BODY DISSATISFACTION AND DISORDERED EATING AND THE MODERATING ROLE OF EMOTION REGULATION STRATEGIES

ANJALIKA KHANNA ROY

Thesis submitted to the University of Ottawa
in partial fulfillment of the requirements for the degree of
Master of Arts in Counselling Psychology

Thesis Supervisor: Dr. Tracy Vaillancourt

Faculty of Education
University of Ottawa

Abstract

The global prevalence of eating disorders is estimated to be 2.58 to 8.4% in females and 0.74 to 2.2% in males. Although clinical diagnoses of eating disorders are relatively low, symptoms of disordered eating are common. Body dissatisfaction is a key risk factor for the development and maintenance of disordered eating and eating disorders, but not all individuals with body dissatisfaction have disordered eating. This suggests that there are factors that moderate this relation. In this study, emotion regulation strategy types were examined as moderators of the relation between body dissatisfaction and disordered eating in a community sample of 361 young adults (62.9% women, 76.7% White). Participants completed measures of body dissatisfaction, disordered eating, and their propensity to use six common emotion regulation strategies to downregulate negative emotions (Distraction, Rumination, Reappraisal, Relaxation/Arousal Control, Expressive Engagement, and Expressive Suppression). Results indicated that Rumination had the strongest direct association with body dissatisfaction and disordered eating. Further, Rumination was the only statistically significant moderator of the relation between body dissatisfaction and disordered eating. At all levels of Rumination, body dissatisfaction had a positive relation to disordered eating; this relation was significantly stronger as Rumination use was higher. Results suggest that Rumination may be a default emotion regulation strategy because it is a less effortful strategy, or due to neurocognitive vulnerabilities in individuals particularly susceptible to developing disordered eating when experiencing body dissatisfaction. Clinical implications are presented; notably, these results speak to the importance of psychoeducational training for effective emotion regulation, and interventions for body dissatisfaction and disordered eating that target cognitive styles, particularly the tendency for rumination.

Keywords: body dissatisfaction, disordered eating, emotion regulation, rumination

Acknowledgements

First and foremost, I would like to thank my wonderful supervisor Dr. Tracy Vaillancourt. Thank you for your mentoring, guidance, wisdom, expertise, stimulating conversations, and support. Thank you for inspiring me to strive for excellence in research, encouraging me to trust my instincts, and helping me to grow as an aspiring scientist-practitioner. It has been an honour and a privilege working with you. To my committee members, Dr. Nicole Obeid and Dr. Anne Thériault, thank you for your insightful comments which encouraged me to broaden my perspective in working on this project. My thesis has greatly benefited from your feedback. Thank you also to the Brain and Behaviour lab coordinator, Dr. Amanda Krygsman and my lab mate Hossein Kalati for your help and support. I owe a special thanks to Dr. Brad MacNeil, Dr. Tom Hollenstein, Dr. Jill Jacobson, and Dr. Tina Mihajlovic for fostering my interest in this research topic, sharing your expertise, and for your role in preparing me for graduate research. Finally thank you to my family, especially my mother, for your constant encouragement, love, and support. Thank you for inspiring me and for always believing in me.

Table of Contents

List of Figures and Tables

Figures

Tables

Introduction and Literature Review

Scope of the Problem

It is estimated that the global prevalence of eating disorders is 2.58 to 8.4% in females and 0.74 to 2.2% in males (Hay et al., 2023). Eating disorders refer to "behavioral conditions characterized by severe and persistent disturbance in eating behaviors and associated distressing thoughts and emotions," which affect an individual's physical, psychological, and social functioning (American Psychiatric Association [APA], 2023, p. 1). They are considered to be serious (Klump et al., 2009; MacNeil & Thib, 2022) and difficult to treat (Fassino & Abbate-Daga, 2013; Kaplan & Garfinkel, 1999; MacNeil & Thib, 2022). According to the APA (2023), commonly occurring eating disorders are anorexia nervosa, bulimia nervosa, binge eating disorder, other specified feeding and eating disorder, and avoidant restrictive food intake disorder. Eating disorders can manifest at different levels of functioning. At a cognitive level, they can take the form of preoccupation; fixation; and anxiety about food and eating, body weight, and shape. At a behavioural level, they can present as restricting food intake, avoiding specific foods, binge-eating, purging, and excessive exercise, to name a few.

Although clinical diagnoses of eating disorders are relatively low (Culbert et al., 2015; Stice et al., 2013), symptoms of disordered eating are prevalent (Lee & Vaillancourt, 2018; 2024; Micali et al., 2015; Schaumberg et al., 2019; Solmi et al., 2014), with recent estimates pre-COVID-19 pandemic stating that 22% of young people screen positive for disordered eating (López-Gil et al., 2023). Restricting research exclusively to clinically diagnosed samples may therefore underestimate the true scope of disordered eating occurring at subclinical levels in community populations (Micali et al., 2015). Importantly, symptoms of disordered eating have been shown to predict the onset of eating disorders (Culbert et al., 2015; Jacobi et al., 2004), thus supporting the need to intervene with symptoms before they worsen and reach the threshold for a diagnosis of an eating disorder.

In many cases, individuals may have disordered eating but do not progress to meet the stringent diagnostic criteria for an eating disorder (Culbert et al., 2015). Due to the high prevalence of subclinical symptoms along with issues of diagnostic instability (e.g., Micali et al., 2015; Schaumberg et al., 2019; Zanarini et al., 2010), there is now a growing recognition of the importance of taking a symptoms-based approach rather than a discrete diagnostic categorical approach (Lee & Vaillancourt, 2024). Additionally, as noted by Miller et al. (2009),

psychological symptoms of eating disorders are shared across clinical and non-clinical samples. Further, levels of psychological distress and functional impairment associated with eating disorders observed in non-clinical samples have been found to be comparable to levels observed in clinical samples (Culbert et al., 2015; Keel et al., 2011; Miller et al., 2009; Stice et al., 2013). For example, in a community sample of adolescents, Micali et al. (2015) found that subthreshold and threshold eating disorders were both related to future poor mental health, including self-harm and substance use. This underscores the importance of also researching and developing interventions for individuals presenting with subclinical symptoms of eating disorders. Accordingly, a symptoms-based approach to examining disordered eating may better capture its diverse presentations, thereby improving both the understanding and development of targeted interventions. For these reasons, a symptoms-based approach was employed in this study, allowing findings to be more broadly applicable to individuals experiencing disordered eating across the general population. In this literature review, the term disordered eating is used to represent findings from studies using both non-clinical and clinical samples.

Body Image and Body Dissatisfaction

An important symptom or risk factor for the development and maintenance of disordered eating and eating disorders is body dissatisfaction (Fairburn et al., 2003), which is also frequently the most resistant to change during treatment and is often the last to show improvement (Kearney-Cooke & Tieger, 2015). A major limitation that arises when studying the literature on body dissatisfaction is that researchers have used a variety of terms to refer to this construct. For example, this construct has been referred to as “body dissatisfaction”, “body image disturbance”, “body image dysfunction”, “body esteem”, “concerns with body weight and shape”, “body appreciation”, “negative body image”, “weight concerns”, etc. To illustrate this point, Jacobi et al. (2004) created a factor termed “weight concerns”, which included “fear of weight gain”, “dieting behaviour”, “negative body image”, and “specific eating disorder symptoms and attitudes” (p. 34). This field can certainly benefit from consensus in the terminology, definition, and measurement of this construct (Kling et al., 2019; Krawczyk et al., 2012). Bearing this in mind, in this study, the term body dissatisfaction is used with the understanding that the following information provides a broad overview of the construct.

Body image is conceptualized as a multidimensional construct consisting of perceptual, cognitive-affective, and behavioural factors relating to the body (Cash & Deagle, 1997; Kearney-

Cooke & Tieger, 2015). The perceptual aspects of body image consist of the mental image that an individual holds of their body in terms of its shape and size. The cognitive-affective aspects consist of the self-evaluation-based thoughts and feelings that the individual has about their body which impact their self-esteem. The behavioural aspects consist of how the above manifest in behaviour such as checking, measuring, and grooming (Kearney-Cooke & Tieger, 2015). Conversely, body dissatisfaction refers to negative perceptions that an individual has about their body size, weight, shape, and muscularity and build, often as a discrepancy between perceived body and ideal body (Grogan, 2021). At a perceptual level, body dissatisfaction can occur in the form of misperceptions of body size and shape (Cash & Deagle, 1997; Kearney-Cooke & Tieger, 2015). At a cognitive-affective level, body dissatisfaction consists of negative evaluations of and negative emotions towards one's body, as well as an overemphasis of weight and body shape in determining self-image and self-esteem (Kearney-Cooke & Tieger, 2015; Roy Choudhury & Reddy, 2021). At a behavioural level, body dissatisfaction is reflected in behaviour such as excessive body checking, reassurance seeking, and compensatory behaviour such as hiding one's body and avoidance (Kearney-Cooke & Tieger, 2015). Disturbance in body image or body dissatisfaction is considered to be a key risk factor for the development and maintenance of eating pathology and eating disorders (Bucchianeri & Neumark-Sztainer, 2014; Carey & Preston, 2019; Coker & Abraham, 2014; Jacobi et al., 2004; Kearney-Cooke & Tieger, 2015; Rohde et al., 2015; Stice, 2002) and is a critical target of intervention for eating disorders (Kearney-Cooke & Tieger, 2015). The incidence of body dissatisfaction is common (Bucchianeri & Neumark-Sztainer, 2014; Coker & Abraham, 2014; Leahey et al., 2011). For example, a study by Runfola et al. (2013) using a non-clinical sample showed that 91% of adult American women experienced body dissatisfaction. The development of body dissatisfaction is believed to be rooted in social-cultural, family, and biological influences (Coker & Abraham, 2014; Markham et al., 2005; Presnell et al., 2004).

Social-Cultural Factors Influencing Body Image and Body Dissatisfaction

One of the strongest factors influencing the development of body dissatisfaction is the internalization of sociocultural body ideals (Cafri et al., 2005; Morin & Meilleur, 2024; Stice, 2002; Stice & Shaw, 2002). For girls and women, the sociocultural body ideal consists of idealizing and striving for the thin body type (Thompson & Heinberg, 1999; Uchôa et al., 2019) and for boys and men, this ideal consists of striving for increased muscle with reduced body fat

(Roy Choudhury & Reddy, 2021; Uchôa et al., 2019). However, this does not account for instances of both genders preferring thin or muscular body types or for non-binary individuals. Internalizing such unrealistic standards may increase risk for developing body dissatisfaction (Jiotsa et al., 2021; Morin & Meilleur, 2024; Stice, 2002; Stice & Shaw, 2002) and disordered eating (Culbert et al., 2015). According to Stice (2002), pressure to achieve the thin body ideal from family members, peers, and the media contributes to internalizing such standards of beauty and an overemphasis on appearance.

These body ideals are also perpetuated by social media (Jiotsa et al., 2021), which play a prominent role in the lives of young adults (Thai et al., 2024). The frequency of social media use has been found to be associated with body dissatisfaction (de Vries et al., 2016; Fardouly & Vartanian, 2015; Jiotsa et al., 2021; Thai et al., 2024), striving for the thin ideal (Jiotsa et al., 2021), and disordered eating (Holland & Tiggemann, 2016). This includes popular social media platforms such as Instagram, Facebook (Fardouly & Vartanian, 2015; Holland & Tiggemann, 2016; Jiotsa et al., 2021; Roy Choudhury & Reddy, 2021), and TikTok (Griffiths et al., 2024), whose algorithms make content even more accessible to users (Bradshaw & Vaillancourt, 2024; Griffiths et al., 2024). Content on social media sets unrealistic social norms around attractiveness (Chua & Chang, 2016; Dumas et al., 2017; Roy Choudhury & Reddy, 2021), often prompting upward social comparisons where others are perceived as more attractive or closer to the ideal (Fardouly et al., 2017; Roy Choudhury & Reddy, 2021; Tiggemann & Anderberg, 2020), thus increasing the risk of body dissatisfaction (Tiggemann & Anderberg, 2020). Indeed, making upward social comparisons has been found to contribute to body dissatisfaction, negative affect, greater feelings of guilt, and cognitions related to exercise and dieting (Leahey et al., 2007; Leahey et al., 2011). For example, Pedalino and Camerini (2022) found that viewing Instagram content related to idealized bodies was associated with reduced body satisfaction; this relation was fully mediated by upward social comparisons to unrealistic standards set by social media influencers. A Canadian study examined the effects of reducing social media use on body esteem (appearance and weight esteem) in emotionally distressed youth and young adults ages 17 to 25 over a three-week period. Results indicated that participants who reduced their daily social media use by 50% showed significant improvements in appearance and weight esteem compared to youth who continued normal daily social media use. The authors posit that their results may be explained by reductions in both internalization of body ideals and making social comparisons

(Thai et al., 2024). These results underscore the key contribution of social media in body dissatisfaction.

In sum, the combination of internalization of sociocultural ideals and norms, and making social comparisons to those seen as more attractive is key in body image perception and dissatisfaction (Jiotsa et al., 2021). Further, pressures to conform to and internalization of socio-cultural thin ideals, and exposure to media are risk factors for cognitions and behaviour related to disordered eating in those with a biological vulnerability to such factors (Culbert et al., 2015).

Although the impact of the COVID-19 pandemic is not the focus of this study, it is important to note that the data for this study were collected in 2023. There is evidence that body dissatisfaction and disordered eating increased during the pandemic (e.g., Agostino et al., 2021; Branley-Bell & Talbot, 2020; Buckley et al., 2021; Corno et al., 2022; Devoe et al., 2023; Hallward et al., 2023; Hunter & Gibson, 2021; meta-analysis by Madigan et al., 2025; Robertson et al., 2021; Schneider et al., 2023; Spettigue et al., 2021) with significant impacts on the individual, their family, and healthcare systems (Obeid et al., 2024a, 2024b). Rodgers et al. (2020) have proposed three pathways to explain the development and/or exacerbation of disordered eating during the COVID-19 pandemic. First, disordered eating may have increased through disruptions to daily life, eating schedules, and access to activities (e.g., disruptions to sleep, physical activity, grocery shopping, social activities, and access to treatment). Second, greater exposure to social media and content related to eating, food, appearance, body ideals, and exposure to distressing global events may have increased disordered eating. Additionally, increased reliance on videoconference technology is posited to have contributed to disordered eating because it increases an individual's awareness of their appearance—described as "looking in the mirror repeatedly while talking to others" (p. 3). Third, fear of the COVID-19 virus may have heightened general stress and stress around food contamination, and thoughts related to health and orthorexia nervosa. This may have taken the form of contamination fears related to grocery shopping or restricting or eliminating foods to achieve health ideals during a time where health felt threatened (Robertson et al., 2021).

