauma and disordered eating. Coping self-efficacy refers to an individual's belief in their ability to effectively cope with stressors (Chesney et al., 2006). Research examining the relationship between trauma and coping self-efficacy demonstrates that coping self-efficacy is associated with fewer posttraumatic stress symptoms and lower distress (Benight, Ironson, Klebe et al., 1999; Cieslak et al., 2008). Further, low coping-self efficacy is associated with disordered eating behaviors (MacNeil et al., 2012). Results indicated significant differences by location (rural, non-rural) for disordered eating. Specifically, participants residing in rural areas reported higher levels of disordered eating compared to participants in non-rural areas. Contrary to expectations, coping self-efficacy did not significantly moderate the relationship between disordered eating and trauma. Further, coping self-efficacy was positively associated with disordered eating behaviors. Consistent with predictions, participants with a history of childhood sexual trauma reported higher levels of disordered eating compared to participants with a histories of childhood non-sexual trauma, adult non-sexual trauma, and no trauma history. Clinical considerations and directions for further research are identified and discussed.

INDEX WORDS: Trauma, Disordered eating, Coping self-efficacy, Childhood sexual abuse, Sexual trauma, Rurality

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## CHAPTER 1

### INTRODUCTION

Disordered eating refers to abnormal behaviors and attitudes related to food, such as food restriction, overeating, concealment of eating, unhealthy weight-loss behaviors, using laxatives, feelings of guilt after eating, and preoccupation with food (Bryla et al., 2003; Meyer & Stanick, 2018). Disordered eating behaviors are associated with a host of negative consequences, including growth disruptions, fatigue, gastrointestinal difficulties, depressive and anxious symptoms, compulsive behaviors, body dissatisfaction, feelings of insecurity, and psychological distress (Ackard et al., 2003; Bryla, 2003; Karkkainen et al., 2018; Quick & Byrd-Bredbenner, 2013). Disordered eating behaviors are not synonymous with eating disorders, as eating disorders represent more severe disturbances in functioning (APA, 2013; Bryla, 2003; Meyer & Stanick, 2008); however, disordered eating behaviors are a risk factor for developing an eating disorder (Bryla, 2003; Evans et al., 2017). The negative health consequences of eating disorders are well documented, and include electrolyte and hormonal abnormalities, cardiac and respiratory complications, low bone density, gastrointestinal issues, neurological abnormalities, metabolic abnormalities, and increased mortality rates (Arcelus et al., 2011; Cass et al., 2020; Mitchell, 2016). Given the myriad of negative consequences associated with disordered eating, it is important to identify factors that might reduce the occurrence of these behaviors.

Compared to those with no trauma history, individuals with trauma histories report higher rates of disordered eating behaviors and research identifies trauma as a non-specific risk factor for disordered eating (Brewerton, 2007; Briere & Scott, 2007; Lejonclou et al., 2014; Smyth et al., 2008). Specifically, individuals with eating disorders, compared with those who do not have eating disorders, are more likely to report a history of trauma and are also more likely to report higher frequency of trauma experiences (Lejonclou et al., 2014; Mitchell et al., 2012). The Diagnostic and Statistical Manual of Mental Disorders (DSM-5), defines trauma as, “Exposure to actual or threatened death, serious injury, or sexual violence” (American Psychiatric Association [APA], 2013, p. 271). Examples of trauma include combat exposure, physical assault (threatened or actual), sexual assault (threatened or actual), natural disasters, life-

threatening medical events, or serious motor vehicle accidents (APA, 2013). Trauma is not uncommon, and many adults report at least one lifetime occurrence of trauma (Kessler, 2000; Kessler et al., 2017; Lui et al., 2017). For instance, an international study of adults found 70.4% endorsed at least one traumatic event (Kessler et al., 2017).

Childhood trauma refers to trauma experienced by a child under the age of 18 (Centers for Disease Control, 2020). Types of childhood trauma include physical abuse, sexual abuse, emotional abuse, and neglect (CDC, 2020). Childhood physical abuse (CPA) refers to physical violence against a child (e.g., hitting, shaking, burning, kicking). Child sexual abuse (CSA) occurs when a child is involved in sexual acts for which they are legally or developmentally unable to provide consent. Childhood Emotional Abuse or Childhood Psychological Abuse (CEA) refers to behaviors damaging to a child's psychological or emotional well-being or diminishing their sense of self-worth (e.g., threats, insults, shaming, rejection, withholding affection). Finally, childhood neglect occurs when a caregiver does not appropriately address a child's basic needs (e.g., nutrition, education, housing, medical care; CDC, 2020). Although likely underreported, data from 2018 indicates that approximately one in seven children in the United States experienced abuse and/or neglect (CDC, 2020).

Trauma is associated with a variety of negative health consequences, including pain disorders, heart disease, cancer, gastrointestinal disorders, and risky health behaviors (Leeb et al., 2011). Further, trauma is associated with mental health concerns including posttraumatic stress disorder, depressive disorders, anxiety disorders, and substance use disorders (Collimore et al., 2010; Cogle et al., 2010; Farley et al., 2004; Kessler et al., 2005; Laugharne et al., 2010). Eating disorders are an additional mental health consequence associated with trauma (Brewerton, 2007). However, given that not all individuals with trauma histories engage in disordered eating, it is important to identify other factors potentially influencing these pathways. For instance, coping-self efficacy might influence the relationship between trauma disordered eating.

Social cognitive theory defines self-efficacy as confidence regarding one's ability to successfully complete particular behaviors (Bandura, 1997). Coping-self efficacy (CSE) is a specific type of self-

efficacy in the domain of coping and is defined as belief in one's ability to cope with stressors (Chesney et al., 2006). CSE influences how an individual appraises stressors, including judgment of their control over the situation's outcome and belief in their ability to effectively cope with adverse events. Through these processes, CSE contributes to adaptive coping by enabling an individual to utilize appropriate strategies (Chesney et al., 2006). Research examining the relationship between trauma and CSE suggests CSE is associated with fewer posttraumatic stress symptoms and lower levels of distress (Benight, Ironson, Klebe et al., 1999; Bosmans & van der Velden, 2015; Cieslak et al., 2008; DeCou et al., 2019). Further, research demonstrates low CSE is associated with disordered eating behaviors, whereas improvements in CSE during eating disorder treatment predict decreased symptom severity at the end of treatment (Keshen et al., 2017; MacNeil et al., 2012). Despite the potential positive effects of CSE on trauma outcomes and disordered eating behaviors, there is a paucity of research examining these concepts together.

### **Purpose of the Study**

The purpose of this study was to explore the relationships between disordered eating behaviors, trauma, and coping self-efficacy. Specifically, the study examined whether CSE moderates the relationship between trauma and disordered eating behaviors. Additionally, I examined the relationship between trauma type (e.g., childhood sexual trauma, adult sexual trauma, childhood non-sexual trauma, adult non-sexual trauma) and disordered eating behaviors. Lastly, an aim of the study investigated potential differences based on participants' geographic location (i.e., rural vs. non-rural)

## CHAPTER 2

### LITERATURE REVIEW

#### Trauma

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), trauma is defined as, “Exposure to actual or threatened death, serious injury, or sexual violence” (American Psychiatric Association [APA], 2013, p. 271). Exposure entails direct experience of a traumatic event, witnessing the event, learning a loved one experienced the event, violent or accidental death of a loved one, or recurrent exposure to details of traumatic events. Specific examples of directly experienced traumatic events include combat exposure, physical assault (threatened or actual), sexual assault (threatened or actual), natural disasters, sudden life-threatening medical events, or serious motor vehicle accidents. Witnessed traumatic events might include observing another person sustain severe injuries, witnessing violent death, or witnessing assault or abuse (APA, 2013). Although responses to trauma vary, traumatic events are typically experienced as highly stressful and are often characterized by horror, helplessness, or fear (APA, 2013; Centers for Disease Control [CDC], 2016).

