DISORDERED EATING AND NON-SUICIDAL SELF-INJURY:

EMOTION DYSREGULATION AND

PSYCHOLOGICAL RISK AND PROTECTIVE FACTORS

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Abstract

Emotion dysregulation contributes to the development of non-suicidal self-injury (NSSI) and disordered eating (DE) behaviours. Despite the high levels of comorbid NSSI and DE, it is unclear whether specific types of emotion regulation (ER) deficits are unique to NSSI and DE, and those that are associated with comorbidity. Through multinomial logistic regression, the present study investigated deficits in ER and maladaptive and adaptive cognitive ER strategies that are associated with engagement in NSSI, DE, comorbidity, or neither behaviours among young adults. Depressive symptoms, suicide attempt history, suicide risk, and investment in physical appearance were assessed as moderators between ER and the behavioural groups. Greater emotion dysregulation was associated with NSSI or DE compared to participants not engaging in these behaviours. Comorbid participants reported the greatest emotion dysregulation and the greatest difficulty accessing ER strategies compared to all other groups. Participants within the NSSI-only group had lower emotional awareness and less access to ER strategies compared to participants not engaging in either behaviours. Participants engaging in NSSI-only used more maladaptive cognitive ER strategies compared to Control participants, whereas Control participants were using greater overall adaptive cognitive ER strategies. Comorbid participants used the greatest overall maladaptive cognitive ER strategies compared to the other groups. Novel moderation effects were found for depressive symptoms, investment in physical appearance, and cognitive ER strategies and the behavioural groups. The findings of the current study have implications for interventions and assessment relating to engagement in NSSI and/or DE, as well as contribute to the growing literature on the impact of specific ER deficits on mental health difficulties.

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Introduction

Research studies suggest that adolescents and young adults with emotion regulation (ER) deficits are at risk for poor developmental outcomes in adulthood, including low psychological wellbeing (Graziano, Reavis, Keane, & Calkins, 2007), interpersonal issues (English, John, Srivastava, & Gross, 2012), and reduced occupational success (Gumora & Arsenio, 2002). Emotion dysregulation is characterized by difficulties controlling the intensity, duration, and frequency of emotions in order to modulate behaviour in order to align with goals, and can involve limitations regarding awareness and acceptance of internal emotional experiences (Gratz & Roemer, 2004). A period of critical importance for ER development is early adulthood (i.e., ages 18 – 25), as this time period is characterized by many significant life style changes (e.g., moving away from home, undertaking postsecondary education, starting a career, embarking on long-term romantic relationships, etc.; Arnett, 2000) that increase demands on coping resources; thereby making early adulthood a key time to investigate the developmental pathways of ER (Cicchetti & Rogosch, 2002). Two maladaptive behavioural strategies that have been attributed to ER difficulties are non-suicidal self-injury (NSSI) and disordered eating (DE; Gratz & Roemer, 2008; Robinson, Kosmerly, Mansfield-Green, & Lafrance, 2014). While both behaviours commonly emerge in adolescence, early adulthood represents a period of increased risk for both DE and NSSI. For example, while studies have reported prevalence rates of NSSI to be approximately 14-21% among adolescents (Ross & Heath, 2002), the prevalence rates range from 17-41% among undergraduate populations (Gratz, 2001; Whitlock, Eckenrode, & Silverman, 2006), and these rates are increasing (CDC, 2008; Hawton et al., 2003). Past research with both clinical and community samples have supported ER as the primary risk factor for both NSSI and DE (Goodwin, Haycraft, & Meyer, 2012; Yates, 2009). In addition, recent literature

has shown that NSSI and DE frequently co-occur within individuals (Wright, Bewick, Barkham, House, & Hill, 2009). For example, among individuals who engage in DE behaviours, the estimated prevalence of NSSI is more than two times that found in other psychological disorders (Favaro & Santonastaso, 2000). Thus, not only do NSSI and DE behaviours share ER difficulties as a primary risk factor, they are also more likely to co-occur and result in higher levels of impaired psychological and social functioning.