Body dissatisfaction is a risk factor for negative affect and for the development and maintenance of eating pathology (Stice, 2002; Stice & Shaw, 2002). In turn, negative affect is a risk factor for body dissatisfaction and food intake (Stice, 2002). In their synthesis of research, Stice and Shaw (2002) found that the relation between body dissatisfaction and disordered eating

may be mediated by increased dieting behaviour and negative affect. Specifically, body dissatisfaction has been posited to contribute to eating pathology through the following processes. First, the internalization of the thin ideal leads women to control food intake to achieve this ideal through behaviour such as restriction, bingeing, and purging. Second, body dissatisfaction contributes to negative emotions related to an individual's body, prompting disordered eating behaviour to cope with these emotions (Leahey et al., 2011; Stice, 2002; Stice & Shaw, 2002).

Emotion Regulation, Cognitive Style, and Disordered Eating

An association between disordered eating and difficulties with emotion regulation has been established through a number of studies with clinical (e.g., Brockmeyer et al., 2014; Leppanen et al., 2022; Naumann et al., 2016; Oldershaw et al., 2015; Pisetsky et al., 2017; Racine & Wildes, 2013; Ruscitti et al., 2016; Svaldi et al., 2012; Torres et al., 2024) and non-clinical samples (e.g., Ambwani et al., 2014; Mikhail et al., 2024; Racine & Horvath, 2018), as well as meta-analyses and systematic reviews of clinical and non-clinical samples (e.g., Aldao et al., 2010; Leehr et al., 2015; Prefit et al., 2019; Smith et al., 2018; Trompeter et al., 2021). According to Culbert et al. (2015), personality traits such as negative emotionality/neuroticism, perfectionism, and negative urgency (i.e., acting impulsively when experiencing distress) are risk factors for disordered eating. Additionally, certain neurocognitive vulnerabilities such as difficulties with cognitive flexibility/cognitive rigidity (i.e., difficulty with engaging in flexible thinking in adapting to changes in circumstances), high levels of attention to detail (i.e., focus on detail instead of the whole picture; Roberts et al., 2011), and difficulties with inhibitory control (i.e., suppressing an automatic response; Culbert et al., 2015) have been found in individuals with disordered eating using clinical samples (e.g., Culbert et al., 2015; MacNeil & Leung, 2022). According to Roberts et al. (2011), cognitive inflexibility may be displayed by individuals with disordered eating through rules pertaining to food choice and preparation, while attention to detail may manifest as heightened attention to calories. Deficits in these processes have additional consequences—for example cognitive rigidity and attention to detail in those with disordered eating have been found to predict decreased life satisfaction and greater symptoms of anxiety and depression in a clinical sample (MacNeil & Leung, 2022). Additionally, a systematic review and meta-analysis of clinical samples by Oldershaw et al. (2015) found that individuals with anorexia nervosa report greater maladaptive beliefs and schemas, and negative emotions.

Cognitive flexibility in the form of body image flexibility is also associated with reduced body dissatisfaction, disordered eating, and psychopathology (Chen et al., 2024; see meta-analysis of primarily non-clinical samples by Linardon et al., 2021). These cognitive biases and patterns associated with disordered eating could be addressed through interventions that include a component on strategies for effective emotion regulation.

Researchers have documented an association between certain emotion regulation strategies and disordered eating. For example, in a meta-analysis of clinical and non-clinical samples, awareness, clarity, and acceptance of emotions; reappraisal; and problem-solving have been found to be negatively associated with disordered eating, while rumination, avoidance of emotions, and suppression have been found to be positively associated with disordered eating (Prefit et al., 2019). Similarly, in a network meta-analysis using primarily clinical samples, Leppanen et al. (2022) found that rumination and non-acceptance of emotions had the strongest associations with disordered eating. Further, in a meta-analysis comprised primarily of non-clinical samples, Smith et al. (2018) found that rumination was both concurrently and prospectively associated with disordered eating; individuals with disordered eating reported greater rumination than those without eating pathology. Similarly, a meta-analysis by Aldao et al. (2010) using clinical and non-clinical samples found that rumination, suppression, and avoidance were positively associated with disordered eating, while problem solving was negatively associated with disordered eating. Reappraisal, however, was not associated with disordered eating. Individuals with eating pathology have reported using reappraisal significantly less than those without eating pathology (Oldershaw et al., 2015; Svaldi et al., 2012). The use of avoidance, rumination, and suppression has also been found to be associated with increased bulimic symptoms in adolescents with “frequent” body dissatisfaction; lower use of positive rational acceptance (i.e., accepting issues and engaging in self-care or rational self-talk in response to thoughts about appearance; Cash et al., 2005) and reappraisal has been found to be associated with increased symptoms of depression in adolescents with “frequent” body dissatisfaction. However, emotion regulation strategy use did not moderate the relation between body dissatisfaction and an individual’s drive for thinness or symptoms of anxiety in a community sample (Hughes & Gullone, 2011). These findings suggest the need for further study of emotion regulation strategy types as moderators of the relation between body dissatisfaction and symptoms of disordered eating.

Difficulties with emotion regulation in eating pathology have been suggested to be transdiagnostic (e.g., Brockmeyer et al., 2014; Naumann et al., 2016; Prefit et al., 2019; Svaldi et al., 2012; Trompeter et al., 2021), meaning that emotion regulation difficulties are present across eating pathology and are not eating disorder specific (Naumann et al., 2016). This finding further supports the need for research in this field to take a symptoms-based approach instead of mainly examining emotion regulation as it presents in specific eating disorders.

Emotions and Emotion Regulation

As stated by Gross (1998, 2015), emotions are dynamic and not static in that they ebb and flow, but humans have a natural tendency to influence emotions that may impact their goals through emotion regulation processes. To better understand these processes, Gross (2015) has advocated for the need to operationalize the term emotion regulation because researchers have used multiple terms for "emotion and emotion regulation-related processes" (p. 2). Thus, in the present study, emotion regulation is defined in the following way: emotion regulation, or the ability to manage emotions (Young et al., 2019), is a process by which individuals influence the emotions they experience, as in which emotion, when it occurs, and how it is expressed (Gross, 1998; 2015). These emotion regulation processes can be either automatic or controlled, conscious or unconscious, and can influence emotions at various stages of emotion generation (Gross, 1998). Emotion regulation is critical for daily functioning (Macklem, 2008). It is important for achieving adaptive outcomes (Extremera & Rey, 2015) and is essential for psychological well-being (De France & Hollenstein, 2017; Extremera & Rey, 2015; Gross & John, 2003; Kearney-Cooke & Tieger, 2015), positive affect (Gross & John, 2003), and interpersonal and social functioning (De France & Hollenstein, 2017; Gross & John, 2003; Macklem, 2008). Successful emotion regulation plays an important role in decreasing the activation of stress responses, thus facilitating more adaptive behaviour (Sapolsky, 2007).

Much of the emotion regulation literature has contrasted the use of single strategies to assess their individual effectiveness in downregulating negative emotions. However, individuals often employ more than one strategy to regulate an emotion (Ford et al., 2019; Gross, 2015; Ladis et al., 2023), a phenomenon referred to as emotion polyregulation (Ford et al., 2019). As a result, research on the relation between emotion regulation and psychosocial functioning has branched into examining the range of emotion regulation strategies and emotion regulation strategy repertoires (i.e., the proportional use of various strategies to manage emotions; De

France & Hollenstein, 2017). This change in perspective may provide a better representation of how individuals regulate their emotions in daily life (De France & Hollenstein, 2017; Ford et al., 2019; Ladis et al., 2023). Further, it allows for the measurement of individual differences in emotion regulation strategy use and related psychosocial outcomes (De France & Hollenstein, 2017). Additionally, due to the vast number of emotion regulation strategies that individuals use, researchers have developed systematic ways of organizing these strategies to assess their regulatory success (Gross, 2015). To address the above issues, De France and Hollenstein (2017) developed The Regulation of Emotion Systems Survey (RESS), a single scale that measures the proportional use of six common emotion regulation strategies: Distraction, Rumination, Reappraisal, Relaxation/Arousal Control, Expressive Engagement, and Expressive Suppression. These six strategies were selected to represent the three core components of emotion (cognitive, physiological, and behavioural).

Distraction refers to intentionally shifting attention from an emotional situation to more neutral or pleasant activities or thoughts (Gross, 2015; Nolen-Hoeksema, 1991; Sheppes & Meiran, 2008). Rumination is the repetitive attention on thoughts and feelings of distress, and their possible causes and consequences (Nolen-Hoeksema, 1991; Nolen-Hoeksema et al., 2008). Reappraisal refers to changing how one feels by engaging in alternative thoughts about a situation (De France & Hollenstein, 2017; McRae et al., 2012). Relaxation/Arousal Control refers to efforts to lessen the autonomic arousal that comes with experiencing an emotion (De France & Hollenstein, 2017). Expressive Engagement is active engagement with an emotion through “amplifying expressive dynamics” to modify the experience of the emotion (De France & Hollenstein, 2017, p. 205). Lastly, Expressive Suppression refers to actively repressing external emotional expression (De France & Hollenstein, 2017; Gross, 2015).

Researchers have previously shown that certain emotion regulation strategies have either more or less success when applied to regulating emotions—i.e., they are either adaptive (strategies effective at changing an emotional experience and that are related to decreased psychological symptoms) or maladaptive (strategies not effective at changing an emotional experience and that are related to increased psychological symptoms; Aldao et al., 2014). Use of maladaptive emotion regulation strategies has a greater association with psychopathology, while use of adaptive emotion regulation strategies has a lower association with psychopathology (Aldao et al., 2010). According to Aldao et al. (2010), two adaptive emotion regulation strategies

are reappraisal and problem solving. For example, there is evidence that reappraisal is successful in downregulating negative emotions (Lennarz et al., 2018) and is associated with lower negative emotion and higher positive emotion and enhanced interpersonal functioning and well-being (Gross & John, 2003). Conversely, rumination, suppression, and avoidance are maladaptive emotion regulation strategies (Aldao et al., 2010). For example, expressive suppression has been found to be related to lower positive emotion and higher negative emotion, feelings of inauthenticity, difficulties with interpersonal functioning, and decreased well-being (Gross & John, 2003). Similarly, rumination has been found to predict symptoms of anxiety and depression, and depressive disorders (Nolen-Hoeksema, 2000). One of the reasons that rumination is conceptualized as a maladaptive emotion regulation strategy may be due to the reciprocal relation between rumination and negative affect. Rumination contributes to negative affect, which in turn contributes to further rumination, thus increasing negative affect (Moberly & Watkins, 2008; Smith et al., 2018). Overall, individuals with disordered eating tend to rely more on maladaptive strategies rather than adaptive strategies to regulate their emotions (Leppanen et al., 2022; Naumann et al., 2016; Oldershaw et al., 2015; Trompeter et al., 2021). This speaks to the need for further examining how the type of emotion regulation strategy used may moderate the relation between body dissatisfaction and disordered eating.

Theoretical Framework

Two theoretical frameworks guide this research on the relation between body dissatisfaction, disordered eating, and how emotion regulation styles and patterns influence this relation.

The first framework is Cognitive-Behavioural Therapy – Enhanced (CBT-E; Fairburn et al., 2003), a model that was developed to understand the connection between body dissatisfaction and eating disorders (Kearney-Cooke & Tieger, 2015). According to this transdiagnostic model, the key maintaining factor for eating disorders is body dissatisfaction, or what the authors have termed “over-evaluation of eating, shape and weight and their control” (Fairburn et al., 2003, p. 510). This model also identifies additional maintaining factors for eating disorders such as “clinical perfectionism”, “core low self-esteem”, “mood intolerance”, and “interpersonal difficulties” (Fairburn et al., 2003, p. 515), which in combination with body dissatisfaction can interfere with recovery for a subset of the population. Clinical perfectionism is defined as an individual’s “over-evaluation” of certain standards they set for themself, along with their striving

for and being able to meet these standards regardless of consequences. Core low self-esteem refers to pervasive, negatively biased evaluations of self-worth which create a sense of hopelessness regarding the ability to effect change, and single-minded pursuit of controlling eating, weight, and shape. Fairburn et al. (2003) define mood intolerance as inability to regulate emotions such as anxiety, anger, depression, excitement, and use of dysfunctional emotion regulation behaviour such as self-injurious behaviour, substance use, bingeing, purging, or overexercise. Bingeing, purging, and overexercise run the risk of becoming common ways of coping with emotions in people with disordered eating and mood intolerance. Feelings of helplessness regarding ability to cope with certain thoughts and feelings can exacerbate the emotion. Finally, interpersonal difficulties related to family tensions; environments that perpetuate messages about body shape, weight, and food; adverse events; and those that impact self-esteem are posited to contribute to disordered eating. It is these secondary maintaining factors that are believed to be critical in the varied presentations of eating disorders, and that need to be addressed for effective treatment (Fairburn et al., 2003).

The second framework that guides this research is the Process Model of Emotion Regulation (Gross, 1998), an information processing model that uses the emotion generation steps of the Modal Model of Emotion as targets for emotion regulation. This model proposes five families of emotion regulation strategies that individuals use to regulate emotions: (1) Situation selection—taking action to increase or reduce experiencing a situation and the expected emotions (e.g., avoidance), (2) Situation modification—changing aspects of the environment to mitigate emotional consequences (e.g., making a direct request), (3) Attentional deployment—shifting attention to alter emotional consequences (e.g., distraction), (4) Cognitive change—changing the appraisal of a situation to modify the emotional consequences (e.g., reappraisal), and (5) Response modulation—targeting physiological, behavioural, or experiential symptoms once an emotion is underway (e.g., expressive suppression and relaxation/arousal control; Gross, 2015; McRae & Gross, 2020). Based on the strategy that is chosen and when it is employed, individuals experience different emotional, cognitive, and behavioural consequences, both short-term and long-term (Gross, 2015).