Trauma is not uncommon, and epidemiological studies demonstrate that many adults report at least one lifetime traumatic experience (Kessler, 2000; Kessler et al., 2017; Lui et al., 2017). For instance, Kessler et al. (2017) assessed adults in 24 countries for 29 lifetime traumas and found that 70.4% of participants endorsed at least one event. Further, results identified the most common trauma types as unexpected death of a close friend or family member (31.4%), witnessing or discovering death or severe injury (23.7%), and muggings (14.5%). Other common trauma types included life-threatening motor-vehicle accidents (14.0%), life-threatening illness (11.8%), physical assault (22.9%), sexual violence by an intimate partner (14.0%), and war-related trauma (13.1%; Kessler et al., 2017). Another study assessing 11 trauma types among United States adults found that 60.7% of men and 51.2% of women endorsed at least one event (Kessler, 2000). Within this sample, the most common trauma types included witnessing serious injury or death (50.1%), exposure to natural disasters (34.1%), and life-threatening assaults or accidents (38.8%; Kessler, 2000).

## **Childhood Trauma**

Studies examined the prevalence of childhood trauma (trauma experienced by a child under the age of 18; CDC, 2020). According to the CDC, the most common types of childhood trauma include physical abuse, sexual abuse, emotional abuse, and neglect (CDC, 2020). Childhood physical abuse (CPA) is physical violence against a child, including hitting, shaking, burning, or kicking. Child sexual abuse (CSA) is involving a child in sexual acts for which they are legally or developmentally unable to provide consent. Childhood Emotional Abuse or Childhood Psychological Abuse (CEA) encompasses behaviors damaging to a child's psychological or emotional well-being or diminishing their sense of self-worth, and includes threats, insults, shaming, rejection, and withholding affection. Finally, childhood neglect occurs when a caregiver does not appropriately address a child's basic needs, such as nutrition, education, housing, and medical care (CDC, 2020).

Childhood abuse and neglect are likely underreported, but recent reports estimate approximately one in seven children in the United States experience these events (CDC, 2020). Retrospective reporting indicates even higher incidence of childhood abuse and neglect. For instance, a study of adults in the United States examined prevalence of CPA, CSA, and CEA. Among men in the sample, 29.9% reported CPA, 16% reported CSA, and 7.6% reported CEA. For women, 27% reported CPA, 24.7% reported CSA, and 13.1% reported CEA (Dube et al., 2005). In a national study of adults in the United States, 8.4% reported CPA, 6% reported CSA, and 5.6% reported childhood neglect (Green et al., 2010). Regardless of where the true incidence rates lie, childhood abuse and neglect are detrimental occurrences associated with negative effects.

### ***Effects of Trauma***

Trauma is associated with myriad, well-documented negative effects. For instance, trauma exposure is associated with health-related consequences in adulthood. Specifically, a review of the literature conducted by Leeb et al. (2011) demonstrated adults with a history of abuse are more likely to experience pain disorders, migraines, gynecological pain, heart disease, cancer, chronic bronchitis, and gastrointestinal disorders compared to adults with no such history. Further, childhood abuse is associated

with increased somatic symptoms, risky health behaviors (e.g., smoking, alcohol use), poor social relationships, poor mental health, and obesity (Leeb et al., 2011).

Trauma history is also related to mental health concerns. For instance, in a large-scale international study, 4.0% of trauma-exposed adults developed posttraumatic stress disorder. Among this sample, rates of posttraumatic stress disorder varied considerably by trauma type, with the highest rates for rape (19.0%), physical abuse by an intimate partner (11.7%), kidnapping (11.0%), and sexual abuse not including rape (10.5%; Kessler et al., 2017). Trauma exposure is also associated with later occurrence of depressive disorders (Kessler et al., 2005; Laugharne et al., 2010), anxiety disorders (Collimore et al., 2010; Cogle et al., 2010; Laugharne et al., 2010), substance use disorders (Farley et al., 2004), and eating disorders (Brewerton, 2007). See the Trauma and Disordered Eating Behaviors section below for further information regarding the relationship between trauma and disordered eating.

Several studies show outcomes associated specifically with sexual trauma. For instance, in a meta-analysis conducted by Chen et al. (2010) history of sexual abuse was associated with increased risk of anxiety disorders, depressive disorders, posttraumatic stress disorder, sleep disorders, and eating disorders. Sexual abuse history also correlated to an increased risk of suicide attempt. Further, rape history increased the association between sexual trauma and depressive disorders, posttraumatic stress disorder, and eating disorders (Chen et al., 2010). Similarly, Kessler et al. (2017) found individuals with a history of rape reported the highest rates of posttraumatic stress disorder compared to other trauma types. In their sample, participants with a history of sexual abuse reported the fourth highest rates of posttraumatic stress disorder (Kessler et al., 2017).

**Trauma and Resilience.** Despite the negative outcomes associated with trauma exposure, not all individuals with trauma histories develop mental health concerns (Ahmed, 2007; Kessler et al., 2017; Meng et al., 2017). Thus, it appears some factors promote resiliency following trauma. Although various definitions of resilience exist, it is often defined as the ability to function adaptively despite potentially harmful circumstances (Bonanno, 2008; Meng et al., 2017). Many sources of resiliency are elucidated in the literature. For instance, a review by Meng et al., found that among individuals with a history of child

maltreatment, resilience was associated with adaptive functioning and reduced occurrence of mental health concerns, including depression, posttraumatic stress disorder, substance use, and psychological distress (Meng et al., 2017). Further, multiple variables related to increased resiliency, including individual factors (e.g., coping skills, self-regulation, locus of control, self-efficacy), familial factors (e.g., family environment, parental relationships, friendships, parenting), and societal factors (e.g., teachers, social support, school safety; Meng et al., 2017). Additionally, a literature review by Agaibi and Wilson (2005) suggests resilience following trauma involves an interaction between individual and environmental factors. The authors grouped resiliency factors into several categories examined in the literature, including personality variables (e.g., internal locus of control, self-efficacy, self-esteem, altruism), affect regulation, coping skills, and ability to recognize and employ coping resources (e.g., obtaining social support).

**Trauma and Rurality.** Research suggests rural individuals experience similar levels of trauma exposure as individuals in other locations. For instance, a national study comparing prevalence of trauma in rural and urban areas in the United States found no significant differences in lifetime diagnosis of posttraumatic stress disorder. There were no differences in overall trauma exposure, although rural participants were less likely to report war-related traumas compared to urban participants (McCall-Hosenfeld et al., 2014). Despite trauma prevalence rates in rural areas, rural populations commonly face disparities in mental health care, broadly categorized by lack of affordability, accessibility, and acceptability of services. For instance, rural individuals may lack health insurance, lack reliable transportation, live further away from services, and face stigma for seeking mental health care (Smalley & Warren, 2012). As a result, it is possible individuals in rural areas have fewer available resources compared to their non-rural counterparts to cope with the negative effects of trauma.

### **Disordered Eating**

Disordered eating refers to abnormal behaviors and attitudes related to food, such as food restriction, overeating, avoidance of particular foods, concealment of eating, guilt after eating, unhealthy weight-loss behavior, using laxatives or diet pills, and preoccupation with food (Bryla et al., 2003; Meyer

& Stanick, 2018). Although disordered eating and eating disorders share overlapping features, they differ in severity. Specially, eating disorders represent more severe disturbances in functioning and are included in the DSM-5 (APA, 2013; Bryla, 2003; Meyer & Stanick, 2008). Disordered eating behaviors are a risk factor for eating disorders, and thus can progress into a diagnosis (Bryla, 2003; Evans et al., 2017).

Evidence suggests eating disorders are more prevalent among women than men (Croll et al., 2002; Quick & Byrd-Bredbenner, 2013; Yu et al., 2018). According to the DSM-5, prevalence rates of anorexia nervosa and bulimia nervosa indicate an approximately 10:1 ratio of women to men (APA, 2013). Additionally, in a national sample of United States adults, the odds of lifetime and 12-month diagnosis of an eating disorder were higher for women compared to men. In this same sample, the lifetime prevalence of anorexia nervosa, bulimia nervosa, and binge-eating disorder were 0.80%, 0.28%, and 0.85%, respectively (Udo & Grillo, 2018).

Von Schell et al. (2015) investigated past month disordered eating behaviors in a sample of college students. Results indicate 59.8% of women in the study reported at least one overeating episode, 34.6% reported at least one objective binge-eating episode, and 31.9% reported at least one subjective binge eating episode. Other behaviors included excessive exercising (41.1%), self-induced vomiting (5.2%) and use of laxatives to lose weight (4.9%). For men, 26.7% reported at least one objective binge episode, 23% reported at least one subjective binge episode, 39.2% reported excessive exercise, 4.6% reported self-induced vomiting, and 2.9% reported using laxatives to lose weight (Von Schell et al., 2015). Another study of college students found 49% of women and 30% of men engaged in binge-eating and 31% of women and 29% of men reported compensatory behaviors (Lipson & Sonnevile, 2017).