While past studies have investigated the etiology of the above behaviours separately, the study of how ER deficits contribute to the comorbidity of NSSI and DE is an important area of future research (Duggan, Toste, & Heath, 2013). Past studies suggest that while ER difficulties are a common risk factor, there are contextual factors that moderate the relationship between ER and engagement in NSSI or DE (Muehlenkamp & Brausch, 2012). Findings from previous research suggest a need to investigate risk moderators that differentiate membership between the two behavioural groups (i.e., NSSI vs. DE), as well as factors that predict comorbidity (Duggan et al., 2013; Muehlenkamp & Brausch, 2012; Ross, Heath, & Toste, 2009). In addition, within the NSSI and DE literature, ER is often represented as a single construct, while there is evidence that specific domains of ER may be differentially associated with these behaviours (Aldao, Nolen-Hoeksema, & Schweizer, 2010). Furthermore, there is a need for research to investigate the role of cognitive ER strategies on the development of NSSI and DE. To address this gap the present study investigated the relationships between ER deficits and cognitive ER strategies on the use of NSSI and DE among a community sample of young adults. ER was assessed both globally (i.e., total ER scores) and by its sub-components (i.e., specific deficits such as difficulty with goal directed behaviour). Furthermore, the impact of potentially maladaptive (e.g., rumination) and adaptive (e.g., positive reappraisal) cognitive ER strategies on the development

of NSSI, DE, their comorbidity, and an absence of these behaviours were assessed. In addition, a history of at least one suicide attempt, current suicide risk, depressive symptoms, and investment in physical appearance were explored as predictors[1] of engagement in NSSI, DE, or a comorbid presentation. Thus, the present study aimed to contribute to the growing literature on ER, as well as explore the relationships among emotion dysregulation and suicidal behaviours, depressive symptoms, and investment in physical appearance, within two major areas of difficulty facing young adults today, namely NSSI and DE.

Emotion Regulation

ER is a multidimensional construct that has generally been defined as the ability to control and modulate the experience of emotions in order to align with situationally indicated goals. While several models of ER have been proposed, Gratz and Roemer's (2004) model of ER has received considerable attention and support. According to this model, ER involves four components: the awareness and understanding of emotions, the acceptance of an emotional experience, the ability to control impulsive behaviours when experiencing negative emotions in order to behaviourally align with desired goals, and the use of situationally appropriate ER strategies to modify emotional reactions in order to achieve individual goals and act in accordance with situational demands. Thus, Gratz and Roemer (2004) conceptualize ER as including the ability to regulate emotions, experience and identify emotions, and accept the emotions one is experiencing. Individuals with appropriately developed ER abilities have strategies available to control both the intensity and the duration of emotions in order to modulate their behaviour and be able to respond effectively. Conversely, emotion dysregulation

[1] Note, the term "predictor" is used here to refer to the independent variable associated with group membership within logistic regression and not inferring causality or longitudinal data. This is in line with the language utilized in logistic regression texts and papers.

may occur following a deficit in any of the above components of ER and result in difficulty controlling the intensity, duration, and frequency of one's emotions (Gratz & Roemer, 2004; Gross & Jazaieri, 2014).

A commonly used measure of emotion dysregulation that is based on Gratz and Roemer's (2004) model of ER is the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). The DERS is a comprehensive self-report assessment of emotion dysregulation that assesses six components of ER deficits: non-acceptance of negative emotions, difficulties engaging in goal-directed behaviours when experiencing negative emotions, difficulties controlling impulsive behaviours when experiencing negative emotions, limited access to effective ER strategies, lack of emotional awareness, and lack of emotional clarity. In addition to measures of global emotion dysregulation and underlying processes, other measures exist to examine specific cognitive ER strategies. For example, the Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski, Kraaij, & Spinhoven, 2001) assesses the use of nine cognitive ER strategies; four of which are typically considered to be maladaptive (self-blame, other-blame, rumination, catastrophizing), and five of which are typically considered to be adaptive (i.e., putting into perspective, positive refocusing, positive reappraisal, acceptance, and planning). Maladaptive strategies are defined as strategies that may or may not regulate emotions in the short-term, but hinder individuals' situation-specific short and/or long-term goals. Adaptive strategies are those that effectively regulate an emotion according to the short and long-term goals of the individual and are appropriate for the situation (Gross & Jazaieri, 2014). While the literature suggests that an ER strategy should not be considered "maladaptive" or "adaptive" outside of the context and the individuals' goals (e.g., Forsythe & Compas, 1987), the present investigation aimed to determine whether grouping ER strategies into categorises of