In order to deepen understanding of emotion regulation processes, such as understanding what influences emotion regulation strategy selection and implementation, the course of emotion regulation, and why some individuals experience greater regulatory success, Gross (2015)

updated his model by adding three interacting valuation systems (identification, selection, and implementation stages) with three corresponding sub-steps (perception, valuation, and action), thus creating the Extended Process Model of Emotion Regulation. These valuation systems and sub-steps are as follows: (1) identification of an emotion (perception), evaluation of whether regulation is necessary (valuation), and decision to implement regulation (action); (2) selection of available emotion regulation strategies (perception), evaluation of their regulatory success based on context (valuation), and activating the goal of selecting an emotion regulation strategy (action); and (3) implementation—translating a general emotion regulation strategy into context-suitable action—i.e., different methods of employing a strategy (perception), evaluating the effectiveness of the methods (valuation), and intentionally selecting and implementing a method for regulation (action). The identification, selection, and implementation stages also indicate specific processes where individuals may experience difficulties with emotion regulation. Thus, this model explains the emotion regulation strategies that individuals use to regulate emotions and what guides the process of strategy selection and implementation.

Taken together, these models suggest a framework for this study to conceptualize how the combination of body dissatisfaction, mood intolerance, and emotion regulation strategy type may interact to contribute to symptoms of disordered eating.

Present Study

Not all individuals with body dissatisfaction present with disordered eating which suggests that there are factors that moderate this relation (Chen et al., 2024). In this study, emotion regulation strategy types were examined as moderators of the relation between body dissatisfaction and disordered eating in a community sample of young adults. Young adulthood is a critical stage for the development of eating disorders (Hallward et al., 2023; Ward et al., 2019) and is thus a key time for intervention (Ward et al., 2019). Additionally, as noted by Gross (2015), early adulthood is a time for the development of "increasingly sophisticated forms of cognitive emotion regulation", underscoring the importance of the continued study of emotion regulation during this developmental stage (p. 18). In the present study, following Lee and Vaillancourt (2019), body dissatisfaction refers to a negative attitude towards one's own physical appearance that arises from a perceived discrepancy between one's actual body image and ideal body image. Disordered eating is used as an umbrella term to describe various symptoms

associated with a range of eating disorders and subclinical symptoms. Specifically, the objectives of this study were to:

1. Establish the associations between six commonly used emotion regulation strategies using a single scale (Distraction, Rumination, Reappraisal, Relaxation/Arousal Control, Expressive Engagement, and Expressive Suppression; De France & Hollenstein, 2017), body dissatisfaction, and disordered eating—i.e., to what extent do individuals with body dissatisfaction and disordered eating tend to use these strategies to downregulate negative emotions?
2. Examine each of the six emotion regulation strategies as moderators of the relation between body dissatisfaction and disordered eating.

Research Questions

Research Question 1 – What are the concurrent associations (i.e., correlations) between Regulation of Emotion Systems Survey (RESS) emotion regulation strategies (Distraction, Rumination, Reappraisal, Relaxation/Arousal Control, Expressive Engagement, and Expressive Suppression), body dissatisfaction, and disordered eating?

Research Question 2 – Does emotion regulation strategy type moderate the relation between body dissatisfaction and disordered eating?

Hypotheses

Hypothesis 1: Based on the literature, it was hypothesized that Rumination would have a positive correlation with body dissatisfaction and disordered eating (e.g., Aldao et al., 2010; Leppanen et al., 2022; Smith et al., 2018).

Hypothesis 2: Based on the literature, it was hypothesized that Reappraisal and Relaxation/Arousal Control would have negative correlations with body dissatisfaction and disordered eating (e.g., Culbert et al., 2015; Gross, 2015; Kjaervik & Bushman, 2024; Lavender et al., 2014; MacNeil & Leung, 2022; Oldershaw et al., 2015; Svaldi et al., 2012; Vanzhula & Levinson, 2020).

Due to limited research on the associations between Distraction, Expressive Engagement, Expressive Suppression, body dissatisfaction, and disordered eating, no specific hypotheses were posited but their associations are reported.

Hypothesis 3: Emotion regulation strategy type would moderate the relation between body dissatisfaction and disordered eating, such that participants with body dissatisfaction who

tend to use Rumination to downregulate negative emotions would have higher disordered eating scores. Conversely, participants with body dissatisfaction who tend to use Reappraisal and Relaxation/Arousal Control to downregulate negative emotions would have lower disordered eating scores. The role of the other three emotion regulation strategies as moderators was exploratory and is reported.

Examining gender differences in emotion regulation strategy use, body dissatisfaction, and disordered eating was not part of the main objectives of this study but were explored. Additionally, given that women tend to experience higher levels of body dissatisfaction and disordered eating, along with some evidence of gender differences in emotion regulation (e.g., Lennarz et al., 2018; Smith et al., 2018), gender was controlled for in the moderation analyses.

Method

Participants

Participants were 362 young adults from a community sample who were originally recruited at age 10 and followed prospectively until they were 25 years of age for the *McMaster Teen Study*. This is a longitudinal study investigating the associations between peer victimization, domains of mental health, and academic achievement.

For the present study, age 25 data, collected in 2023 were used (M_{age} = 25.92 [24.64 to 27.16], *SD* = .33, 62.9% women, 76.7% White). To be included in the analytic sample, participants needed to have (1) valid data on body dissatisfaction, emotion regulation strategy use, and disordered eating, and (2) pass three or more of the five validity check questions (one participant excluded). Based on these inclusion criteria, the final analytic sample size was 361 participants.

Measures

Body Dissatisfaction

Body dissatisfaction was measured using six items that are rated on a 3-point Likert scale *(0 = Never, 1 = Sometimes, 2 = Often*; Lee & Vaillancourt, 2019). Sample items include "How often are you worried about being or becoming overweight?" and "How often do you get upset about even small changes in your weight?". To calculate participants' composite scores, their responses were averaged with higher scores indicating greater body dissatisfaction. Body dissatisfaction scores were *M* = .97, *SD* = .62, *range* = 2.00. In the present study, internal consistency was good (Cronbach's α = .88, McDonald's ω = .88).

Disordered Eating

Disordered eating was measured using the Eating Disorder Examination – Questionnaire (EDE-Q; Fairburn & Beglin, 1994; 2008). The EDE-Q is a 28-item self-report questionnaire that was developed from the Eating Disorder Examination Interview (Fairburn & Beglin, 1994). The EDE-Q measures the frequency and severity of behaviour associated with eating disorders over the past 28 days and is comprised of four subscales: Restraint, Eating Concern, Shape Concern, and Weight Concern, and an overall global score. Participants rate items on a 6-point Likert scale, except questions 13-16 for which they input frequency data. As specified by the EDE-Q developers, items 13-16 were not used to calculate participants' global scores. Sample items from each subscale 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)?" (Restraint), "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)?" (Eating Concern), "Have you had a definite desire to have a totally flat stomach?" (Shape Concern), and "Has your weight influenced how you think about (judge) yourself as a person?" (Weight Concern).

Scores on each subscale are calculated by taking the average of subscale items. Participants' overall global score was calculated by taking the average of the four subscales. Higher scores indicate greater symptoms of disordered eating. Disordered eating scores were $M = 1.24$, $SD = 1.28$, *range* = 5.85. Internal consistency for the EDE-Q was good to excellent: Cronbach's α Restraint Scale = .84, McDonald's ω Restraint Scale = .86; Cronbach's α Eating Concern Scale = .88, McDonald's ω Eating Concern Scale = .89; Cronbach's α Shape Concern Scale = .93, McDonald's ω Shape Concern Scale = .94; Cronbach's α Weight Concern Scale = .87, McDonald's ω Weight Concern Scale = .89; Cronbach's α Global Score = .91, McDonald's ω Global Score = .93.

Emotion Regulation Strategy Use

Proportional use or the propensity to use various emotion regulation strategies was measured using the Regulation of Emotion Systems Survey – short version (RESS; De France & Hollenstein, 2017). The RESS short version is a 24-item self-report questionnaire measuring the extent to which participants tend to use six common emotion regulation strategies (Distraction, Rumination, Reappraisal, Relaxation/Arousal Control, Expressive Engagement, and Expressive Suppression) to downregulate negative emotions. It has been validated as having the same factor

structure as its 48-item long version. Sample items from each subscale, include: “Immediately working on something to keep myself busy” (Distraction), “Thinking repeatedly about what was bothering me” (Rumination), “Thinking of other ways to interpret the situation” (Reappraisal), “Focusing on slowing my heart rate and breathing” (Relaxation/Arousal Control), “Using facial expressions to show that I was upset” (Expressive Engagement), and “Acting like I was not upset” (Expressive Suppression). Participants indicate their answers on a 5-point Likert scale from *1 (never)* to *5 (always)* and receive a proportional score for their use of each emotion regulation strategy (i.e., capturing how much they rely on each strategy when responding to negative emotions).

Participants’ scores for use of these six strategies were calculated by taking the averages of subscale items. Higher scores indicate more frequent use of the strategy for regulating negative emotions. Emotion regulation strategy use scores were as follows: Distraction (M = 2.87, SD = .92, *range* = 4.00), Rumination (M = 3.05, SD = 1.05, *range* = 4.00), Reappraisal (M = 2.72, SD = .92, *range* = 4.00), Relaxation/Arousal Control (M = 2.30, SD = .95, *range* = 4.00), Expressive Engagement (M = 2.61, SD = .80, *range* = 4.00), and Expressive Suppression (M = 2.54, SD = .87, *range* = 4.00). Internal consistency for the RESS was good to excellent: Cronbach’s α Distraction Scale = .92, McDonald’s ω Distraction Scale = .92; Cronbach’s α Relaxation/Arousal Control Scale = .90, McDonald’s ω Relaxation/Arousal Control Scale = .91; Cronbach’s α Expressive Suppression Scale = .87, McDonald’s ω Expressive Suppression Scale = .87; Cronbach’s α Reappraisal Scale = .89, McDonald’s ω Reappraisal Scale = .89; Cronbach’s α Expressive Engagement Scale = .80, McDonald’s ω Expressive Engagement Scale = .80; Cronbach’s α Rumination Scale = .91, McDonald’s ω Rumination Scale = .91.

Procedure

Participants completed the McMaster Teen survey which included the RESS, EDE-Q, and body dissatisfaction questions either online (> 98%) or by using a paper and pencil survey. Reminder emails were sent to participants to complete the survey, and they were also compensated with $100 e-gift cards. Ethics approval for this data collection phase was passed by the University of Ottawa’s Research Ethics Board.

Analytic Plan

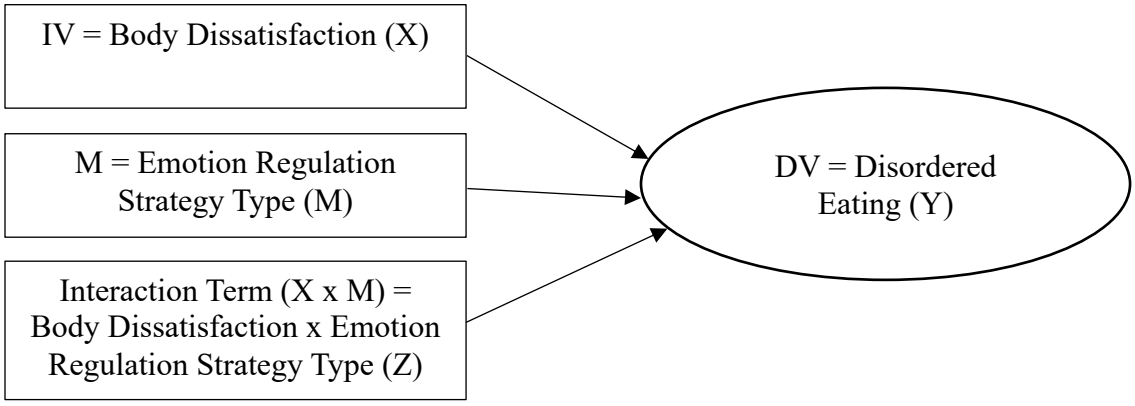
Analyses were conducted using SPSS v29. Pearson correlations were first conducted to examine the strength and direction of the relations between body dissatisfaction, disordered eating, and emotion regulation strategies (i.e., Distraction, Rumination, Reappraisal, Relaxation/Arousal Control, Expressive Engagement, and Expressive Suppression). This was followed by independent samples t-tests to examine gender differences in study variables. Next, six hierarchical regression analyses were conducted using Model 1 of PROCESS macro v4.2 (Hayes, 2022) to determine if each emotion regulation strategy type moderated the relation between body dissatisfaction and disordered eating. Moderation was selected in order to assess if each emotion regulation strategy type influences the strength and/or direction of the relation between body dissatisfaction and disordered eating. The conceptual model of the regression analyses is presented in Figure 1. To address problems of multicollinearity, the body dissatisfaction and emotion regulation strategy type variables were mean centered prior to analysis. Interaction terms were then created by multiplying the centered body dissatisfaction predictor variable by the centered emotion regulation strategy type moderator variable (i.e., a centered variable for each of the six emotion regulation strategies).

For each hierarchical regression analysis, gender was entered into Step 1 of the model; body dissatisfaction, disordered eating, and emotion regulation strategy type were entered into Step 2. The interaction term (body dissatisfaction x emotion regulation strategy type) was entered into Step 3 of the model. Moderation was assessed by examining R^2 change (ΔR^2) values (Baron & Kenny, 1986).

Given the number of regression analyses conducted, the Benjamini-Hochberg correction was used to correct for multiple tests. This test was selected for its properties of controlling for the false discovery rate and for balancing the Type I and Type II error rates (Benjamini & Hochberg, 1995).