Women generally report higher levels of disordered eating behaviors than men (Neumark-Sztainer et al., 2011; Striegel-Moore et al., 2009). However, there is evidence that types of disordered eating behaviors vary by gender. For instance, a study examining gender differences in disordered eating among young adults found 60.7% of women reported unhealthy weight control behaviors (e.g., food restriction, fasting, skipping meals, smoking cigarettes, using food substitutes) compared to 33% of men. In the same sample, 20.4% of women reported extreme weight control behaviors (e.g., using diet pills,

vomiting, taking laxatives, taking diuretics) compared to 7.3% of men (Neumark-Sztainer et al., 2011). For binge eating and use of excessive exercise, men are either more likely or equally likely to engage in these behaviors as women (Striegel-Moore et al., 2009).

The detrimental effects of eating disorders are well-documented and include a host of medical complications (Arcelus et al., 2011; Cass et al., 2020; Forney et al., 2016; Mitchell, 2016). For instance, patients with certain eating disorders (i.e., anorexia nervosa, bulimia nervosa, eating disorder not otherwise specified) face increased mortality rates, with the largest mortality rate for anorexia nervosa (Arcelus et al., 2011). Further, a literature review of medical complications associated with anorexia nervosa found patients often experience electrolyte and hormonal abnormalities, vitamin deficiencies, cardiac and respiratory complications, low bone density, gastrointestinal issues, and neurological abnormalities (e.g., impaired cognitive function, muscle weakness, brain atrophy; Cass et al., 2020). Further, a review of the literature regarding purging behaviors among patients with eating disorders indicated complications such as electrolyte imbalances, as well as damage to the mouth, teeth, esophagus, gastrointestinal tract, kidneys, heart, lungs, skin, bones, and muscles (Forney et al., 2016). For binge-eating behaviors among patients with eating disorders, medical complications include weight gain and metabolic abnormalities (Mitchell, 2016). Although disordered eating and eating disorders are distinct, disordered eating behaviors are also associated with significant health consequences, including growth disruptions, fatigue, and amenorrhea (Bryla, 2003).

Studies also identify mental health consequences associated with disordered eating behaviors. For instance, disordered eating behaviors are positively correlated with depressive symptoms, anxious symptoms, and compulsive behaviors (Quick & Byrd-Bredbenner, 2013). An additional study shows disordered eating behaviors are positively correlated with depression, body dissatisfaction, and feelings of ineffectiveness and insecurity (Ackard et al., 2002). Further, a longitudinal study found disordered eating behaviors at age 24 significantly predicted increased psychological distress ten years later (Karkkainen et al., 2018).

### **Coping Self-Efficacy**

Social cognitive theory defines self-efficacy as confidence regarding one's ability to successfully complete particular behaviors (Bandura, 1997). Coping-self efficacy (CSE) refers to self-efficacy in the domain of coping and is thus defined as belief in one's ability to cope with stressors (Chesney et al., 2006). Coping is defined as using methods to manage stressful situations and includes emotion-focused and problem-focused strategies. Emotion-focused coping efforts target emotional responses to stressors, whereas problem-focused coping strategies aim to change aspects of the situation (Chesney et al., 2006; Lazarus & Folkman, 1984).

The effectiveness of a given coping strategy depends on the fit between the controllability of the situation and the chosen coping strategy. Maladaptive coping, defined as using coping strategies that do not manage distress or address the problem, occurs when the chosen strategy does not match the situation. Specifically, using problem-focused coping strategies to address an uncontrollable stressor are ineffective, as aspects of the situation are unchangeable. Conversely, using emotion-focused coping strategies in response to a controllable stressor fails to address the underlying problem, and are thus ineffective (Chesney et al., 2006; Vitaliano et al., 1990).

According to stress and coping theory, stress arises from an interaction between the individual and the environment (Lazarus & Folkman, 1984). Specific coping strategies are chosen based on cognitive appraisal processes. First, in primary appraisal, a situation is identified as a stressor when an individual evaluates it as significant. Next, in secondary appraisal, the individual assesses available coping options and also judges whether or not they have control over the situation's outcome. CSE impacts these appraisal processes by influencing the individual's judgment of their control over the situation's outcome, and essentially represents the individual's belief in the ability to employ a chosen coping strategy (Bandura, 1997; Chesney et al., 2006; Lazarus & Folkman, 1984). Coping self-efficacy therefore contributes to adaptive coping processes through allowing the individual to utilize appropriate strategies (Chesney et al., 2006).

## **Trauma and Disordered Eating Behaviors**

Research demonstrates trauma is a non-specific risk factor for eating disorders (Brewerton, 2007; Jacobi et al., 2004; Mitchell et al., 2012). The non-specificity of trauma as a risk factor indicates trauma history is also a risk factor for other psychiatric disorders (Brewerton, 2007). Evidence shows that individuals with eating disorders are more likely to have trauma histories than individuals without eating disorders. Further, individuals with trauma histories report higher rates of disordered eating behaviors (Briere & Scott, 2007). For instance, one study using a national sample found that 100% of women with lifetime bulimia nervosa (BN) reported experiencing at least one trauma. Additionally, 90.33% of women with lifetime binge-eating disorder (BED) and 100% of women with lifetime anorexia nervosa (AN) reported trauma history. Similarly, 98.4% of men with a lifetime history of BED, 100% of men with a lifetime history of BN, and 100% of men with lifetime AN reported trauma history. Further, the rates of almost all trauma types assessed were higher among individuals with BN or BED compared to the general population (Mitchell et al., 2012). Additionally, a study comparing adolescent girls and young women with a diagnosed eating disorder to a control group found that individuals with eating disorders reported higher frequency of traumas and more trauma types compared to the nonclinical group (Lejonclou et al., 2014). Also, a study examining the relationship between trauma type, trauma severity, and disordered eating behaviors in college students found higher levels of trauma at college entry significantly predicted disordered eating behaviors both at college entry and over the first college semester (Smyth et al., 2008). Further, for individuals with a diagnosis of an eating disorder, trauma history is positively correlated with symptom severity, level of psychosocial impairment, rate of comorbid psychiatric diagnoses, and decreased self-image (Backholm et al., 2013).

### **Trauma Type**

Research investigating the relationship between trauma and disordered eating has included various types of trauma, including childhood abuse, sexual assault, sexual harassment, physical assault, physical abuse, emotional abuse, combat exposure, and neglect (Artditte Hall, et al., 2018; Brewerton, 2007).

### *Sexual Trauma*

Sexual trauma is specifically implicated as a risk factor for eating disorders. For instance, a meta-analysis conducted by Chen et al. (2010) found that history of sexual abuse was significantly associated with lifetime diagnosis of an eating disorder. Additionally, a study of 489 college women found recent sexual assault was positively correlated with disordered eating symptoms (Fischer et al., 2010). Further, Mitchell et al. (2012) found that compared to women without eating disorders, women diagnosed with BN or BED were more likely to report a history of sexual assault. Among men in this sample, those with BN or BED were more likely to report rape compared to men without eating disorders, and men with AN were more likely to report sexual assault than men without eating disorders (Mitchell et al., 2012). In addition, some evidence suggests sexual trauma is independently predictive of eating disorders. For instance, Gomez et al. (2020) found that among participants with multiple trauma types, sexual trauma independently predicted eating disorder symptoms. Specifically, when sexual trauma and all other trauma types assessed (i.e., combat exposure, motor vehicle accident, serious injury or illness) were entered into the model, only sexual trauma predicted disordered eating (Gomez et al., 2020). This suggests that sexual trauma might be particularly associated with disordered eating compared to other trauma types.

There is some evidence to suggest sexual trauma is associated with specific types of disordered eating patterns, particularly bulimic symptoms (e.g., binge eating, purging behaviors) (Brewerton, 2007). Further supporting this relationship, a meta-analysis conducted by Caslini et al. (2015) found the relationship between CSA and AN was non-significant after adjusting for publication bias. Additionally, a study conducted by van Gerko et al. (2005) found that among 299 women meeting criteria for an eating disorder, history of CSA was significantly correlated with bulimic symptoms, but not with restrictive or non-purging compensatory behaviors, such as exercise. Additionally, one study found bulimic symptoms among adolescents was up to five times higher for those with a history of CSA (Sanci et al., 2008). Similarly, Groleau et al. (2011) found that among 176 women with bulimic-spectrum disorders, 25% reported a history of CSA, compared to 7.2% of women in the nonclinical group.