"maladaptive" and "adaptive" retained any clinical utility for the prediction of the four groups (i.e., NSSI, DE, Comorbid, or Control). The DERS and CERQ are the most cited measurement instruments of ER and cognitive ER strategies within the literature of ER, NSSI, and DE; therefore, both were utilized within the present study.

ER becomes more refined and effective as one matures into adulthood (Carstensen, Fung, & Charles, 2003; Zimmermann & Iwanski, 2014). Specifically, as individuals age, their ER strategies shift from being primarily external or social (e.g., relying on others for regulation), to more internally directed (e.g., cognitive strategies; Garnefski & Kraaij, 2006; Gross & Thompson, 2007; Zeman, Cassano, Perry-Parrish, & Steggall, 2006). While young adults have greater ER abilities compared to adolescents, their ER abilities remain less developed and effective when compared to adults (Zimmermann & Iwanski, 2014). Thus, given the increasing demands on coping resources in early adulthood as a result of normative developmental milestones (e.g., moving out, further education/career, shifts in romantic relationships, etc.; Arnett, 2002), and continuously developing ER abilities, early adulthood is a key developmental period from which to investigate ER and the behavioural consequences of emotion dysregulation.

Non-Suicidal Self-Injury and Disordered Eating

Two maladaptive behaviours that are believed to serve an ER function are NSSI and DE (Gratz & Roemer, 2004; Robinson et al., 2014). These constructs and their relationship with ER will be discussed below, followed by a review of the research involving both DE and NSSI.

Non-suicidal self-injury (NSSI). The most commonly cited definition of NSSI is provided by the International Society for the Study of Self-Injury (ISSS). The ISSS defines NSSI as the intentional self-inflicted damage of bodily tissue in the absence of suicidal intent and for

reasons that are not accepted by society (e.g., tattoos, piercings, etc.; ISSS, 2007). The most commonly cited form of NSSI is cutting, which occurs between 70-97% of individuals who engage in NSSI. The second most common method is hitting or banging oneself (21-44% of individuals), which is then followed by skin burning (15-35%; Briere & Gil, 1998; Klonsky & Muehlenkamp, 2007; Nock & Prinstein, 2004; Wilkins & Coid, 1991). However, while many individuals use a single method of NSSI, it is common for individuals to use multiple methods of self-harm (Gratz, 2001; Whitlock et al., 2006).

The age of onset for NSSI is usually between the ages of 12 and 24 years (Herpertz, 1995; Nock, 2009), with the behaviour being significantly more common among adolescents and young adults compared to adults. NSSI has a higher prevalence among adolescent girls compared to adolescent boys (De Leo & Heller, 2004; Madge et al., 2008; Hawton & Harriss, 2008; Hawton, Rodham, Evans, & Weatherall, 2002, CDC; 2008), and is more likely to persist into adulthood among women than men (Moran et al., 2012). NSSI occurs in high rates in community samples with prevalence among high school students ranging from 14-45% (Lloyd-Richardson, Perrine, Dierker, & Kelley, 2007; Ross & Heath, 2002; Zoroglu et al., 2003) and 17-41% among young adults (Gratz, 2001; Paivio & McCulloch, 2004; Whitlock et al., 2006). However, it is important to note that the majority of adolescents and young adults in community samples report engaging in NSSI only a few times in their life (i.e., approximately less than 10 episodes; Whitlock Muehlenkamp, & Eckenrode, 2008), whereas clinical and inpatient samples engage in NSSI an average of more than 50 times per year (Nock & Prinstein, 2004). Regardless of the frequency, community adolescents and young adults often report moderate to severe levels of damage to their bodies as a result of their NSSI behaviours (Nock, Teper, & Hollander, 2007; Whitlock et al., 2008), and evidence suggests a trend of increasing NSSI behaviours over the past