Figure 1

Conceptual Model of Hierarchical Regression Analyses



Note. IV refers to Independent variable, M refers to Moderator variable, and DV refers to Dependent variable.

Results

The statistical assumptions for the various tests employed to analyze data were assessed; homogeneity of variance and sphericity were found to be violated and were thus addressed and reported. Little's MCAR test was conducted to examine the pattern of missing data. Results indicated that data were missing completely at random, $X^2(15) = 16.84$, $p = .328$. Descriptive statistics are presented in Table 1.

Table 1

Mean Values for Participants' Propensity to Use Emotion Regulation Strategies, Body Dissatisfaction, and Disordered Eating

Variable of Interest	Mean (Standard Deviation)
Distraction	2.87 (.92)
Rumination	3.05 (1.05)
Reappraisal	2.72 (.92)
Relaxation/Arousal Control	2.30 (.95)
Expressive Engagement	2.61 (.80)
Expressive Suppression	2.54 (.87)
Body Dissatisfaction	.97 (.62)
Disordered Eating	1.24 (1.28)

Research Question 1: Concurrent Associations between Body Dissatisfaction, Disordered Eating, and Emotion Regulation Strategies

Correlations between body dissatisfaction, disordered eating (EDE-Q global score), and the six RESS emotion regulation strategies are presented in Table 2. Body dissatisfaction had a statistically significant positive correlation with disordered eating. Rumination had a statistically significant positive correlation with body dissatisfaction and disordered eating. Reappraisal and Relaxation/Arousal Control did not have statistically significant correlations with body dissatisfaction or disordered eating.

Table 2

Correlations Between Body Dissatisfaction, Disordered Eating, and Emotion Regulation Strategies

Variable of Interest	2	3	4	5	6	7	8
1. Body Dissatisfaction	.78** *n* = 350	.41** *n* = 352	.19** *n* = 352	-.03 *n* = 350	.24** *n* = 352	.08 *n* = 352	.15** *n* = 352
2. Disordered Eating		.41** *n* = 350	.14** *n* = 350	.004 *n* = 348	.21** *n* = 350	.08 *n* = 350	.13** *n* = 350
3. Rumination			.35** *n* = 352	.25** *n* = 350	.38** *n* = 352	.27** *n* = 352	.40** *n* = 352
4. Expressive Engagement				.29** *n* = 350	-.24** *n* = 352	.25** *n* = 352	.10* *n* = 352
5. Reappraisal					.19** *n* = 350	.43** *n* = 350	.29** *n* = 350
6. Expressive Suppression						.14** *n* = 352	.48** *n* = 352
7. Relaxation/Arousal Control							.33** *n* = 352
8. Distraction							_

Note. ** Correlation significant at the .01 level (1-tailed). * Correlation significant at the .05 level (1-tailed).

Gender Differences

Given that eight independent samples t-tests were conducted, the use of multiple tests was corrected for using the Benjamini-Hochberg correction (Benjamini & Hochberg, 1995). The results after correcting for false discovery rate (*p*-value for false discovery rate = .002) are presented below.

Gender-based comparisons of body dissatisfaction, disordered eating, and the six RESS emotion regulation strategies were examined using independent samples t-tests (Table 3).

Homogeneity of variance was violated (i.e., $p < .05$) for the following variables: disordered eating and proportional use of Expressive Engagement and Reappraisal. Therefore, adjusted *t*-values, degrees of freedom, and *p*-values are reported for these variables.

Cohen's (1988) criteria were used for determining effect size in which a small effect size = 0.2, a medium effect size = 0.5, and a large effect size = 0.8.

Table 3

Gender-Based Comparisons of Body Dissatisfaction, Disordered Eating, and Proportional Use of Emotion Regulation Strategies

Variable of Interest	Men		Women	
	M	*SD*	*M*	*SD*
Body Dissatisfaction	$.67_a$	.54	1.15_b	.59
Disordered Eating	$.82_a$	.90	1.48_b	1.41
Rumination	2.69_a	1.02	3.26_b	1.00
Expressive Engagement	2.29_a	.71	2.79_b	.79
Reappraisal	2.72_a	1.02	2.72_a	.86
Expressive Suppression	2.43_a	.91	2.61_a	.85
Relaxation/Arousal Control	2.03_a	.88	2.46_b	.95
Distraction	2.67_a	.97	2.98_b	.87

Note. No shared subscripts (a and b) denote men and women's means are statistically significantly different; shared subscripts (a and a) denote men and women's means are not statistically significantly different.

Results indicated that in comparison to men, women scored higher on body dissatisfaction, $t(356) = -7.60$, $p < .001$, $d = -0.83$ (large effect). Women also scored higher than men on disordered eating, $t(345.99) = -5.42$, $p < .001$, $d = -0.54$ (medium effect). When examining gender differences in emotion regulation strategy use, in comparison to men, women reported greater use of Rumination to downregulate negative emotions, $t(350) = -5.12$, $p < .001$, $d = -0.57$ (medium effect). Likewise, women reported greater use of Expressive Engagement, $t(293.23) = -6.16$, $p < .001$, $d = -0.66$ than men (medium effect). Women also reported greater use of Relaxation/Arousal Control, $t(350) = -4.22$, $p < .001$, $d = -0.47$ (small effect) in

comparison to men. Finally, in comparison to men, women reported greater use of Distraction to downregulate negative emotions, $t(350) = -3.18$, $p = .002$, $d = -0.35$ (small effect). There were no significant gender differences in participants' use of Reappraisal, $t(234.61) = -.03$, $p = .978$, $d = -0.003$, or Expressive Suppression, $t(350) = -1.83$, $p = .069$, $d = -0.20$.

Research Question 2: Emotion Regulation Strategy Types as Moderators in the Relation Between Body Dissatisfaction and Disordered Eating

The following assumptions for the main moderation analysis were examined: continuous dependent and independent variables and dichotomous moderator variable; independence of observations as assessed by a Durbin-Watson Test; linear relation between dependent variable and independent variable for each group of the moderator; homoscedasticity as assessed through examining a Normal P-P Plot of Regression Standardized Residuals; significant outliers, high leverage points as assessed by Cooke's Distance Mean, and highly influential points as assessed by the Centered Leverage Value; and normal distribution of residual errors as assessed by skewness and kurtosis values (where a skewness value of under 2 is considered within limit and a kurtosis value of under 7 is considered within limit; Kline, 2023). There were no violations to assumptions. Any issues of multicollinearity were addressed through mean centering the body dissatisfaction predictor variable and each of the emotion regulation strategy type moderator variables prior to analysis.

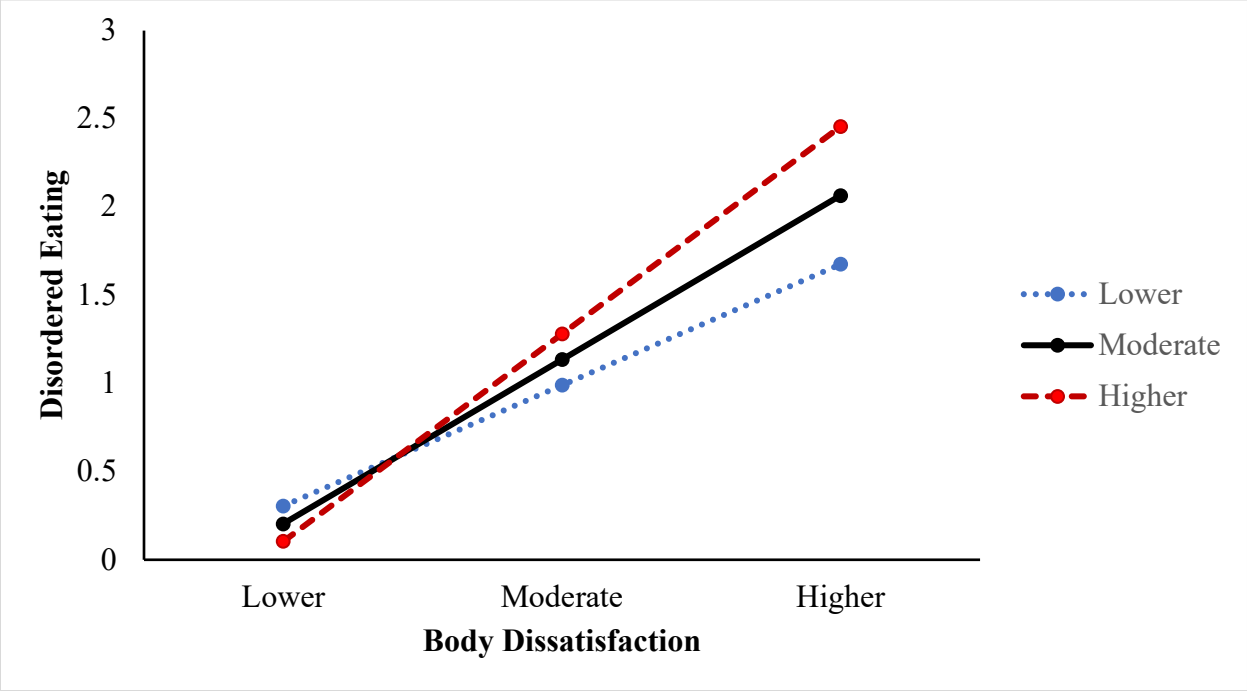
Six hierarchical regression analyses examined emotion regulation strategy types as moderators in the relation between body dissatisfaction and disordered eating. Given that six hierarchical regression analyses were conducted, the use of multiple tests was corrected for using the Benjamini-Hochberg correction (Benjamini & Hochberg, 1995). Before correction for multiple tests, the proportional use of Rumination, Expressive Engagement, Expressive Suppression, and Relaxation/Arousal Control were significant moderators in the relation between body dissatisfaction and disordered eating. However, after correcting for false discovery rate (p-value for false discovery rate = < .001), only Rumination was a significant moderator in this relation.

Examination of Rumination as a moderator indicated that the model explained a significant proportion of the variance in disordered eating, $R^2 = .65$, $F(4, 345) = 157.98$, $p < .001$. There was a significant interaction between body dissatisfaction and Rumination in predicting disordered eating, $b = .38$, $t(345) = 5.79$, $p < .001$. The interaction term of body dissatisfaction x

Rumination accounted for an additional 3.43% of the variance in predicting disordered eating, $\Delta R^2 = .034$, $p < .001$, indicating that Rumination significantly moderated the relation between body dissatisfaction and disordered eating. To determine the nature of the interaction, the simple Rumination slopes were examined at lower (1 SD below the centered mean), moderate (at the centered mean), and higher (1 SD above the centered mean) levels of body dissatisfaction. Examination of the simple slopes indicated that Rumination moderated the relation between body dissatisfaction and disordered eating such that at all levels of Rumination, body dissatisfaction had a positive relation to disordered eating. This relation was significantly stronger as Rumination use was higher: at the centered Mean -1 SD: $b = 1.11$, $t(345) = 10.14$, $p < .001$; at the centered mean: $b = 1.51$, $t(345) = 19.52$, $p < .001$; at the centered Mean +1 SD: $b = 1.91$, $t(345) = 19.66$, $p < .001$. See Figure 2.

Figure 2

Moderating Role of Rumination in the Relation Between Body Dissatisfaction and Disordered Eating



Note. EDE-Q (Disordered Eating) possible scale maximum = 6.

The interactions between body dissatisfaction and emotion regulation strategy type for the other five emotion regulation strategies were not statistically significant, indicating that they did not moderate the relation between body dissatisfaction and disordered eating. Body dissatisfaction x Reappraisal: $\Delta R^2 = .0003$, $b = .04$, $t(343) = .49$, $p = .624$. Body dissatisfaction x Relaxation/Arousal Control: $\Delta R^2 = .006$, $b = .16$, $t(345) = 2.24$, $p = .026$. Body dissatisfaction x Expressive Engagement: $\Delta R^2 = .005$, $b = .18$, $t(345) = 2.08$, $p = .039$. Body dissatisfaction x Expressive Suppression: $\Delta R^2 = .005$, $b = .16$, $t(345) = 2.03$, $p = .043$. Body dissatisfaction x Distraction: $\Delta R^2 = .0004$, $b = .04$, $t(345) = .56$, $p = .578$.

Exploratory Sensitivity Analysis of 3-Way Interaction between Body Dissatisfaction x Rumination x Gender

Given that women reported greater use of Rumination to downregulate negative emotions than men and that Rumination was a statistically significant moderator, a post-hoc exploratory regression analysis using Model 3 of PROCESS macro v4.2 (Hayes, 2022) was conducted. The 3-way interaction of body dissatisfaction x Rumination x gender in the relation between body dissatisfaction and disordered eating was not statistically significant, $\Delta R^2 = .0003$, $b = .09$, $t(342) = .55$, $p = .581$.

Exploratory Analysis of Emotion Regulation Strategy Use

The statistical assumptions for repeated measures ANOVA were tested. Mauchly's Test of Sphericity with a Greenhouse-Geisser epsilon value of .862, indicated that the assumption of sphericity was violated, $X^2(14) = 138.64$, $p < .001$; a Greenhouse-Geisser correction was applied.

The repeated measures ANOVA was conducted to assess significant differences between participants' propensity to use the six emotion regulation strategies. Cohen's (1992) criteria were used to evaluate effect size where .02 = a small effect size, .13 = a medium effect size, and .26 = a large effect size. Results showed that there was a significant difference in participants' propensity to use the six emotion regulation strategies, $F(4.31, 1504.60) = 37.79$, $p < .001$, partial eta squared (η_p^2) = .098 (small effect size). Post hoc analysis with a Benjamini-Hochberg correction (p-value for false discovery rate = .002) showed that participants reported using Rumination ($M = 3.05$) to downregulate negative emotions significantly more than Expressive Engagement, ($M = 2.61$, $SE = .06$, $p < .001$), Reappraisal ($M = 2.72$, $SE = .07$, $p < .001$), Expressive Suppression ($M = 2.54$, $SE = .06$, $p < .001$), Relaxation/Arousal Control ($M = 2.30$, $SE = .07$, $p < .001$), and Distraction ($M = 2.86$, $SE = .06$, $p = .002$).