### ***Non-Sexual Childhood Abuse***

In addition to childhood sexual abuse, research also demonstrates the relationship between other types of childhood abuse and disordered eating. For instance, a meta-analysis conducted by Caslini et al. (2015) found all types of child abuse are consistently and positively associated with eating disorders. Specifically, childhood physical abuse (CPA) was associated with all eating disorder types studied, whereas childhood emotional abuse (CEA) was associated with BN and BED (Caslini et al., 2015). Additionally, a study of individuals with bulimic-spectrum eating disorders found rates of CPA and CEA were significantly higher in the eating disorder group compared to the nonclinical control group (Groleau et al., 2011). Further, Minnich et al. (2017) found that childhood physical and emotional neglect were both associated with binge-eating in adulthood. Similarly, Coffino et al. (2020) found a significant difference in prevalence of eating disorders among adults with a history of childhood food neglect compared to adults with no history.

Although trauma is clearly established as a risk factor for disordered eating, the non-specific nature of the relationship suggests other factors are involved. Individuals who experience trauma are at risk for developing a number of different psychological disorders beyond eating disorders (Brewerton, 2007). It is therefore important to identify other factors that might provide further knowledge regarding these pathways.

### **Disordered Eating Behaviors and Coping Self-Efficacy**

Several studies have examined the relationship between self-efficacy and disordered eating behaviors. For instance, Glasofer et al., (2013) found that in a sample of adolescent girls at risk for inappropriate weight gain, participants with higher general self-efficacy and eating self-efficacy (e.g., confidence in ability to avoid disordered eating behaviors) exhibited fewer instances of loss of control eating episodes. Similarly, Berman (2006) found lower eating self-efficacy was significantly associated with disordered eating behaviors among a sample of college students. Other studies specifically examined the relationship between disordered eating and self-efficacy in the domain of coping (e.g., coping-self efficacy). MacNeil et al. (2012) examined the relationships among daily stressors, coping style, coping

self-efficacy, and eating disordered attitudes and behaviors in a sample of college students. Results indicate coping self-efficacy significantly correlates with disordered eating behaviors such that individuals with lower coping self-efficacy were more likely to report disordered eating behaviors, regardless of level of daily stress (MacNeil et al., 2012).

Coping self-efficacy is also related to treatment outcomes. For instance, in one study of individuals diagnosed with eating disorders who were receiving inpatient care, eating disorder recovery self-efficacy (e.g., confidence in one's ability to recover from an eating disorder) at admission inversely correlated with length of hospital stay, post-treatment drive for thinness, and post-treatment body dissatisfaction. Eating disorder recovery self-efficacy was also associated with hospital weight gain rate. Further, eating disorder self-efficacy was a more robust predictor for length of hospital stay and post-treatment body dissatisfaction than symptoms at admission (Pinto et al., 2008). Similarly, in a study of a self-help treatment for BN, Steele et al. (2011) found that confidence in one's ability to change was the strongest predictor of treatment outcome compared to other factors (e.g., automatic thoughts, self-esteem, and eating disorder-related psychopathology). Additionally, Keshen et al. (2017) found that in a sample of individuals receiving outpatient care and diagnosed with eating disorders, improvements in coping self-efficacy during treatment predicted decreased symptom severity at the end of treatment, even after controlling for baseline symptom severity and negative emotions.

Research suggests coping self-efficacy is potentially related to disordered eating symptoms and treatment outcomes. When an individual lacks confidence in the ability to cope with stressors, maladaptive coping strategies such as disordered eating behaviors might arise (Chesney et al., 2006; Keshen et al., 2017). However, coping self-efficacy and its relationship to disordered eating is currently understudied in the literature.

### **Trauma and Coping Self Efficacy**

According to social cognitive theory, self-efficacy is central to an individual's sense of agency and belief in their power to influence life events (Bandura, 1997). Due to the uncontrollable nature of traumatic events, coping self-efficacy might allow individuals to regain a sense of control. Further,

following a traumatic event, coping self-efficacy might enable individuals to persevere through challenges and foster resilience. Theoretically, coping self-efficacy impacts psychological outcomes following a traumatic experience through several mechanisms, including attention and construal processes, transformative actions, and thought control efficacy (Benight & Bandura, 2004).

Attention and construal processes refer to how individuals attend to and interpret threats. As part of the threat appraisal process, individuals determine whether they believe they possess sufficient coping abilities to match the perceived threat. When coping self-efficacy is high, individuals view the environment as less threatening, and view potential threats as more manageable. Conversely, low coping self-efficacy leads to increased attention to threats, higher perceived danger of threats, and beliefs in the unmanageability of threats (Bandura, 1997; Benight & Bandura, 2004). As a result of these processes, individuals with low coping self-efficacy might lack a sense of control over events, which in turn increases adverse responses to events. Research demonstrates that sense of control influences psychological reactions. For instance, Kaufmann et al. (2019) manipulated sense of control over a task and found that participants in the low control condition reported increased negative emotions, whereas participants in the high control condition reported decreased negative emotions. In addition, a study of participants with posttraumatic stress disorder found that sense of control significantly predicted treatment maintenance (Livanou et al., 2002).

Coping self-efficacy also impacts stress reactions through transformative actions, which refers to the manner in which individuals cope with stressors. Specifically, coping self-efficacy beliefs influence the type of coping strategy chosen to address the situation and persistence in coping attempts (Benight & Bandura; Pisanti, 2012). High coping self-efficacy beliefs enable individuals to choose active coping strategies, such as altering the stressful environment (Benight & Bandura, 2004). For instance, a study of participants who experienced a hurricane found that higher CSE was associated with active coping strategies, whereas low CSE was associated with avoidant coping (Benight, Ironson, Klebe, et al., 1999). Moreover, coping self-efficacy promotes cognitive and affective regulation, which enhance coping abilities. When individuals believe in their ability to manage situations, they display less affective and

cognitive stress reactions, and thus improve their ability to enact coping strategies. Additionally, coping self-efficacy influences beliefs regarding the ability to regulate cognitive and affective processes.

Individuals with high coping self-efficacy believe in their ability to control and regulate thoughts and emotions following a traumatic event, which decreases their distress (Benight & Bandura, 2004).

Several studies have examined the relationship between CSE and trauma. For instance, Bosmans & van der Velden (2015) examined the relationship between CSE and posttraumatic stress disorder symptoms over time. Participants were assessed four times at four-month intervals. Results indicated that CSE more strongly predicted PTSD symptoms over time than earlier symptom levels. Specifically, higher levels of CSE correlated with lower reported PTSD symptoms (Bosmans & van der Velden, 2015). Additionally, a study by Bosmans et al. (2014) examined CSE among participants with burn injuries. A linear growth curve model demonstrated that higher initial CSE predicted lower initial posttraumatic stress disorder symptoms, and also predicted a greater decrease in symptoms over time. CSE was significantly predictive even when controlling for demographics, number of surgeries, coping styles, and health related quality of life (Bosmans et al., 2014). In a study of participants who experienced a motor vehicle accident, the relationship between negative cognitions and posttraumatic distress were significantly mediated by CSE (Cieslak et al., 2008). Benight et al. (2008) also examined the relationship between CSE and posttraumatic distress following a motor vehicle accident. The study included data from seven days post-accident, 1-month post-accident, and 3 months post-accident. CSE levels at 1-month post-accident significantly mediated the relationship between posttraumatic distress at time 1 and posttraumatic distress at three months. These results suggest that higher CSE might reduce posttraumatic distress over time (Benight et al., 2008).

Researchers have also examined the relationship between CSE and trauma in the context of natural disasters. For instance, Benight, Ironson, Klebe et al. (1999) obtained a sample of participants who survived a hurricane and measured loss of resources, CSE, and coping behaviors. Results indicated that CSE partially mediated the relationship between loss of resources and distress (Benight, Ironson, Klebe et al., 1999). Similarly, an additional study of hurricane survivors found that among CSE, lost resources,

social support, and optimism, CSE more strongly predicted both general and trauma-related distress compared to the other variables. CSE also significantly mediated the relationships between each of these variables and traumatic distress (Benight, Swift, Sanger et al., 1999). Also, a study examining self-efficacy and posttraumatic stress in inhabitants of a cyclone prone location found that participants reporting lower stress also reported higher self-efficacy (Pooley et al., 2012).