10 to 20 years (CDC, 2008; Hawton et al., 2003; Nock et al., 2008), with a particular increase among adolescents and young adults (Muehlenkamp, Williams, Gutierrez, & Claes, 2009). Increased exposure to NSSI via social media (e.g., pro NSSI blogs and groups), the Internet, movies and television (Whitlock, Purington, & Gershkovich. 2009) has been hypothesized to partially account for this increase.

Non-suicidal self-injury and emotion regulation. While there are several functions of NSSI behaviours (e.g., self-punishment, to resist suicidal urges, to reduce dissociation), NSSI as a maladaptive ER strategy has received the most empirical support (Klonsky, 2007; Nock & Prinstein, 2004). In Klonsky's (2007) analysis of 18 studies assessing the functions of NSSI, it was found that NSSI's most common function was the regulation of negative affect under emotional distress among adolescents and adults within both clinical and community samples. For example, in a sample of inpatients engaging in NSSI, the most common self-reported reason for self-injury was "to stop bad feelings," (Nock & Prinstein, 2004), and among a community sample of adolescents, 80% of youth reported engaging in NSSI because they "felt very unhappy or depressed" and 45% because it helped them to "release tension or stress and relax" (Laye-Gindhu & Schonert-Reichl, 2005). Furthermore, several studies have found that both young adults and adolescents report intense levels of negative affect immediately prior to NSSI, and a significant reduction in this negative affect following NSSI (e.g., Briere & Gil, 1998; Laye-Gindhu & Schonert-Reichl, 2005). Providing further evidence for emotion dysregulation among individuals engaging in NSSI, several studies have found that individuals who self-harm are significantly more likely to have lower awareness and clarity of their emotions compared to controls (Barrett, Gross, Christensen, & Benvenuto, 2001; Gratz & Roemer, 2008; Polk & Liss, 2007), which are key components in Gratz and Roemer's (2004) model of ER.

Gratz and Roemer (2004) assessed the relationship between emotion dysregulation and NSSI among a sample of female undergraduate students. While individuals who engaged in NSSI had significantly greater levels of overall emotion dysregulation compared to individuals without NSSI, emotion dysregulation continued to be strongly associated with NSSI even after controlling for maltreatment, emotional inexpression, and affective intensity and reactivity. When examining specific ER deficits, it was found that limited access to ER strategies and a lack of emotional clarity were most associated with NSSI behaviours.

In addition to the above study, Slee, Garnefski, Spinhoven, and Arensman (2008) assessed ER differences among young adult women who engage in NSSI and those without a NSSI history. After controlling for depression severity, women with a history of NSSI had significantly greater scores on all six subscales of the DERS and on the catastrophizing and self-blame subscales of the CERQ. Women without a history of NSSI had greater scores on the CERQ scale of positive reappraisal. When conducting logistic regression analyses to determine which of these strategies significantly predicted NSSI, it was found that non-acceptance, lack of clarity, and difficulties controlling impulses on the DERS, and self-blame on the CERQ, independently predicted NSSI group membership.

In addition to the cognitive ER strategy of self-blame, rumination has also been associated with increased levels of NSSI among young adults (Cerutti, Presaghi, Manca, & Gratz, 2012), and has been found to be significantly greater among individuals with NSSI compared to control groups (Nicolai, Wielgus, & Mezulis, 2015; Richmond, Hasking, & Meaney, 2017). While there is a paucity of research on adaptive ER strategies and NSSI, Voon, Hasking, and Martin (2014) as well as Richmond and colleagues (2017) have found that greater levels of cognitive reappraisal were associated more with the control group compared to

individuals engaging in NSSI. Furthermore, among individuals in the NSSI group, greater levels of cognitive reappraisal were associated with less severe presentations of self-harm.