Discussion

The associations between body dissatisfaction, frequently used emotion regulation strategies, and disordered eating were examined in a community sample of young adults aged 25. Specifically, the moderating role of emotion regulation strategy type in the relation between body dissatisfaction and disordered eating was examined. Given that individuals tend to use more than one strategy to regulate emotions (Ford et al., 2019; Gross, 2015; Ladis et al., 2023; Lennarz et al., 2018), an emotion regulation strategy type scale that assesses the proportional use of Distraction, Rumination, Reappraisal, Relaxation/Arousal Control, Expressive Engagement, and Expressive Suppression was used. These strategies were selected to represent the three core components of emotion (cognitive, physiological, and behavioural; De France & Hollenstein, 2017). Due to diagnostic instability and the wide range of presentations of disordered eating in the community, a symptoms-based approach that included subclinical symptoms was undertaken in this study.

Emotion Regulation Strategy Use

Results indicated that of the six emotion regulation strategies that were examined, Rumination had the strongest association with both body dissatisfaction and disordered eating, suggesting a higher propensity for Rumination in individuals with body dissatisfaction and disordered eating. This finding is consistent with other studies that have reported stronger associations between Rumination and eating pathology (e.g., network meta-analysis by Leppanen et al., 2022; Naumann et al., 2016; meta-analysis by Prefit et al., 2019). Focusing on food and eating, and body weight and shape are considered to be eating disorder specific rumination (Cowdrey & Park, 2011; Leppanen et al., 2022; meta-analysis by Smith et al., 2018), which may explain why Rumination had the strongest association with body dissatisfaction and disordered eating in this sample. Additionally, in comparison to men, women reported greater use of Rumination to downregulate negative emotions, which is in line with previous research (see meta-analyses by Johnson & Whisman, 2013; Smith et al., 2018).

Reappraisal is considered to be an adaptive emotion regulation strategy (e.g., Aldao et al., 2010), but contrary to expectation, it was not associated with either body dissatisfaction or disordered eating. This is consistent with previous research; for example, in their meta-analysis, Aldao et al. (2010) also found that Reappraisal was not statistically significantly associated with disordered eating. Likewise, in their network meta-analysis, Leppanen et al. (2022) found that

"lack of reappraisal" had the weakest association with symptoms of eating disorders (p. 16). Similarly, Naumann et al. (2016) found that both their disordered eating and control groups reported low levels in the use of spontaneous Reappraisal. Along these lines, in their examination of the use of eight emotion regulation strategies in a general sample of adolescents, Lennarz et al. (2018) found that Reappraisal was the least used strategy to downregulate negative emotions. Thus, the findings of the present study are in line with evidence that Reappraisal is used less to regulate negative emotions. One possible explanation for this may be that participants in this study tended to not use Reappraisal to downregulate negative emotions because their default strategy was Rumination.

As hypothesized, Rumination moderated the relation between body dissatisfaction and disordered eating such that at all levels of Rumination (lower, moderate, and higher), body dissatisfaction had a positive relation to disordered eating and this relation was significantly stronger as Rumination use was higher. In fact, Rumination was the only emotion regulation strategy that moderated the relation between body dissatisfaction and disordered eating. Further, participants reported using Rumination to downregulate negative emotions significantly more than the other five emotion regulation strategies. A possible explanation for this finding is that in times of heightened negative affect, individuals are defaulting to ruminating about their distress and are not using other more adaptive emotion regulation strategies such as Reappraisal or Relaxation/Arousal Control.

The tendency to Ruminate may be driven by a perceived advantage that doing this will allow the individual to address their problems (Lennarz et al., 2018; Nolen-Hoeksema et al., 2008). This may explain why it is a commonly used emotion regulation strategy even though it is not an effective strategy. According to the Response Styles Theory, Rumination can keep individuals "stuck" on thinking about their problems and associated negative feelings and can interfere with effective problem solving. Further, it can maintain and increase distress through worsening negative affect and thoughts, and by interfering with the ability to problem solve due to these negatively biased thoughts (Nolen-Hoeksema, 1991; Nolen-Hoeksema et al., 2008). Consequently, individuals who tend to employ Rumination as an emotion regulation strategy may not have corrective experiences that come from more adaptive and action-oriented emotion regulation strategies, and thus may continue to use this less adaptive strategy.

Another possible reason for why Rumination was used more than the other emotion regulation strategies could be that the other strategies are more effortful to deploy. For example, while Reappraisal is considered to be an adaptive strategy, actively reinterpreting an emotional event is more effortful (Ortner et al., 2016; Sheppes et al., 2014; Troy et al., 2018) because it is a multi-component process that involves first the decision to use Reappraisal, and next being able to use it successfully (Ford et al., 2017; Gross, 2015; McRae, 2013; Ortner et al., 2016). Additionally, it requires the deployment of more complex cognitive processes such as working memory, task switching, and the ability to override a more dominant emotional response (Hofmann et al., 2012; Ortner et al., 2016; Troy et al., 2018). Indeed, in support of this, Troy et al. (2018) found that participants reported greater difficulty with using Reappraisal in comparison to acceptance to regulate negative emotions. Furthermore, the selection, degree of effort required, and regulatory success of Reappraisal depends on the intensity of the target emotion (Ortner et al., 2016). Reappraisal is believed to be more difficult to deploy as emotional intensity increases, because at higher emotional intensity it may become harder to inhibit or compete with the original more negative interpretation of the situation (Ortner et al., 2016; Troy et al., 2018). Hence, Reappraisal may not be as effective at high emotion intensity (Gross, 2015; Sheppes et al., 2014). In their recent meta-analysis on anger and aggression, Kjaervik and Bushman (2024) concluded that at high intensity emotion, it is critical to address the physiological arousal component of the emotional state, and so the more effective regulatory strategy is to decrease physiological arousal (i.e., engage in Relaxation/Arousal Control) through activities such as breathing, relaxation, mindfulness, or yoga. This may also be true for other high intensity emotional states.

Specific to disordered eating, Naumann et al. (2016) found that both their disordered eating and control groups reported low use of Reappraisal and suggested that it may be more challenging to learn and use. These same arguments may also account for why the other emotion regulation strategies were used less in comparison to Rumination. However, overall, there is limited research examining the effortful nature of and the cognitive costs associated with deploying these strategies relative to Rumination.

The finding of Rumination as the more used strategy could also relate to vulnerabilities in the neurocognitive processes of individuals with eating pathology. Certain neurocognitive vulnerabilities may place individuals at risk for the development and maintenance of symptoms

of eating disorders (MacNeil & Leung, 2022; Schmidt & Treasure, 2006; Steinglass & Walsh, 2006; Treasure & Schmidt, 2013). Specifically, cognitive rigidity and high levels of attention to detail (Keegan et al., 2021; MacNeil & Leung, 2022), and difficulties with set shifting (Keegan et al., 2021; Steinglass & Walsh, 2006) and inhibitory control (Culbert et al., 2015) have been found in individuals with eating pathology. As noted earlier, such difficulties with task switching and inhibitory control can interfere with the ability to use Reappraisal. Furthermore, if individuals with disordered eating have greater cognitive rigidity and attention to detail, and difficulties with set shifting and inhibitory control, perhaps they are unable to use other emotion regulation strategies such as Reappraisal or Relaxation/Arousal Control without psychoeducational training. It is also possible that they may continue to have difficulties with using these strategies even after being taught; they may require more targeted interventions such as Cognitive Remediation Therapy to address neurocognitive weaknesses such as cognitive rigidity and attention to detail (MacNeil & Leung, 2022; Meneguzzo et al., 2021; Thorsrud et al., 2024).

Limitations

There are several strengths to this study including the relatively large sample size, the use of a community sample, a symptoms-based approach, and the use of a single scale that measures multiple commonly used emotion regulation strategies that represent the three core components of emotion (cognitive, physiological, and behavioural). However, there are also some limitations.

One limitation of this study is that the RESS measures individuals' proportional use of emotion regulation strategies to downregulate negative emotions in general. Thus, it was not possible to assess emotion regulation strategy use specifically during instances of body dissatisfaction and disordered eating. Additionally, the RESS relies on participants' retrospective recall of how they tend to regulate negative emotions/their habitual emotion regulation. These two limitations can be addressed in future research through procedures such as experience sampling methodology or ecological momentary assessment (e.g., Portingale et al., 2023; Srivastava et al., 2021). For example, Medland et al. (2020) adapted the RESS for ecological momentary assessment, which allowed them to assess within-person variation in emotion regulation strategy use in daily life. Although experience sampling methodology and ecological momentary assessment procedures reduce the use of retrospective recall, they do not eliminate this concern because they often allow participants to respond to prompts within certain time

frames. Additionally, these methods do not necessarily allow for the examination of emotion regulation during specific emotional experiences, such as instances of body dissatisfaction or disordered eating. This can be addressed through an event-contingent approach, which would require participants to self-initiate completing an experience sampling methodology or ecological momentary assessment survey (Medland et al., 2020) during instances of body dissatisfaction and/or disordered eating.

Additionally, all measures were based on self-report, which can inflate associations due to self-report biases such as social desirability bias and recall bias (Althubaiti, 2016). However, self-report data are essential for getting necessary information on subjective experiences. Self-report biases can be mitigated through the addition of observational (Lennarz et al., 2018) and/or collateral data from family, friends, and healthcare providers, where applicable.

Another limitation of this study is the use of a cross-sectional design. Using a cross-sectional design has disadvantages in that it does not allow for the examination of change over time or the establishment of causality. However, the objective of this study was to examine emotion regulation specifically in young adulthood and as is known, emotion regulation strategy use changes over the lifespan (De France & Hollenstein, 2019). In order to get a more comprehensive picture of the relation between body dissatisfaction, emotion regulation strategy use, and disordered eating, future research should examine these variables longitudinally to ascertain their temporal ordering while staying within developmental stages. Additionally, as emotion regulation strategy use varies by developmental stage, caution should be exercised in generalizing these results to other age cohorts.

Furthermore, the heterogeneity of disordered eating was not examined. However, examining a broad range of symptoms of disordered eating (i.e., taking a symptoms-based approach) was intentional in order for results to be applicable to a wide population with disordered eating as it would present in the general community. To this end, this study examined all levels of disordered eating without using a specific cut off score where subclinical symptoms reach severity of clinical eating disorders. Thus, participants' EDE-Q global scores were used and not the separate EDE-Q subscales, which was also done in support of a transdiagnostic approach. Future research may also benefit from examining the full range of disordered eating as it presents in the community by including symptoms not currently in The Diagnostic and

Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (APA, 2022), such as orthorexia nervosa.

Future Directions

This study explored the associations between body dissatisfaction, six commonly used emotion regulation strategies, and disordered eating. Future directions for this research should examine these strategies as emotion regulation strategy repertoires and in the context of emotion polyregulation, which is a more comprehensive representation of emotion regulation as it occurs in daily life (Ford et al., 2019; Ladis et al., 2023). Such an approach would allow for the examination of the "combinations and sequences" of various emotion regulation strategies that are used to regulate emotions either more or less effectively (Ford et al., 2019, p. 206). Specific to body dissatisfaction and disordered eating from an intervention perspective, this information would be useful for understanding how different strategies can be combined and used in sequence to lessen distress and thus the severity of body dissatisfaction and disordered eating.

Given that this study's sample was comprised of 62.9% women and 76.7% White participants, these results need to be replicated in a more diverse community sample. Indeed, the homogeneity of this sample limits the generalizability of results to other ethno-racial and gender-diverse groups. Additionally, another direction for this research would be to examine participants who meet the cut off scores for diagnoses of eating disorders and replicate results in this clinical sample where effect sizes observed would likely be larger.

Clinical Implications

Given the high prevalence of body dissatisfaction (e.g., Runfola et al., 2013) and disordered eating (e.g., Lee & Vaillancourt, 2018), this research contributes to the literature on prevention and interventions for body dissatisfaction and disordered eating. Eating disorders are serious and difficult to treat, and thus it is important to intervene before symptoms reach the threshold for clinical diagnosis. Specifically, this research contributes to the existing literature by investigating which emotion regulation strategies individuals with body dissatisfaction and disordered eating tend to rely on to manage negative emotions. This is an important area of study because of the association between negative affect and disordered eating. The results of this study underscore the importance of assessing an individual's emotion regulation strategy repertoire with a specific focus on cognitive styles such as the propensity for Rumination, and how these cognitive styles relate to body dissatisfaction and symptoms of disordered eating. As

recommended by MacNeil and Leung (2022), it is important for clinicians to assess and target thinking styles such as cognitive rigidity and attention to detail as a part of a comprehensive treatment plan for disordered eating.

The results of this study lend empirical support to the approaches being taken in current treatment programs for disordered eating that include modules on cognitive restructuring and flexibility, body image related cognitive distortions, tolerance of negative emotions, and Arousal Control using relaxation and mindfulness strategies (e.g., Kingston Health Sciences Centre, 2025; The Ottawa Hospital, 2025). For individuals with more intractable cognitive rigidity and attention to detail, there is some promising work being done to adapt Cognitive Remediation Therapy for disordered eating through exercises that target "multitasking", "switching", and "bigger picture thinking" to increase cognitive flexibility (e.g., Meneguzzo et al., 2021, p. 773; Tchanturia, 2015).

These results also speak to the importance of psychoeducational training on emotion regulation, and not assuming that effective emotion regulation comes naturally, especially when emotions are heightened. Effective emotion regulation requires knowledge, intentional choice, and sustained effort, including over-riding a dominant regulatory response. This is especially important for individuals for whom Rumination has become a habitual or implicit response to negative emotions. Part of this psychoeducational training should involve teaching individuals about more effective forms of emotion regulation. For example, in the case of Reappraisal, it is important to learn that it is an adaptive strategy, but for it to be effective it needs to be practiced frequently and successfully (Ford et al., 2017). Likewise, it is beneficial to learn about and to practice Relaxation/Arousal Control emotion regulation strategies that bring down physiological arousal during heightened emotion (Kjaervik & Bushman, 2024).