Additional studies investigated the relationship between coping self-efficacy and sexual trauma. For instance, DeCou et al. (2019) included a sample of undergraduate sexual assault survivors to examine the relationship between negative reactions to sexual assault disclosure and posttraumatic stress symptoms. The authors found that trauma coping self-efficacy significantly mediated the relationship (DeCou et al., 2019). An additional study examining the relationship between CSE and posttraumatic distress in women with a history of child sexual abuse found that CSE was negatively related to posttraumatic distress. Also, CSE significantly mediated the relationship between negative cognitions and posttraumatic distress (Cieslak et al., 2008).

### **Current Study**

Research demonstrates trauma is a risk factor for disordered eating. However, the risk is non-specific, and not all individuals with a history of trauma display disordered eating behaviors (Brewerton, 2007). Thus, it is important to determine what factors might moderate this relationship. CSE appears to impact the relationship between trauma and psychological outcomes (Bosmans et al., 2014; Bosmans & van der Velden, 2015; Cieslak et al., 2008; DeCou et al., 2019), and correlates with lower eating disordered behaviors (MacNeil et al., 2012). Given this evidence, it is important to investigate the potential effect of CSE on the relationship between trauma and disordered eating.

The current study investigated the following:

- Study Aim 1: The study aimed to explore potential differences by geographic area (rural vs. non-rural). While no differences are previously documented regarding prevalence of trauma for rural vs. nonrural individuals, the paucity of resources available might exacerbate the effects of trauma. Further, given the lack of resources in rural areas, if coping self-efficacy significantly moderates

the relationship between trauma and disordered eating, bolstering coping self-efficacy might be an important strategy for this population.

- Hypothesis 1a: Prior research identifies trauma as a non-specific risk factor for eating disorders. Further, evidence suggests individuals with a history of trauma are more likely to engage in disordered eating behaviors. I therefore predicted participants who endorsed trauma experiences would report higher levels of disordered eating compared to participants with no trauma history.
- Hypothesis 1b: Previous research examined the beneficial effects of CSE on trauma outcomes and disordered eating. Given this evidence, I predicted CSE would significantly moderate the relationship between trauma and disordered eating, such that participants with trauma history and higher levels of CSE would display lower levels of disordered eating behaviors compared to those with lower levels of CSE.
- Hypothesis 2: Research shows associations between trauma type and disordered eating. The current study examined the relationship between trauma type and disordered eating. Given the potentially unique association of sexual trauma with disordered eating, categories of trauma type included non-sexual and sexual trauma. Further, trauma type was categorized by age, with childhood trauma defined as first experiencing trauma when under the age of 18. I predicted the strongest association would be between childhood sexual trauma and disordered eating, followed by adult sexual trauma, non-sexual childhood trauma, non-sexual adult trauma, and no trauma history.

## CHAPTER 3

### METHOD

#### **Participants**

A national community sample of 1,115 adults were recruited for the online study via Amazon's Mechanical Turk (MTurk). Participants must have been legally able to provide consent (i.e., at least 18 years of age) and currently residing in the United States at the time of participation. They must have been able to read English. There were no other exclusion or inclusion criteria for participation. Following data cleaning for non-participation and failure to respond correctly to attention check items, 777 participants were retained for data analysis (see RESULTS below for information on data cleaning procedures). Most participants identified as White (580; 74.6%), with 82 (10.5%) identifying as African American/Black, 50 (6.4%) identifying as Asian/Asian American, 31 (4.0%) identifying as Hispanic/Latinx, and 20 (2.6%) identifying as Native American/American Indian/First Nations or Pacific Islander. Further, 299 participants (38.4%) were women and 476 (61.2%) were men. Participant mean age was 38.22 ( $SD = 11.4$  years). See Table 1 for full demographic information.

#### **Procedure**

The study was conducted in an online survey format, with participants recruited via Amazon's Mechanical Turk (MTurk). Research demonstrates MTurk is a valid, high-quality, and inexpensive method for data collection (Buhrmester et al., 2011). Additionally, the reliability of data collected via MTurk is comparable to data obtained through traditional methods (Buhrmester et al., 2011). The online survey was created and housed on Qualtrics, with the link shared with participants who volunteered to participate on MTurk.

Participants who meet inclusion criteria were provided with a link to the study. Participants read the informed consent document and responded to a question to indicate their consent to participate ("I freely agree to participate in the study."). All surveys were presented in random order, except for the demographic questionnaire, which appeared last for all participants. After the completion of the study,

participants viewed debriefing information, including a list of crisis resources. Finally, instructions on how to receive payment were provided. Participants received a payment of \$1.00 for their participation.

**Table 1**

*Participant Demographics*

Variables	Mean	Standard Deviation
Age	38.2	11.4
	Frequency	Percent
Gender		
Women	299	38.4
Men	476	61.2
Non-binary	1	0.1
Race		
White/Caucasian	580	74.6
African American/Black	82	10.5
Asian/Asian American	50	6.4
Hispanic/Latinx	31	4.0
Native American/First Nations	18	2.3
Other	12	1.7
Geographic Area (grew up)		
Rural	328	42.2
Non-rural	449	57.7
Geographic Area (current)		
Rural	285	36.7
Non-rural	491	63.3
Sexual Orientation		
Heterosexual	626	80.5
Bisexual	125	16.1
Lesbian	10	1.3
Other	3	0.4

**Measures**

**Disordered eating.** Participants completed The Eating Disorder Examination Questionnaire (EDE-Q; Fairburn et al., 1994), a 28-item measure of disordered eating behaviors. The EDE-Q is a self-report questionnaire previously utilized in undergraduate populations, community samples, and clinical samples (Jennings & Phillips, 2017). The questionnaire measures the extent to which an individual engaged in disordered eating attitudes or behaviors over the past 28 days. Ratings for questions one through 12 are made on a scale, ranging from 0 (*No days*) to 6 (*Every day*). Questions 13 through 18 ask respondents to write in the number of days out of the past 28 when they engaged in particular behaviors.

Questions 19-28 ask participants to rate items on a Likert Scale ranging from 0 (*Not at all*) to 6 (*Markedly*). Sample items include, “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)?,” “How many times have you eaten what other people would regard as an unusually large amount of food (given the circumstances),” and “How many times have you made yourself sick (vomit) as a means of controlling your shape or weight?.” The EDE-Q demonstrated high internal consistency ( $\alpha = .90$ ; Peterson et al., 2007) and good construct validity (Berg et al., 2012). The EDE-Q is correlated with other measures of eating disorder symptoms (Berg et al., 2012). The EDE-Q includes a full-scale score and four subscales, Restraint, Eating Concern, Shape Concern, and Weight Concern (Fairburn et al., 1994). For the purposes of the current study, the full-scale score was utilized. In the current study, the EDE-Q demonstrated excellent internal consistency ( $\alpha = .97$ ).

**Trauma history.** Participants completed a Trauma Questionnaire created for this study to assess experiences of traumatic events. Participants indicated whether they experienced or directly witnessed each trauma type, including combat exposure, serious accidents, natural disasters, serious illness, crimes, physical assault or abuse, sexual assault or abuse, or childhood neglect. See Appendix for full measure.

**Coping self-efficacy.** The Coping Self-Efficacy Scale (CSE scale; Chesney et al., 2006) is a 26-item self-report scale measuring coping self-efficacy, which is the respondent’s confidence in the ability to cope with difficulties. Respondents were provided with a prompt stating, “When things aren’t going well for you, or when you’re having problems, how confident or certain are you that you can do the following.” Respondents then rated each item on an 11-point scale from 0 (*Cannot do at all*) to 10 (*Certain can do*). The anchor 5 (*Moderately certain can do*) is also provided. Sample items include, “Break an upsetting problem down into smaller parts,” “Talk positively to yourself,” and “Get friends to help you with the things you need.” The CSE scale demonstrates strong internal consistency, ranging from  $\alpha = .80-.91$ . The scale also demonstrates good convergent and discriminant validity and is correlated with the use of specific coping skills. The CSE scale includes three factors, *use problem-focused coping*, *stop unpleasant emotions and thoughts*, and *get support from friends and family* (Chesney et al., 2006).

For the current study, the full-scale score was used. For the current study, the CSE scale showed acceptable internal consistency ( $\alpha = .79$ ).