Perez, Venta, Garnaat, and Sharp (2012) investigated the association between ER and a history of NSSI among an inpatient sample of adolescents, while controlling for sex and other psychopathology. Greater levels of emotion dysregulation were found for the NSSI group when compared to the non-NSSI group and limited access to ER strategies was significantly associated with NSSI after controlling for sex, other deficits in ER, and psychopathology.

In summary, although there is a strong relationship between emotion dysregulation, maladaptive cognitive ER strategies, and engagement in NSSI, due to methodological differences across studies (e.g., different age groups, clinical severities, and lack of sex representative samples), the role of specific ER deficits, including maladaptive cognitive ER strategies, that are associated with engagement in NSSI is unclear. For example, while Gratz and Roemer (2004) found that participants engaging in NSSI were more likely to have limited access to ER strategies and lack of emotional clarity compared to controls, Buckholdt and colleagues (2015) found that participants with NSSI scored highest on difficulty with goal directed behaviour and lack of emotional acceptance on the DERS. In addition, research is needed to further our understanding of ER-related predictors of NSSI versus other maladaptive coping behaviours that serve to regulate ER (e.g., DE, etc., Duggan, Toste, & Heath, 2013; Ross et al., 2009). While there are a few studies on maladaptive and adaptive cognitive ER strategies and NSSI, additional research is needed to investigate how these strategies interact with ER deficits in their association with NSSI.

Disordered eating. DE includes several maladaptive eating and weight control behaviours, such as severe or chronic caloric restriction, binge eating, and compensatory or

purging behaviours (e.g., vomiting, laxative abuse, excessive exercise; Stice, Marti, Shaw & Jaconis, 2009). Binge eating is defined as the intake of an unusually large amount of food within a short period of time that is accompanied by a feeling of loss of control (American Psychiatric Association, 2013). While adolescence is one of the most common periods for the onset of maladaptive eating behaviours (Lewinsohn, Striegel-Moore, & Seeley, 2000), DE is particularly common among young adults (Dunn, Larimer, & Neighbors, 2002; Dunn, Neighbors, & Larimer, 2003). For example, studies have found that approximately 16-19% of female undergraduates and 6-7% of male undergraduates engage in binge eating episodes (Heatherton, Nichols, Mahamedi, & Keel, 1995; Lynch, Everingham, Dubitzky, Hartman, & Kasser, 2000). Similar to adolescents, young adult women are more likely to engage in dieting and binge eating compared to men (Pettit, Jacobs, Page, & Porras, 2010). However, in contrast to the drive for thinness that is characteristic of women, men's body image concerns are more typified by a desire to increase muscle mass and decrease body fat (Pope, Phillips, & Olivardia, 2000; Stanford & McCabe, 2002).

Disordered eating and emotion regulation. Binge eating is the result of varying behaviours, including the body's response to caloric restriction or dieting (Grilo, Shiffman, & Carter-Campbell, 1994; Polivy & Herman, 1985). Other studies have found that individuals engaging in binge eating report that at least 50% or more of their binge eating episodes are a result of intense emotions instead of hunger (Greeno, Wing, & Shiffman, 2000; Wilson, Fairburn, & Agras, 1997). Indeed, negative affect is one of the most cited triggers for binge eating episodes (Meyer, Waller, & Waters, 1998; Polivy & Herman, 1985), and a reduction in this negative affect is frequently reported following a binge-eating episode (Deaver, Miltenberger, Smyth, & Crosby, 2003). Thus, it is not surprising that DE has been found to be