In the end, it may not be about learning and mastering a single emotion regulation strategy and applying it to all negative emotions, but rather developing a range of strategies to choose from that can be deployed individually or in combination, based on context (Ford et al., 2019; Hayes & Hofmann, 2021; Ladis et al., 2023). As stated in the Process Model of Emotion Regulation (Gross, 1998; 2015) and in the emotion polyregulation extension of this framework (Ford et al., 2019), emotion regulation is a multistage process involving identifying regulation goals, selecting emotion regulation strategies, implementing these strategies, maintaining the strategies that are helping, and disengaging from those that are not helping. If Rumination

becomes the dominant or habitual response to negative emotions, this may interfere with this process. Notably, it may interfere with the selection of strategies and with assessing whether it is necessary to "maintain, switch, or stop" (Ford et al., 2019, p. 199) the response that is underway.

Conclusions

The relation between body dissatisfaction, commonly used emotion regulation strategies, and disordered eating was examined in a community sample of young adults. Results indicated that of the six emotion regulation strategies examined, Rumination had the strongest association with body dissatisfaction and disordered eating. Further, of these six emotion regulation strategies, Rumination was the only significant moderator in the relation between body dissatisfaction and disordered eating. Specifically, at all levels of Rumination, body dissatisfaction had a positive relation to disordered eating and this relation was significantly stronger as Rumination use was higher. The results of this study speak to the power of Rumination in that even for participants with subclinical symptoms, increased levels of Rumination were associated with higher levels of body dissatisfaction and disordered eating. The results also support the importance of targeting emotion regulation and cognitive styles as essential components of interventions for prevention and treatment of body dissatisfaction and disordered eating. A key takeaway message is that effective emotion regulation requires knowledge, effort, and flexibility, and may need to be taught, preferably from a young age.

References

Agostino, H., Burstein, B., Moubayed, D., Taddeo, D., Grady, R., Vyver, E., Dimitropoulos, G., Dominic, A., & Coelho, J. S. (2021). Trends in the incidence of new-onset anorexia nervosa and atypical anorexia nervosa among youth during the COVID-19 pandemic in Canada. *JAMA Network Open, 4*(12), Article e2137395. https://doi.org/10.1001/jamanetworkopen.2021.37395

Aldao, A., Jazaieri, H., Goldin, P. R., & Gross, J. J. (2014). Adaptive and maladaptive emotion regulation strategies: Interactive effects during CBT for social anxiety disorder. *Journal of Anxiety Disorders, 28*(4), 382–389. https://doi.org/10.1016/j.janxdis.2014.03.005

Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30*(2), 217–237. https://doi.org/10.1016/j.cpr.2009.11.004

Althubaiti, A. (2016). Information bias in health research: Definition, pitfalls, and adjustment methods. *Journal of Multidisciplinary Healthcare, 9*(1), 211–217. https://doi.org/10.2147/JMDH.S104807

Ambwani, S., Slane, J. D., Thomas, K. M., Hopwood, C. J., & Grilo, C. M. (2014). Interpersonal dysfunction and affect-regulation difficulties in disordered eating among men and women. *Eating Behaviors, 15*(4), 550–554. https://doi.org/10.1016/j.eatbeh.2014.08.005

American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.). https://doi.org/10.1176/appi.books.9780890425787

American Psychiatric Association. (2023, February). *What are eating disorders?* American Psychiatric Association. https://www.psychiatry.org/patients-families/eating-disorders/what-are-eating-disorders

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173–1182. https://doi.org/10.1037/0022-3514.51.6.1173

Benjamini, Y., & Hochberg, Y. (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society: Series B (Methodological)*, *57*(1), 289–300. https://doi.org/10.1111/j.2517-6161.1995.tb02031.x

Bradshaw, S., & Vaillancourt, T. (2024, February). *Freedom of thought, social media and the teen brain*, Waterloo, ON: Centre for International Governance Innovation. https://www.cigionline.org/static/documents/FoT_PB_no.9.pdf

Branley-Bell, D., & Talbot, C. V. (2020). Exploring the impact of the COVID-19 pandemic and UK lockdown on individuals with experience of eating disorders. *Journal of Eating Disorders, 8,* Article 44. https://doi.org/10.1186/s40337-020-00319-y

Brockmeyer, T., Skunde, M., Wu, M., Bresslein, E., Rudofsky, G., Herzog, W., & Friederich, H-C. (2014). Difficulties in emotion regulation across the spectrum of eating disorders. *Comprehensive Psychiatry, 55*(3)*,* 565–571. https://doi.org/10.1016/j.comppsych.2013.12.001

Bucchianeri, M. M., & Neumark-Sztainer, D. (2014). Body dissatisfaction: An overlooked public health concern. *Journal of Public Mental Health, 13*(2)*,* 64–69. https://doi.org/10.1108/JPMH-11-2013-0071

Buckley, G. L., Hall, L. E., Lassemillante, A-C. M., & Belski, R. (2021). Disordered eating & body image of current and former athletes in a pandemic; A convergent mixed methods study - *What can we learn from COVID-19 to support athletes through transitions? Journal of Eating Disorders, 9,* Article 73. https://doi.org/10.1186/s40337-021-00427-3

Cafri, G., Yamamiya, Y., Brannick, M., & Thompson, J. K. (2005). The influence of sociocultural factors on body image: A meta-analysis. *Clinical Psychology: Science and Practice, 12*(4), 421–433. https://doi.org/10.1093/clipsy.bpi053

Carey, M., & Preston, C. (2019). Investigating the components of body image disturbance within eating disorders. *Frontiers in Psychiatry, 10,* Article 635. https://doi.org/10.3389/fpsyt.2019.00635

Cash, T. F., & Deagle, E. A. (1997). The nature and extent of body-image disturbances in anorexia nervosa and bulimia nervosa: A meta-analysis. *International Journal of Eating Disorders, 22*(2), 107–126. https://doi.org/10.1002/(SICI)1098-108X(199709)22:2<107::AID-EAT1>3.0.CO;2-j

Cash, T. F., Santos, M. T., & Williams, E. F. (2005). Coping with body-image threats and challenges: Validation of the Body Image Coping Strategies Inventory. *Journal of Psychosomatic Research, 58*(2), 190–199. https://doi.org/10.1016/j.jpsychores.2004.07.008

Chen, G., Wang, X., Barnhart, W. R., Fu, Y., & Jinbo, H. (2024). Exploring the moderating roles of dispositional mindfulness and body image flexibility in the association between body dissatisfaction and disordered eating in Chinese adolescents. *Journal of Clinical Psychology, 80*(9), 1998–2013. https://doi.org/10.1002/jclp.23706

Chua, T. H. H., & Chang, L. (2016). Follow me and like my beautiful selfies: Singapore teenage girls' engagement in self-presentation and peer comparison on social media. *Computers in Human Behavior, 55,* 190–197. https://doi.org/10.1016/j.chb.2015.09.011

Clark Bryan, D., Macdonald, P., Ambwani, S., Cardi, V., Rowlands, K., Willmott, D., & Treasure, J. (2020). Exploring the ways in which COVID-19 and lockdown has affected the lives of adult patients with anorexia nervosa and their carers. *European Eating Disorders Review, 28*(6), 826–835. https://doi.org/10.1002/erv.2762

Cohen, J. (1988). The t test for means. In J. Cohen (Ed.), *Statistical power analysis for the behavioral sciences: 2nd edition* (pp. 19–74). Routledge. https://doi.org/10.4324/9780203771587

Cohen, J. (1992). Quantitative methods in psychology: A power primer. *Psychological Bulletin, 112.* 1155–1159.

Coker, E., & Abraham, S. (2014). Body weight dissatisfaction: A comparison of women with and without eating disorders. *Eating Behaviors, 15*(3), 453–459. https://doi.org/10.1016/j.eatbeh.2014.06.014

Corno, G., Paquette, A., Monthuy-Blanc, J., Ouellet, M., & Bouchard, S. (2022). The relationship between women's negative body image and disordered eating behaviors during the COVID-19 pandemic: A cross-sectional study. *Frontiers in Psychology, 13,* Article 856933. https://doi.org/10.3389/fpsyg.2022.856933

Cowdrey, F. A., & Park, R. J. (2011). Assessing rumination in eating disorders: Principal component analysis of a minimally modified ruminative response scale. *Eating Behaviors*, *12*(4), 321–324. https://doi.org/10.1016/j.eatbeh.2011.08.001

Culbert, K. M., Racine, S. E., & Klump, K. L. (2015). Research review: What we have learned about the causes of eating disorders – A synthesis of sociocultural, psychological, and biological research. *The Journal of Child Psychology and Psychiatry, 56*(11), 1141–1164. https://doi.org/10.1111/jcpp.12441

De France, K., & Hollenstein, T. (2017). Assessing emotion regulation repertoires: The Regulation of Emotion Systems Survey. *Personality and Individual Differences, 119,* 204–215. https://doi.org/10.1016/j.paid.2017.07.018

De France, K., & Hollenstein, T. (2019). Emotion regulation and relations to well-being across the lifespan. *Developmental Psychology, 55*(8), 1768–1774. https://doi.org/10.1037/dev0000744

de Vries, D. A., Peter, J., de Graaf, H., & Nikken, P. (2016). Adolescents' social network site use, peer appearance-related feedback, and body dissatisfaction: Testing a mediation model. *Journal of Youth and Adolescence, 45,* 211–224. https://doi.org/10.1007/s10964-015-0266-4

Devoe, D. J., Han, A., Anderson, A., Katzman, D. K., Patten, S. B., Soumbasis, A., Flanagan, J., Paslakis, G., Vyver, E., Marcoux, G., & Dimitropoulos, G. (2023). The impact of the COVID-19 pandemic on eating disorders: A systematic review. *International Journal of Eating Disorders, 56*(1)*,* 5–25. https://doi.org/10.1002/eat.23704

Dumas, T. M., Maxwell-Smith, M., Davis, J. P., & Giulietti, P. A. (2017). Lying or longing for likes? Narcissism, peer belonging, loneliness and normative versus deceptive like-seeking on Instagram in emerging adulthood. *Computers in Human Behavior, 71,* 1–10. https://doi.org/10.1016/j.chb.2017.01.037

Extremera, N., & Rey, L. (2015). The moderator role of emotion regulation ability in the link between stress and well-being. *Frontiers in Psychology, 6,* Article 1632. https://doi.org/10.3389/fpsyg.2015.01632

Fairburn, C. G., & Beglin, S. J. (1994). Assessment of eating disorders: Interview or self-report questionnaire? *International Journal of Eating Disorders, 16*(4)*,* 363–370.

Fairburn, C. G., & Beglin, S. J. (2008). Eating Disorder Examination Questionnaire (EDE 6.0). In C. G. Fairburn (Ed.), *Cognitive behavior therapy and eating disorders*. Guilford Press.

Fairburn, C. G., Cooper, Z., & Shafran, R. (2003). Cognitive behaviour therapy for eating disorders: A "transdiagnostic" theory and treatment. *Behaviour Research and Therapy, 41*(5)*,* 509–528. https://doi.org/10.1016/S0005-7967(02)00088-8

Fardouly, J., Pinkus, R. T., & Vartanian, L. R. (2017). The impact of appearance comparisons made through social media, traditional media, and in person in women's everyday lives. *Body Image, 20,* 31–39. https://doi.org/10.1016/j.bodyim.2016.11.002

Fardouly, J., & Vartanian, L. R. (2015). Negative comparisons about one's appearance mediate the relationship between Facebook usage and body image concerns. *Body Image, 12,* 82–88. https://doi.org/10.1016/j.bodyim.2014.10.004

Fassino, S., & Abbate-Daga, G. (2013). Resistance to treatment in eating disorders: A critical challenge. *BMC Psychiatry, 13,* Article 282. https://doi.org/10.1186/1471-244X-13-282

Ford, B. Q., Gross, J. J., & Gruber, J. (2019). Broadening our field of view: The role of emotion polyregulation. *Emotion Review*, *11*(3), 197–208. https://doi.org/10.1177/1754073919850314

Ford, B. Q., Karnilowicz, H. R., & Mauss, I. B. (2017). Understanding reappraisal as a multi-component process: The psychological health benefits of attempting to use reappraisal depend on reappraisal success. *Emotion*, *17*(6), 905–911. https://doi.org/10.1037/emo0000310

Griffiths, S., Harris, E. A., Whitehead, G., Angelopoulos, F., Stone, B., Grey, W., & Dennis, S. (2024). Does TikTok contribute to eating disorders? A comparison of the TikTok algorithms belonging to individuals with eating disorders versus healthy controls. *Body Image*, *51,* Article 101807. https://doi.org/10.1016/j.bodyim.2024.101807

Grogan, S. (2021). Introduction. In S. Grogan (Ed.), *Body image: Understanding body dissatisfaction in men, women and children* (pp. 285–296). Routledge. https://doi.org/10.4324/9781003100041

Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology, 2*(3)*,* 271–299. https://doi.org/10.1037/1089-2680.2.3.271

Gross, J. J. (2015). Emotion regulation: Current status and future prospects. *Psychological Inquiry, 26*(1)*,* 1–26. https://doi.org/10.1080/1047840X.2014.940781

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, *85*(2), 348–362. https://doi.org/10.1037/0022-3514.85.2.348

Hallward, L., Nagata, J. M., Rodgers, R. F., & Ganson, K. T. (2023). Examination of eating disorder psychopathology across sexual and gender identities among a Canadian sample. *International Journal of Eating Disorders, 56*(3)*,* 604–615. https://doi.org/10.1002/eat.23872

Hay, P., Aouad, P., Le, A., Marks, P., Maloney, D., National Eating Disorder Research Consortium, Touyz, S., & Maguire, S. (2023). Epidemiology of eating disorders: Population, prevalence, disease burden and quality of life informing public policy in Australia—A rapid review. *Journal of Eating Disorders, 11*, Article 23. https://doi.org/10.1186/s40337-023-00738-7

Hayes, A. F. (2022). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (3rd ed.). The Guilford Press.