**Demographics.** Participants provided their demographic information, including age, gender, gender identity, sexual orientation, ethnicity/race, employment status, education attainment, and geographic location (e.g., rural, suburban, urban). See Appendix for full measure.

**Data accuracy.** To ensure data accuracy, participants responded to attention questions to eliminate data from participants who randomly responded to the study materials. These questions, embedded in the standardized measures, consisted of multiple-choice items which participants were instructed to leave blank. There were three attention questions. Participants must have correctly answered two of the three questions for their data to be included in analyses. In addition, participants who completed the surveys in significantly less time than the mean were eliminated from data analyses. Finally, to eliminate the chance data are collected from a “bot,” a CAPTCHA item was added at the beginning of the survey. The data were checked for potential data entry errors and outliers. Descriptive analyses were conducted to examine sample characteristics and correlations among the variables

## CHAPTER 4

## RESULTS

**Data Cleaning**

The data were cleaned prior to analysis. First, 205 participants were removed due to non-completion. Next, 26 participants were removed due to attention check failure. Seven participants were removed for non-response to 10% or more items on the CSE scale. No participants were removed for non-completion of the other surveys. Duration of the survey was examined to determine whether participants spent at least one second per survey item. No participants were removed due to short completion time. After the cleaning process, 777 participants remained for data analysis.

**Data Analyses**

**Aim 1.** A one-way multivariate analysis of variance (MANOVA) was conducted to examine potential differences based on geographic location (e.g., rural, non-rural) on eating (EDE-Q), coping self-efficacy (CSE), and trauma (i.e., trauma or no trauma). The Box's M value of 1.02 was non-significant ( $p = .408$ ) which indicated the homogeneity of covariance assumption was met. There was a statistically significant difference in the dependent variables based on geographic location ( $F(3, 772) = 6.79, p < .001$ ; Wilk's  $\Lambda = 0.972, \eta^2 = .026$ ). A follow-up analysis using Tukey's test indicated a statistically significant difference on eating ( $F(1, 774) = 19.17, p < .001$ ) such that rural participants scored significantly higher on the EDE-Q than non-rural participants. Due to significant differences between rural and non-rural participants on eating, location was added as a covariate for the remaining analyses.

**Hypothesis 1a and 1b.** A moderation analysis was conducted using the PROCESS macro for SPSS to test the hypotheses that trauma is positively related to disordered eating and that this relationship would be significantly moderated by coping self-efficacy. Location was entered as a covariate in the model. The overall model was significant ( $F(4, 771) = 14.66, p < .001, R^2 = .070$ ). Coping self-efficacy did not significantly moderate the relationship between trauma and disordered eating, controlling for location ( $p = .401$ ). Examination of simple slopes demonstrated that, contrary to expectations, coping self-efficacy was positively related to disordered eating ( $b = 0.004, s.e. = .002, p = .036$ ). There was a

significant relationship between location and disordered eating ( $b = 0.491$ ,  $s.e. = 0.115$ ,  $p < .001$ ) such that rurality was associated with a higher score on the EDE-Q.

**Hypothesis 2.** A one-way analysis of covariance (ANCOVA) was conducted to test the hypothesis that individuals who report a history of sexual trauma experience higher levels of disordered eating than those with different types of trauma experiences (childhood sexual trauma history, adulthood sexual trauma history, childhood trauma history not including sexual trauma, adulthood trauma history not including sexual trauma, and no trauma history). Location (rural, non-rural) was controlled for. There was a significant difference in eating behaviors ( $F(4, 712) = 29.583$ ,  $p < .001$ ,  $\eta^2 = 0.143$ ) between trauma types controlling for location. Levene's test indicated that the homogeneity of variance assumption was violated ( $F(4, 711) = 5.087$ ,  $p < .001$ ). Thus,  $p < .001$  was utilized as the alpha level. Post-hoc tests indicated significant differences between child sexual trauma and no trauma ( $p < .001$ ), child sexual trauma and adult non-sexual trauma ( $p < .001$ ), and child non-sexual trauma ( $p < .001$ ). Scores on the EDE-Q were significantly higher for participants reporting child sexual trauma ( $M = 4.595$ ) compared to no trauma ( $M = 3.142$ ), adult non-sexual trauma ( $M = 3.184$ ), and child non-sexual trauma ( $M = 2.984$ ).

**Table 2**

*Effect of Location on Study Variables (Aim 1)*

Variables		Mean	Standard Deviation	N
Trauma	Non-Rural	0.611 <sup>a</sup>	0.488	491
	Rural	0.667 <sup>a</sup>	0.472	285
CSE	Non-Rural	199.945 <sup>a</sup>	52.041	491
	Rural	200.472 <sup>a</sup>	50.296	285
EDE-Q	Non-Rural	3.270 <sup>a</sup>	1.577	491
	Rural	3.782 <sup>b</sup>	1.558	285

$F(3, 772) = 6.79$ ,  $p < .001$

Note. Means with superscripts are significantly different at the  $p < .001$  level.

**Table 3***Moderation Model (Hypotheses 1a and 1b)*

Model Summary					
R	R-squared	F	df1	df2	<i>p</i>
0.266	0.071	14.668	4.000	771.000	0.000**
Model					
	Coefficient	Standard Error	t	<i>p</i>	
Constant	2.248	0.359	6.260	0.000	
Trauma	0.071	0.458	0.155	0.877	
CSE	0.004	0.002	2.106	0.036*	
Interaction	0.002	0.002	0.851	0.401	
Location	0.491	0.115	4.279	0.000**	

$F(4, 771) = 14.66, p < .001$

Note. An asterisk denotes significance at the  $p < 0.05$  level. Two asterisks denote significance at the  $p < 0.01$  level.

**Table 4***Effect of Trauma Type on Disordered Eating (Hypothesis 2)*

Trauma Type	Mean	Standard Deviation	<i>N</i>
No Trauma	3.15 <sup>a</sup>	1.59	287
Adult Non-Sexual Trauma	3.18 <sup>a</sup>	1.45	120
Child Non-Sexual Trauma	2.98 <sup>a</sup>	1.40	148
Adult Sexual Trauma	3.95	0.96	12
Child Sexual Trauma	4.59 <sup>b</sup>	1.33	150

$F(4, 712) = 29.583, p < .001$

Note: Means with different superscripts are significantly different at the  $p < .001$  level.

## CHAPTER 5

### DISCUSSION

The current study investigated the relationships among disordered eating behaviors, trauma history, and coping self-efficacy (CSE). The study examined whether CSE moderated the relationship between trauma and disordered eating behaviors. Further, I examined the relationship between trauma type (e.g., childhood sexual abuse, adult sexual trauma, childhood non-sexual trauma, adult non-sexual trauma) and disordered eating behaviors. An additional aim of the study was to examine potential differences based on participants' geographic location (rural, non-rural). Participants completed online surveys measuring disordered eating behaviors and coping self-efficacy. They also completed questionnaires of trauma history and demographic information. I expected CSE would significantly moderate the relationship between disordered eating and trauma, such that participants with trauma history and higher levels of CSE would report lower levels of disordered eating compared to participants with lower levels of CSE. Further, I expected different types of trauma would be more strongly associated with disordered eating. Specifically, I predicted childhood sexual trauma would be most strongly associated with disordered eating, followed by adult sexual trauma, non-sexual childhood trauma, non-sexual adult trauma, and no trauma history. Given limited research examining geographic location and study variables, no hypothesis was developed regarding rural/non-rural differences.

#### **Rurality**

Results indicated significant differences by location (rural, non-rural) for disordered eating. Specifically, participants residing in rural areas reported higher levels of disordered eating compared to participants in non-rural areas. Prior research on differences in disordered eating in rural and non-rural areas is limited. One study of rural adolescents found that 19.8% of females and 3.7% of males scored above the clinical cutoff on a measure of disordered eating behaviors, indicating high risk of developing an eating disorder (Miller et al., 1999). Another study of rural adolescents found that compared to national norms, rural adolescent boys were two times as likely to use food restriction (i.e., fasting for 24 hours or longer) to control body weight, and rural adolescent girls were three times as likely to engage in

this behavior when compared to their non-rural counterparts (Batchelder et al., 2021). It is essential to further investigate the prevalence of disordered eating behaviors in rural areas, as these studies and the current study indicate rural populations experience these concerns to a greater extent than those not in rural areas.

Although few studies examine disordered eating in rural areas, evidence demonstrates obesity rates are higher in rural areas. Obesity, defined as body mass index of 30 kg/m<sup>2</sup> or higher, is about 6.2 times higher in rural areas compared to urban areas (Okobi et al., 2021). Obesity is not synonymous with disordered eating. However, research demonstrates obesity and eating disorders are often comorbid. For instance, a study of 1,383 adults with eating disorders found that 33% of participants diagnosed with bulimia nervosa and 87% of participants diagnosed with binge eating disorder had obesity at some time (Villarejo et al., 2012). Individuals with obesity face negative social attitudes and discrimination about their body weight and shape, which in turn, may increase body dissatisfaction and pose a risk for developing disordered eating behaviors (da Luz et al., 2018). For example, individuals with obesity might engage in food restriction to attempt to lose weight, which can increase susceptibility to periods of binge-eating and preoccupation with food (da Luz et al., 2018). Although the development of obesity is multifaceted, research identifies several key factors contributing to obesity in rural areas, including food insecurity, higher poverty rates, decreased access to healthcare, and less physical activity (Okobi et al., 2021).

### **Food Insecurity and Rural Areas**

One potential explanation for the observed differences by geographic area is the prevalence of food insecurity and food deserts in rural areas (Kegler et al., 2014; Piontak et al., 2014; Rodriguez et al., 2016; Sano et al., 2010). Food insecurity refers to a lack of access to an adequate amount or quality of food for household members (Coleman-Jensen et al., 2020). Multiple factors influence the high rates of food insecurity in rural areas. First, rural areas are frequently food deserts, meaning residents lack access to affordable and nutritious foods. Definitions of rural food deserts vary, although one metric is distance of ten miles or more from food outlets (Rodriguez et al., 2016). People living in rural areas often live

longer distances from food outlets compared to those in non-rural areas. Further, rural areas frequently lack public transportation, and residents often do not have access to personal vehicles. The cost of fuel further limits the ability to travel to food outlets. In addition, walking to stores is constrained by both distance and difficult terrain, such as lack of sidewalks (Piontak et al., 2014; Rodriguez et al., 2016). These transportation barriers can result in purchasing food from closer options such as convenience stores or gas stations, which offer limited options for fresh and nutritious food (Rodriguez et al., 2016). Rural locations also experience higher food costs due to distribution barriers, which especially impacts low income rural individuals (Piontak et al., 2014).

Food insecurity is associated with lower income, which is prevalent in rural populations. According to the United States Department of Agriculture, in 2019 the poverty rate in rural areas was 15.3% compared to 11.9% in urban areas (Coleman-Jensen et al., 2020). Rural populations experience high rates of unemployment and underemployment, and lack access to supports for employment, such as educational opportunities and childcare. These factors contribute to the high rates of poverty in rural areas (Piontak et al., 2014). Low income individuals in rural areas also lack access to social services that might mitigate food insecurity, such as food pantries and soup kitchens, as these supports are less prevalent in rural areas or require transportation (Piontak et al., 2014; Rodriguez et al., 2016). Use of social service benefits may be further impeded in rural areas due to stigma associated with receiving federal assistance (Rodriguez et al., 2016).

### **Food Insecurity and Disordered Eating Behaviors**

Studies demonstrate food insecurity is associated with disordered eating behaviors (Becker et al., 2017; Tester et al., 2016). One proposed reason for this finding is that food insecurity involves periods of inadequate food availability interspersed with periods of availability of inexpensive, palatable, and calorically dense foods. During periods of availability, binge eating behaviors might occur (Tester et al., 2016). Further, periods of binge eating might result in compensatory or restricting behaviors to decrease discomfort (Becker et al., 2017). Studies demonstrate that adults experiencing food insecurity report higher levels of binge eating (Becker et al., 2017; Tester et al., 2016). Additionally, food insecurity is

associated with other disordered eating behaviors. For instance, in a sample of urban adults, in addition to higher levels of binge eating, higher levels of food insecurity were associated with higher rates of overall disordered eating behaviors, restricting behaviors, compensatory behaviors, weight self-stigma, and weight worry (Becker et al., 2017).

### **Trauma, Disordered Eating, and CSE**

Inconsistent with expectations, CSE did not significantly moderate the relationship between trauma and disordered eating, controlling for location. Further, participants reporting higher levels of CSE reported higher levels of disordered eating behaviors compared to participants with lower levels of disordered eating behaviors. This finding was contrary to expectations, as I predicted CSE would significantly moderate the relationship between trauma and disordered eating such that participants with higher CSE would report lower levels of disordered eating behaviors.

Several factors might explain this finding. First, it is possible that participants reporting high CSE have strong beliefs in their ability to cope, but they also utilize maladaptive coping strategies, such as disordered eating behaviors. In maladaptive coping, the individual uses strategies that do not manage distress or address the problem and occurs when the chosen coping strategy does not fit the stressful situation (Chesney et al., 2006; Vitaliano et al., 1990). CSE represents the belief an individual has in their ability to employ a given coping strategy (Chesney et al., 2006) and thus does not capture whether the chosen strategy is adaptive or maladaptive. In this case, disordered eating behaviors might represent a maladaptive, emotion-focused coping strategy. Additionally, the relationship between coping self-efficacy and disordered eating is understudied in the literature. Based on the current study, CSE is not associated with lower disordered eating behaviors and thus does not emerge as a significant moderator between trauma and disordered eating.

Further, given the findings of differences in the relationships between different trauma types and disordered eating behaviors, it is possible that including trauma as a general variable (trauma, no trauma) failed to demonstrate a significant relationship. In particular, the study demonstrated that childhood sexual trauma was more strongly related to disordered eating than adult non-sexual trauma and childhood

non-sexual trauma. Future studies could investigate CSE as a potential moderator between specific trauma types and disordered eating. In particular, CSE might be examined as a moderator in the relationship between childhood sexual trauma and disordered eating.

### **Trauma Type**

Results demonstrated that participants with a history of childhood sexual trauma reported higher levels of disordered eating compared to participants with a histories of childhood non-sexual trauma, adult non-sexual trauma, and no trauma history. These findings were consistent with a large body of literature demonstrating the relationship between childhood sexual trauma and disordered eating. I hypothesized childhood sexual trauma would be most strongly associated with disordered eating, followed by adult sexual trauma, non-sexual childhood trauma, non-sexual adult trauma, and no trauma history. Inconsistent with expectations, no other group differences were observed.

Interpretation of the analysis of differences by trauma type are limited in the current study. Specifically, the analysis of the relationship between trauma type and disordered eating did not meet the homogeneity of variance assumption. Although the findings were significant at a  $p < .001$  level, this violation can increase the probability of falsely rejecting the null hypothesis. The unequal group sizes for trauma types may explain the violation. The relationship between trauma types and disordered eating should be examined in future studies with more equal sample sizes between types to further clarify these relationships.

### **Strengths of the Study**

The current study has several strengths. First, in the design of the study, the embedded attention checks and the data cleaning procedure attempted to reduce low-quality data. An additional strength of the study is the inclusion of geographic location as a variable. Although rurality is understudied in the literature on disordered eating, such contextual factors are key influences on eating behaviors (Kegler et al., 2014). Indeed, results of the current study indicated significant differences in disordered eating behaviors when comparing rural to non-rural participants.

## **Clinical Implications**

Disordered eating behaviors are associated with a host of negative impacts, and previous research identifies trauma as a non-specific risk factor for disordered eating (Brewerton, 2007). The current study demonstrates that the relationship between childhood sexual trauma and disordered eating is particularly important, as participants reporting a history of childhood sexual trauma reported higher levels of disordered eating compared to participants with childhood non-sexual trauma, adult non-sexual trauma, or no trauma history. When working with clients with a history of trauma, especially childhood sexual trauma, clinicians should consider this potential association with disordered eating behaviors.

Further, differences in disordered eating by location (rural, non-rural) emerged, such that participants in rural areas reported higher levels of disordered eating compared to non-rural participants. Clinicians should consider how rural populations might display greater levels of disordered eating behaviors. Previous research demonstrates that rural populations have less access to mental health services overall, including lack of affordability, accessibility, and acceptability of services (Smalley & Warren, 2012). Rural populations further lack access to clinicians with training or specialization in disordered eating (Kazdin et al., 2017). Resultingly, disordered eating in rural populations might go unrecognized and undertreated. Thus, it is important to increase training opportunities for rural clinicians in identifying and treating disordered eating behaviors. In addition, rural individuals are more likely to visit primary care physicians rather than mental health care facilities, due to lack of available mental health services and stigma surrounding mental health care (Bender, 2016). Thus, training rural physicians in screening for disordered eating behaviors may be a key strategy for mitigating disordered eating behaviors in this populations.