Hayes, S. C., & Hofmann, S. G. (2021). "Third-wave" cognitive and behavioral therapies and the emergence of a process-based approach to intervention in psychiatry. *World Psychiatry, 20*(3), 363–375. https://doi.org/10.1002/wps.20884

Hofmann, W., Schmeichel, B. J., & Baddeley, A. D. (2012). Executive functions and self-regulation. *Trends in Cognitive Sciences*, *16*(3), 174–180. https://doi.org/10.1016/j.tics.2012.01.006

Holland, G., & Tiggemann, M. (2016). A systematic review of the impact of the use of social networking sites on body image and disordered eating outcomes. *Body Image, 17,* 100–110. https://doi.org/10.1016/j.bodyim.2016.02.008

Hughes, E. K., & Gullone, E. (2011). Emotion regulation moderates relationships between body image concerns and psychological symptomatology. *Body Image, 8*(3)*,* 224–231. https://doi.org/10.1016/j.bodyim.2011.04.001

Hunter, R., & Gibson, C. (2021). Narratives from within 'lockdown': A qualitative exploration of the impact of COVID-19 confinement on individuals with anorexia nervosa. *Appetite, 166,* Article 105451. https://doi.org/10.1016/j.appet.2021.105451

Jacobi, C., Hayward, C., de Zwaan, M., Kraemer, H. C., & Agras, W. S. (2004). Coming to terms with risk factors for eating disorders: Application of risk terminology and suggestions for a general taxonomy. *Psychological Bulletin, 130*(1), 19–65. https://doi.org/10.1037/0033-2909.130.1.19

Jiotsa, B., Naccache, B., Duval, M., Rocher, B., & Grall-Bronnec, M. (2021). Social media use and body image disorders: Association between frequency of comparing one's own physical appearance to that of people being followed on social media and body dissatisfaction and drive for thinness. *International Journal of Environmental Research and Public Health, 18*(6). https://doi.org/10.3390/ijerph18062880

Johnson, D. P., & Whisman, M. A. (2013). Gender differences in rumination: A meta-analysis. *Personality and Individual Differences*, *55*(4), 367–374. https://doi.org/10.1016/j.paid.2013.03.019

Kaplan, A. S., & Garfinkel, P. E. (1999). Difficulties in treating patients with eating disorders: A review of patient and clinician variables. *The Canadian Journal of Psychiatry, 44*(7), 665–670. https://doi.org/10.1177/070674379904400703

Kearney-Cooke, A., & Tieger, D., (2015). Body image disturbance and the development of eating disorders. In L. Smolak & M. P. Levine (Eds.), *The Wiley handbook of eating disorders volume 1: Basic concepts and foundational research* (pp. 1–12). Wiley. https://doi.org/10.1002/9781118574089

Keegan, E., Tchanturia, K., & Wade, T. D. (2021). Central coherence and set-shifting between nonunderweight eating disorders and anorexia nervosa: A systematic review and meta-analysis. *International Journal of Eating Disorders, 54*(3), 229–243. https://doi.org/10.1002/eat.23430

Keel, P. K., Brown, T. A., Holm-Denoma, J., & Bodell, L. P. (2011). Comparison of DSM-IV versus proposed DSM-5 diagnostic criteria for eating disorders: Reduction of eating disorder not otherwise specified and validity. *International Journal of Eating Disorders, 44*(6), 553–560. https://doi.org/10.1002/eat.20892

Kingston Health Sciences Centre. (2025). *Group therapy program.* Kingston Health Sciences Centre. https://kingstonhsc.ca/mental-health-and-addiction-care/eating-disorders-treatment/adult-eating-disorders-program/group

Kjaervik, S. L., & Bushman, B. J. (2024). A meta-analytic review of anger management activities that increase or decrease arousal: What fuels or douses rage? *Clinical Psychology Review*, *109*, Article 102414. https://doi.org/10.1016/j.cpr.2024.102414

Kline, R. B. (2023). *Principles and practice of structural equation modeling fifth edition.* The Guilford Press.

Kling, J., Kwakkenbos, L., Diedrichs, P. C., Rumsey, N., Frisén, A., Brandão, M. P., Silva, A. G., Dooley, B., Rodgers, R. F., & Fitzgerald, A. (2019). Systematic review of body image measures. *Body Image, 30,* 170–211. https://doi.org/10.1016/j.bodyim.2019.06.006

Klump, K. L., Bulik, C. M., Kaye, W. H., Treasure, J., & Tyson, E. (2009). Academy for eating disorders position paper: Eating disorders are serious mental illnesses. *International Journal of Eating Disorders, 42*(2)*,* 97–103. https://doi.org/10.1002/eat.20589

Krawczyk, R., Manzel, J., & Thompson, J. K. (2012). Methodological issues in the study of body image and appearance. In N. Rumsey & D. Harcourt (Eds.), *Oxford handbook of the psychology of appearance* (pp. 605–619). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199580521.013.0044

Ladis, I., Toner, E. R., Daros, A. R., Daniel, K. E., Boukhechba, M., Chow, P. I., Barnes, L. E., Teachman, B. A., & Ford, B. Q. (2023). Assessing emotion polyregulation in daily life: Who uses it, when is it used, and how effective is it? *Affective Science, 4*, 248–259. https://doi.org/10.1007/s42761-022-00166-x

Lavender, J. M., Wonderlich, S. A., Peterson, C. B., Crosby, R. D., Engel, S. G., Mitchell, J. E., Crow, S. J., Smith, T. L., Klein, M. H., Goldschmidt, A. B., & Berg, K. C. (2014). Dimensions of emotion dysregulation in bulimia nervosa. *European Eating Disorders Review, 22*(3), 212–216. https://doi.org/10.1002/erv.2288.

Leahey, T. M., Crowther, J. H., & Ciesla, J. A. (2011). An ecological momentary assessment of the effects of weight and shape social comparisons on women with eating pathology, high body dissatisfaction, and low body dissatisfaction. *Behavior Therapy, 42*(2), 197–210. https://doi.org/10.1016/j.beth.2010.07.003

Leahey, T. M., Crowther, J. H., & Mickelson, K. D. (2007). The frequency, nature, and effects of naturally occurring appearance-focused social comparisons. *Behavior Therapy, 38*(2), 132–143. https://doi.org/10.1016/j.beth.2006.06.004

Lee, K. S., & Vaillancourt, T. (2018). Longitudinal associations among bullying by peers, disordered eating behavior, and symptoms of depression during adolescence. *JAMA Psychiatry, 75*(6), 605–612. https://doi.org/10.1001/jamapsychiatry.2018.0284

Lee, K. S., & Vaillancourt, T. (2019). Body mass index, peer victimization, and body dissatisfaction across 7 years of childhood and adolescence: Evidence of moderated and mediated pathways. *Developmental Science, 22*(2), Article e12734. https://doi.org/10.1111/desc.12734

Lee, K. S., & Vaillancourt, T. (2024). Trajectories, comorbidity, and risk factors for adolescent disordered eating and borderline personality disorder features. *Development and Psychopathology, 36*(4), 1546–1557. https://doi.org/10.1017/S0954579423000792

Leehr, E., Krohmer, K., Schag, K., Dresler, T., Zipfel, S., & Giel, K. E. (2015). Emotion regulation model in binge eating disorder and obesity – A systematic review. *Neuroscience and Biobehavioral Reviews, 49*, 125–134. https://doi.org/10.1016/j.neubiorev.2014.12.008

Lennarz, H. K., Hollenstein, T., Lichtwarck-Aschoff, A., Kuntsche, E., & Granic, I. (2018). Emotion regulation in action: Use, selection, and success of emotion regulation in adolescents' daily lives. *International Journal of Behavioral Development*, *43*(1), 1–11. https://doi.org/10.1177/0165025418755540

Leppanen, J., Brown, D., McLinden, H., Williams, S., & Tchanturia, K. (2022). The role of emotion regulation in eating disorders: A network meta-analysis approach. *Frontiers in Psychiatry*, *13*, Article 793094. https://doi.org/10.3389/fpsyt.2022.793094

Linardon, J., Anderson, C., Messer, M., Rodgers, R. F., Fuller-Tyszkiewicz, M. (2021). Body image flexibility and its correlates: A meta-analysis. *Body Image*, *37*, 188–203. https://doi.org/10.1016/j.bodyim.2021.02.005

López-Gil, J. F., García-Hermoso, A., Smith, L., Firth, J., Trott, M., Mesas, A. E., Jiménez-López, E., Gutiérrez-Espinoza, H., Tárraga-López, P. J., & Victoria-Montesinos, D. (2023). Global proportion of disordered eating in children and adolescents: A systematic review and meta-analysis. *JAMA Pediatrics*, *177*(4), 363–372. https://doi.org/10.1001/jamapediatrics.2022.5848

Macklem, G. L. (2008). *Practitioner's guide to emotion regulation in school-aged children*. Springer. https://doi.org/10.1007/978-0-387-73851-2

MacNeil, B. A., & Leung, P. C. (2022). Evaluating thinking styles in adults with an eating disorder: Associations with life satisfaction, psychological symptoms, and treatment engagement. *Journal of Psychiatric Research*, *153*, 30–36. https://doi.org/10.1016/j.jpsychires.2022.06.055

MacNeil, B. A., & Thib, S. (2022). Psychiatric medication use by Canadian adults prior to entering an outpatient eating disorders program: Types and combinations of medications, predictors of being on a medication, and clinical considerations. *Psychiatry Research*, *317*, Article 114930. https://doi.org/10.1016/j.psychres.2022.114930

Madigan, S., Vaillancourt, T., Dimitropoulos, G., Premji, S., Kahlert, S. M., Zumwalk, K., Korczak, D. J., von Ranson, K. M., Pador, P., Ganshorn, H., Neville, R. D. (2025). A systematic review and meta-analysis: Child and adolescent healthcare utilization for eating disorders during the COVID-19 pandemic. *Journal of the American Academy of Child & Adolescent Psychiatry, 64*(2), 158–171. https://doi.org/10.1016/j.jaac.2024.02.009

Markham, A., Thompson, T., & Bowling, A. (2005). Determinants of body-image shame. *Personality and Individual Differences, 38*(7), 1529–1541. https://doi.org/10.1016/j.paid.2004.08.018

McRae, K. (2013). Emotion regulation frequency and success: Separating constructs from methods and time scale. *Social and Personality Psychology Compass*, *7*(5), 289–302. https://doi.org/10.1111/spc3.12027

McRae, K., Ciesielski, B., & Gross, J. J. (2012). Unpacking cognitive reappraisal: Goals, tactics, and outcomes. *Emotion*, *12*(2), 250–255. https://doi.org/10.1037/a0026351

McRae, K., & Gross, J. J. (2020). Emotion regulation. *Emotion, 20*(1), 1–9. https://doi.org/10.1037/emo0000703

Medland, H., De France, K., Hollenstein, T., Mussoff, D., & Koval, P. (2020). Regulating emotion systems in everyday life: Reliability and validity of the RESS-EMA scale. *European Journal of Psychological Assessment, 36*(3), 437–446. https://doi.org/10.1027/1015-5759/a000595

Meneguzzo, P., Tenconi, E., Todisco, P., & Favaro, A. (2021). Cognitive remediation therapy for anorexia nervosa as a rolling group intervention: Data from a longitudinal study in an eating disorders specialized inpatient unit. *European Eating Disorders Review*, *29*(5), 770–782. https://doi.org/10.1002/erv.2848

Micali, N., Solmi, F., Horton, N. J., Crosby, R. D., Eddy, K. T., Calzo, J. P., Sonneville, K. R., Swanson, S. A., & Field, A. E. (2015). Adolescent eating disorders predict psychiatric, high-risk behaviors and weight outcomes in young adulthood. *Journal of the American Academy of Child & Adolescent Psychiatry*, *54*(8), 652–659. https://doi.org/10.1016/j.jaac.2015.05.009

Mikhail, M. E., Burt, S. A., Neale, M. C., Keel, P. K., Katzman, D. K., & Klump, K. L. (2024). Changes in affect longitudinally mediate associations between emotion regulation strategy use and disordered eating. *International Journal of Eating Disorders*, *57*(5), 1181–1191. https://doi.org/10.1002/eat.24162

Miller, J. L., Vaillancourt, T., & Hanna, S. E. (2009). The measurement of "eating-disorder-thoughts" and "eating-disorder-behaviors": Implications for assessment and detection of eating disorders in epidemiological studies. *Eating Behaviors*, *10*(2), 89–96. https://doi.org/10.1016/j.eatbeh.2009.02.002

Moberly, N. J., & Watkins, E. R. (2008). Ruminative self-focus and negative affect: An experience sampling study. *Journal of Abnormal Psychology*, *117*(2), 314–323. https://doi.org/10.1037/0021-843X.117.2.314

Morin, G., & Meilleur, D. (2024). Association between emotion regulation and body image concerns in a group of adolescent boys: Interaction with the internalization of the sociocultural body ideal. *Journal of Emotional and Behavioral Disorders, 32*(4), 213–225. https://doi.org/10.1177/10634266231179434

Naumann, E., Tuschen-Caffier, B., Voderholzer, U., & Svaldi, J. (2016). Spontaneous emotion regulation in anorexia and bulimia nervosa. *Cognitive Therapy and Research*, *40*, 304–313. https://doi.org/10.1007/s10608-015-9723-3

Nolen-Hoeksema, S. (1991). Responses to depression and their effects on the duration of depressive episodes. *Journal of Abnormal Psychology*, *100*(4), 569–582. https://doi.org/10.1037/0021-843X.100.4.569

Nolen-Hoeksema, S. (2000). The role of rumination in depressive disorders and mixed anxiety/depressive symptoms. *Journal of Abnormal Psychology*, *109*(3), 504–511. https://doi.org/10.1037/0021-843X.109.3.504

Nolen-Hoeksema, S., Wisco, B. E., & Lyubomirsky, S. (2008). Rethinking rumination. *Perspectives on Psychological Science*, *3*(5), 400–424. https://doi.org/10.1111/j.1745-6924.2008.00088.x

Obeid, N., Coelho, J. S., Booij, L., Dimitropoulos, G., Silva-Roy, P., Bartram, M., Clement, F., de Oliveira, C., & Katzman, D. K. (2024a). Estimating additional health and social costs in eating disorder care for young people during the COVID-19 pandemic: Implications for surveillance and system transformation. *Journal of Eating Disorders*, *12*, Article 52. https://doi.org/10.1186/s40337-024-01003-1

Obeid, N., Silva-Roy, P., Booij, L., Coelho, J. S., Dimitropoulos, G., & Katzman, D. K. (2024b). The financial and social impacts of the COVID-19 pandemic on youth with eating disorders, their families, clinicians and the mental health system: A mixed methods cost analysis. *Journal of Eating Disorders*, *12*, Article 43. https://doi.org/10.1186/s40337-024-00986-1

Oldershaw, A., Lavender, T., Sallis, H., Stahl, D., & Schmidt, U. (2015). Emotion generation and regulation in anorexia nervosa: A systematic review and meta-analysis of self-report data. *Clinical Psychology Review*, *39*, 83–95. https://doi.org/10.1016/j.cpr.2015.04.005

Ortner, C. N. M., Marie, M. S., & Corno, D. (2016). Cognitive costs of reappraisal depend on both emotional stimulus intensity and individual differences in habitual reappraisal. *PLoS ONE*, *11*(12). https://doi.org/10.1371/journal.pone.0167253

Pedalino, F., & Camerini, A-L. (2022). Instagram use and body dissatisfaction: The mediating role of upward social comparison with peers and influencers among young females. *International Journal of Environmental Research and Public Health*, *19*(3). https://doi.org/10.3390/ijerph19031543

Pisetsky, E. M., Haynos, A. F., Lavender, J. M., Crow, S. J., & Peterson, C. B. (2017). Associations between emotion regulation difficulties, eating disorder symptoms, non-suicidal self-injury, and suicide attempts in a heterogeneous eating disorder sample. *Comprehensive Psychiatry*, *73*, 143–150. https://doi.org/10.1016/j.comppsych.2016.11.012

Portingale, J., Eddy, S., Fuller-Tyszkiewicz, M., Liu, S., Giles, S., & Krug, I. (2023). Tonight, I'm disordered eating: The effects of food delivery app use, loneliness, and mood on daily body dissatisfaction and disordered eating urges. *Appetite*, *180*, Article 106310. https://doi.org/10.1016/j.appet.2022.106310

Prefit, A-B., Cândea, D. M., & Szentagotai-Tătar, A. (2019). Emotion regulation across eating pathology: A meta-analysis. *Appetite*, *143*, Article 104438. https://doi.org/10.1016/j.appet.2019.104438

Presnell, K., Bearman, S. K., & Stice, E. (2004). Risk factors for body dissatisfaction in adolescent boys and girls: A prospective study. *International Journal of Eating Disorders, 36*(4), 389–401. https://doi.org/10.1002/eat.20045

Racine, S. E., & Horvath, S. A. (2018). Emotion dysregulation across the spectrum of pathological eating: Comparisons among women with binge eating, overeating, and loss of control eating. *The Journal of Treatment & Prevention*, *26*(1), 13–25. https://doi.org/10.1080/10640266.2018.1418381

Racine, S. E., & Wildes, J. E. (2013). Emotion dysregulation and symptoms of anorexia nervosa: The unique roles of lack of emotional awareness and impulse control difficulties when upset. *International Journal of Eating Disorders*, *46*(7), 713–720. https://doi.org/10.1002/eat.22145

Roberts, M. E., Barthel, F. M.-S., Lopez, C., Tchanturia, K., & Treasure, J. L. (2011). Development and validation of the Detail and Flexibility Questionnaire (DFlex) in eating disorders. *Eating Behaviors*, *12*(3), 168–174. https://doi.org/10.1016/j.eatbeh.2011.04.001

Robertson, M., Duffy, F., Newman, E., Bravo, C. P., Ates, H. H., & Sharpe, H. (2021). Exploring changes in body image, eating and exercise during the COVID-19 lockdown: A UK survey. *Appetite*, *159*, Article 105062. https://doi.org/10.1016/j.appet.2020.105062

Rodgers, R. F., Lombardo, C., Cerolini, S., Franko, D. L., Omori, M., Fuller-Tyszkiewicz, M., Linardon, J., Courtet, P., & Guillaume, S. (2020). The impact of the COVID-19 pandemic on eating disorder risk and symptoms. *International Journal of Eating Disorders*, *53*(7) 1166–1170. https://doi.org/10.1002/eat.23318

Rohde, P., Stice, E., & Marti, C. N. (2015). Development and predictive effects of eating disorder risk factors during adolescence: Implications for prevention efforts. *International Journal of Eating Disorders*, *48*(2), 187–198. https://doi.org/10.1002/eat.22270

Roy Choudhury, N., & Reddy, V. N. (2021). Body image dissatisfaction in young adults: Impact of social media use. *International Journal of Education and Psychological Research, 10*(3)*,* 15–18.

Runfola, C. D., Von Holle, A., Trace, S. E., Brownley, K. A., Hofmeier, S. M., Gagne, D. A., & Bulik, C. M. (2013). Body dissatisfaction in women across the lifespan: Results of the UNC-*SELF* and gender and body image (GABI) studies. *European Eating Disorders Review*, *21*(1), 52–59. https://doi.org/10.1002/erv.2201

Ruscitti, C., Rufino, K., Goodwin, N., & Wagner, R. (2016). Difficulties in emotion regulation in patients with eating disorders. *Borderline Personality Disorder and Emotion Dysregulation, 3*, Article 3. https://doi.org/10.1186/s40479-016-0037-1

Sapolsky, R. M. (2007). Stress, stress related disease, and emotional regulation. In J. Gross (Ed.), *Handbook of emotion regulation* (pp. 606–615). Guilford.

Schaumberg, K., Jangmo, A., Thornton, L. M., Birgegård, A., Almqvist, C., Norring, C., Larsson, H., & Bulik, C. M. (2019). Patterns of diagnostic transition in eating disorders: A longitudinal population study in Sweden. *Psychological Medicine*, *49*(5), 819–827. https://doi.org/10.1017/S0033291718001472

Schmidt, U., & Treasure, J. (2006). Anorexia nervosa: Valued and visible. A cognitive-interpersonal maintenance model and its implications for research and practice. *British Journal of Clinical Psychology*, *45*(3), 343–366. https://doi.org/10.1348/014466505X53902

Schneider, J., Pegram, G., Gibson, B., Talamonti, D., Tinoco, A., Craddock, N., Matheson, E., & Forshaw, M. (2023). A mixed-studies systematic review of the experiences of body image, disordered eating, and eating disorders during the COVID-19 pandemic. *International Journal of Eating Disorders*, *56*(1), 26–67. https://doi.org/10.1002/eat.23706

Sheppes, G., & Meiran, N. (2008). Divergent cognitive costs for online forms of reappraisal and distraction. *Emotion*, *8*(6), 870–874. https://doi.org/10.1037/a0013711

Sheppes, G., Scheibe, S., Suri, G., Radu, P., Blechert, J., & Gross, J. J. (2014). Emotion regulation choice: A conceptual framework and supporting evidence. *Journal of Experimental Psychology: General*, *143*(1), 163–181. https://doi.org/10.1037/a0030831

Smith, K. E., Mason, T. B., Lavender, J. M. (2018). Rumination and eating disorder psychopathology: A meta-analysis. *Clinical Psychology Review*, *61*, 9–23. https://doi.org/10.1016/j.cpr.2018.03.004

Solmi, F., Hatch, S. L., Hotopf, M., Treasure, J., & Micali, N. (2014). Prevalence and correlates of disordered eating in a general population sample: The South East London Community Health (SELCoH) study. *Social Psychiatry and Psychiatric Epidemiology*, *49*, 1335–1346. https://doi.org/10.1007/s00127-014-0822-3

Spettigue, W., Obeid, N., Erbach, M., Feder, S., Finner, N., Harrison, M. E., Isserlin, L., Robinson, A., & Norris, M. L. (2021). The impact of COVID-19 on adolescents with eating disorders: A cohort study. *Journal of Eating Disorders*, *9*, Article 65. https://doi.org/10.1186/s40337-021-00419-3

Srivastava, P., Michael, M. L., Manasse, S. M., & Juarascio, A. S. (2021). Do momentary changes in body dissatisfaction predict binge eating episodes? An ecological momentary assessment study. *Eating and Weight Disorders – Studies on Anorexia, Bulimia and Obesity*, *26*, 395–400. https://doi.org/10.1007/s40519-020-00849-z

Steinglass, J., & Walsh, B. T. (2006). Habit learning and anorexia nervosa: A cognitive neuroscience hypothesis. *International Journal of Eating Disorders*, *39*(4), 267–275. https://doi.org/10.1002/eat.20244

Stice, E. (2002). Risk and maintenance factors for eating pathology: A meta-analytic review. *Psychological Bulletin*, *128*(5), 825–848. https://doi.org/10.1037/0033-2909.128.5.825

Stice, E., Marti, N. C., & Rohde, P. (2013). Prevalence, incidence, impairment, and course of the proposed DSM-5 eating disorder diagnoses in an 8-year prospective community study of young women. *Journal of Abnormal Psychology*, *122*(2), 445–457. https://doi.org/10.1037/a0030679

Stice, E., & Shaw, H. E. (2002). Role of body dissatisfaction in the onset and maintenance of eating pathology: A synthesis of research findings. *Journal of Psychosomatic Research*, *53*(5), 985–993. https://doi.org/10.1016/S0022-3999(02)00488-9

Svaldi, J., Griepenstroh, J., Tuschen-Caffier, B., & Ehring, T. (2012). Emotion regulation deficits in eating disorders: A marker of eating pathology or general psychopathology? *Psychiatry Research*, *197*(1-2), 103–111. https://doi.org/10.1016/j.psychres.2011.11.009

Tchanturia, K. (2015). *Cognitive remediation therapy (CRT) for eating and weight disorders*. Routledge.

Thai, H., Davis, C. G., Mahboob, W., Perry, S., Adams, A., & Goldfield, G. S. (2024). Reducing social media use improves appearance and weight esteem in youth with emotional distress. *Psychology of Popular Media*, *13*(1), 162–169. https://doi.org/10.1037/ppm0000460

The Ottawa Hospital. (2025, January 29). *Regional centre for the treatment of eating disorders: Overview*. The Ottawa Hospital. https://www.ottawahospital.on.ca/en/clinical-services/deptpgrmcs/programs/regional-centre-for-the-treatment-of-eating-disorders/

Thompson, J. K., & Heinberg, L. J. (1999). The media's influence on body image disturbance and eating disorders: We've reviled them, now can we rehabilitate them? *Journal of Social Issues*, *55*(2), 339–353. https://doi.org/10.1111/0022-4537.00119

Thorsrud, T., Bang, M. A., Dahlgren, C. L., Nordfjaern, T., & Weider, S. (2024). Cognitive remediation therapy for patients with eating disorders: A qualitative study. *Journal of Eating Disorders*, *12*, Article 142. https://doi.org/10.1186/s40337-024-01101-0

Tiggemann, M., & Anderberg, I. (2020). Social media is not real: The effect of 'Instagram vs reality' images on women's social comparison and body image. *New Media & Society*, *22*(12), 2183–2199. https://doi.org/10.1177/1461444819888720

Torres, S., Vieira, A. I., Vieira, F. M., Miller, K. M., Guerra, M. P., Lencastre, L., Reis, A. C., Timóteo, S., Nunes, P., & Barbosa, M. R. (2024). A comprehensive study of positive body image as a predictor of psychological well-being in anorexia nervosa. *Nutrients*, *16*(11). https://doi.org/10.3390/nu16111787

Treasure, J., & Schmidt, U. (2013). The cognitive-interpersonal maintenance model of anorexia nervosa revisited: A summary of the evidence for cognitive, socio-emotional and interpersonal predisposing and perpetuating factors. *Journal of Eating Disorders*, *1*, Article 13. https://doi.org/10.1186/2050-2974-1-13

Trompeter, N., Bussey, K., Forbes, M. K., & Mitchison, D. (2021). Emotion dysregulation within the CBT-E model of eating disorders: A narrative review. *Cognitive Therapy and Research*, *45*, 1021–1036. https://doi.org/10.1007/s10608-021-10225-5

Troy, A. S., Shallcross, A. J., Brunner, A., Friedman, R., & Jones, M. C. (2018). Cognitive reappraisal and acceptance: Effects on emotion, physiology, and perceived cognitive costs. *Emotion*, *18*(1), 58–74. https://doi.org/10.1037/emo0000371

Uchôa, F. N. M., Uchôa, N. M., Daniele, T. M. d. C., Lustosa, R. P., Garrido, N. D., Deana, N. F., Aranha, A. C. M., & Alves, N. (2019). Influence of the mass media and body dissatisfaction on the risk in adolescents developing eating disorders. *International Journal of Environmental Research and Public Health*, *16*(9). https://doi.org/10.3390/ijerph16091508

Vanzhula, I. A., & Levinson, C. A. (2020). Mindfulness in the treatment of eating disorders: Theoretical rationale and hypothesized mechanisms of action. *Mindfulness*, *11*(5), 1090–1104. https://doi.org/10.1007/s12671-020-01343-4

Ward, Z. J., Rodriguez, P., Wright, D. R., Austin, S. B., & Long, M. W. (2019). Estimation of eating disorders prevalence by age and associations with mortality in a simulated nationally representative US cohort. *JAMA Network Open*, *2(*10). https://doi.org/10.1001/jamanetworkopen.2019.12925

Young, K. S., Sandman, C. F., & Craske, M. G. (2019). Positive and negative emotion regulation in adolescence: Links to anxiety and depression. *Brain Sciences*, *9*(4). https://doi.org/10.3390/brainsci9040076

Zanarini, M. C., Reichman, C. A., Frankenburg, F. R., Bradford Reich, D., & Fitzmaurice, G. (2010). The course of eating disorders in patients with borderline personality disorder: A 10-year follow-up study. *International Journal of Eating Disorders*, *43*(3), 226–232. https://doi.org/10.1002/eat.20689