## **Limitations**

The current study has several limitations. First, the data were collected through an online platform. Although previous research suggests online data collection is comparable to in-person collection (Buhrmester et al., 2011), it is possible that participants did not give adequate attention to

survey items without a researcher present. I attempted to mitigate this limitation by embedding attention check questions in the surveys. Second, interpretations of the differences in the relationship between trauma and disordered eating by trauma type are limited by small sample sizes. In particular, the number of participants reporting adult sexual trauma was lower than other trauma types, which may have resulted in the failure to meet homogeneity of variance in the initial analysis. Future studies that utilize larger sample sizes might obtain larger sample sizes for each trauma type potentially yielding more robust results.

### **Future Directions**

The current study provides important implications for further research. First, the current study adds to the literature on differences by geographic location on disordered eating. Results demonstrated that participants residing in rural areas reported higher levels of disordered eating on the EDE-Q. Future research examining the relationship between trauma and disordered eating should consider geographic location, as this relationship might differ in rural vs. non-rural locations. Future directions for research include identifying factors contributing to disordered eating in rural areas as well as examining whether certain types of disordered eating behaviors are more prevalent in rural populations compared to non-rural populations (e.g., binge-eating, restricting, etc.). In addition, the current study compared differences by current geographic location. Research on the impacts of food insecurity indicate food insecurity during childhood may exert particularly negative impacts on eating behaviors in adulthood (Becker et al., 2017). Further research might examine potential differences in disordered eating for those who grew up in a rural area compared to current residence in a rural area.

Research might also examine different rural regions, as barriers might vary. For instance, rural regions in the South and Southwestern United States have greater levels of poverty that might further exacerbate food insecurity. Rural populations in the South are also more unlikely to own a personal vehicle, which augments transportation difficulties associated with food insecurity (Piontak et al., 2014). Further research might also examine rural/non-rural differences for people with marginalized racial or ethnic identities. These factors might further exacerbate barriers associated with food insecurity and relate

to disordered eating behaviors (Piontak et al., 2014; Rodriguez et al., 2016; Sano et al., 2010). These barriers may also differ by region. For example, non-white populations in the rural South experience increased racial disparities compared to other regions, including unemployment, underemployment, and generational persistent poverty (Piontak et al., 2014). The experiences of rural populations thus differ by region and intersect with other identities, such as race and ethnicity. These factors can contribute to food insecurity, and in turn, to disordered eating behaviors.

Results of the current study demonstrated that participants with a history of childhood sexual trauma reported higher levels of disordered eating compared to participants with a history of childhood non-sexual trauma, adult non-sexual trauma, and no trauma history. These findings were consistent with a large body of literature demonstrating the relationship between childhood sexual trauma and disordered eating. Given the significant differences in the relationship between trauma and disordered eating by trauma type, future studies in this area should examine different types of trauma rather than examining trauma history as a general variable.

## **Conclusions**

The current study aimed to examine the relationships among trauma, disordered eating, and CSE. Additionally, I investigated the relationship between geographic location (rural, non-rural) and the study variables, utilizing online, survey-based data collection. First, I found significant differences by geographic location such that rural participants reported higher levels of disordered eating than non-rural participants. In addition, contrary to expectations, CSE did not significantly moderate the relationship between trauma and disordered eating. Further, in contrast to predictions, higher CSE was associated with higher levels of disordered eating. Additionally, I found that a history of childhood sexual trauma was associated with higher levels of disordered eating compared to childhood non-sexual trauma, adult non-sexual trauma, or no trauma history. These results pose important implications for clinicians as well as directions for future research in these areas.

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## APPENDIX

## Study Materials

## Trauma History Questionnaire

1. Have you ever had military combat experience? \_\_\_yes \_\_\_no
2. Have you ever experienced a serious accident, such as a motor vehicle accident, train crash, or accident at work? \_\_\_yes \_\_\_no
  - a. How old were you the first time you experienced a serious accident?  
\_\_\_under age 18 \_\_\_18 years or older \_\_\_I did not experience a serious accident
3. Have you ever experienced a natural disaster, such as a hurricane, flood, earthquake, or tornado?  
\_\_\_yes \_\_\_no
  - a. How old were you the first time you experienced a natural disaster?  
\_\_\_under age 18 \_\_\_18 years or older \_\_\_I did not experience a natural disaster
4. Have you ever experienced a serious illness, such as cancer, multiple sclerosis, etc.? \_\_\_yes  
\_\_\_no
  - a. How old were you the first time you experienced a serious illness?  
\_\_\_under age 18 \_\_\_18 years or older \_\_\_I did not experience a serious illness
5. Have you ever experienced a crime such as carjacking, mugging, stalking, home break-in, or kidnapping? \_\_\_yes \_\_\_no
  - a. How old were you the first time you experienced a crime?  
\_\_\_under age 18 \_\_\_18 years or older \_\_\_I did not experience a crime
6. Childhood emotional abuse occurs when a caregiver engages in behaviors that damage a child's psychological or emotional wellbeing or sense of self-worth. Examples of childhood emotional abuse include threats, insults, shaming, rejection, or withholding of affection (CDC, 2020)
  - a. Have you ever experienced childhood emotional abuse as defined above?  
\_\_\_yes \_\_\_no

7. Physical trauma is defined as the intentional use of force, such as hitting, shaking, burning, kicking, throwing, or using a weapon that results in or has the potential to result in physical injury (e.g. bruising, welts, broken bones, disfigurement; CDC, 2020).
- Have you ever experienced anything included in the definition of physical trauma written above? \_\_\_\_yes \_\_\_\_no
  - How old were you when you first experienced physical trauma?  
\_\_\_\_under age 18 \_\_\_\_18 years or older \_\_\_\_I did not experience physical trauma
8. Childhood sexual abuse is defined as any sexual contact or activity involving a child (i.e. under the age of 18) when a child cannot legally or developmentally provide consent. All sexual activity between an adult and a child is considered non-consensual. Further, sexual activity between an older and younger child can be defined as abuse when there is a disparity in age or developmental level, and when the younger child cannot provide consent. Childhood sexual abuse may involve acts such as sexual touching, sexual penetration, exposure, or voyeurism (CDC, 2020).
- Have you ever experienced childhood sexual abuse as defined above?  
\_\_\_\_yes \_\_\_\_no
9. Childhood neglect is defined as failure for a caregiver to adequately provide for the basic needs of a dependent child, such as food, clothing, housing, or medical care (CDC, 2020).
- Have you ever experienced childhood neglect as defined above?  
\_\_\_\_yes \_\_\_\_no
10. Have you experienced any other traumatic events?
- If yes, briefly indicate the type of trauma: \_\_\_\_\_
  - How old were you when you first experienced the trauma indicated above?  
\_\_\_\_under age 18 \_\_\_\_18 years or older \_\_\_\_I did not experience this trauma

## Demographics Questionnaire

Age: \_\_\_\_\_

Birth Year: \_\_\_\_\_

Gender:

Male

Female

Other (please specify: \_\_\_\_\_)

Race

White/Caucasian

African American

Hispanic

Asian

Pacific Islander

Native American

Bi/Multi Racial

Other (please specify: \_\_\_\_\_)

Sexual Orientation

Heterosexual

Lesbian

Gay

Bi-Sexual

Other (please specify: \_\_\_\_\_)

Which best describes the area where you lived prior to 18 years of age?

Rural

Small town/city

Suburban

Urban

Which best describes the current area in which you live?

Rural

Small town/city

Suburban

Urban

Highest Education:

Post Graduate Degree

Some Post Graduate

Bachelor's Degree

Associate Degree

Some college

High School Diploma or GED

Less than High School Diploma

Annual Household Income:

Less than \$10,000

- 10,000 to 19,999
- 20,000 to 29,999
- 30,000 to 39,999
- 40,000 to 59,999
- 60,000 to 89,999
- 90,000 to 119,999
- 120,000 to 149,999
- 150,000 to 199,999
- 200,000 or higher

Occupation Status:

- Full-time
- Part-time
- Stay-at-home Parent or Caregiver
- Unemployed
- Student
- Retired
- Other (please specify: \_\_\_\_\_)