strongly associated with ER difficulties among both clinical and non-clinical samples (Evers, Stok, & Ridder, 2010; Harrison, Sullivan, Tchanturia, & Treasure, 2009; Ridout, Thom, & Wallis, 2010; Tasca et al., 2009), and that ER difficulties have been implicated in the etiology of the different subtypes of eating disorders (Brockmeyer, Holtforth, Bents, Kämmerer, Herzog, & Friederich, 2012; Gianini, White, & Masheb, 2013; Harrison et al., 2009; Whiteside, Chen, Neighbors, Hunter, Lo, & Larimer, 2007). It has been hypothesized that some DE behaviours are maladaptive ER strategies reinforced by a reduction in negative affect and, at times, an increase in positive affect (Deaver et al., 2003). For example, a study by Whiteside and colleagues (2007), found that overall ER deficits accounted for significant unique variance in binge eating after accounting for sex, caloric restriction, and concerns regarding weight and shape. Furthermore, limited access to ER strategies and lack of emotional clarity were the strongest predictors of binge eating episodes. In addition to Whiteside and colleagues (2007), Sim and Zeman (2006) found that adolescent girls with high levels of DE were more likely to report greater frequency of negative affect, greater difficulty identifying their emotions, and less constructive coping strategies. They found that body dissatisfaction and difficulty identifying emotional states were significant predictors of DE, and not body dissatisfaction alone. Hierarchical regression results indicated that there was no significant relationship between frequency of negative affect and DE when controlling for BMI, body dissatisfaction, and poor awareness of emotion. The authors hypothesized that DE behaviours may effectively regulate negative affect such that negative affect was no longer as frequent.

Another study further investigated the role of ER in DE behaviours. Robinson and colleagues (2014) investigated the relationships between gender, BMI, ER and the dieting and bulimia subscales of the Eating Attitudes Test (EAT-26; Garner, Olmsted, Bohr, & Garfinkel,

1982) among an undergraduate sample. Overall, regardless of gender, ER deficits specific to impulse control and non-acceptance of emotion were the main predictors of bulimic symptoms. However, having limited access to adaptive ER strategies when distressed was more predictive of dieting for women compared to men.

In addition to research on ER deficits, there are studies on the impact of both adaptive and maladaptive cognitive ER strategies on the presentation of DE. For example, among young adults, Selby, Anestis, and Joiner (2008) found that greater use of rumination and catastrophizing were associated with greater levels of behavioural dysregulation (i.e., binge eating, drinking, and reassurance seeking). Furthermore, individuals with high levels of emotion dysregulation were also found to use significantly less adaptive ER strategies (i.e., putting into perspective, positive refocusing, positive reappraisal, acceptance, planning) than individuals with low levels of emotion dysregulation. Rumination and catastrophizing were also predictive of increased levels of binge eating one month later. In line with the above findings regarding adaptive cognitive ER strategies, McLean, Paxton, and Wertheim (2010) found that greater levels of cognitive reappraisal were associated with lower levels of restrained eating among adult women. Cohen and Petrie (2005) found that individuals with clinical levels of eating disorder symptoms and those with diagnosed eating disorders had significantly greater levels of catastrophizing compared to healthy controls, and Harrell and Jackson (2008) found that, among young adult females, rumination was associated with levels of restrained eating and bingeing. Lastly, Morrison, Waller, and Lawson (2006) discovered that even after controlling for depression, adult women with eating disorders were more likely to engage in self-blame when distressed compared to a control group. There are no known studies investigating the impact of other-blame (the tendency to blame others for one's problems) on DE. Taken together, while there are studies

suggesting that the cognitive ER strategies of catastrophizing, rumination, and self-blame are associated with DE, there are few studies investigating adaptive ER strategies and other-blame on DE.

In summary, there is a strong relationship between emotion dysregulation and DE behaviours. Similar to the literature on ER and NSSI, the findings from research studies on DE are inconsistent regarding the specific types of ER deficits that are associated with DE due to significant variability across study samples and methodology (e.g., different ages, clinical samples versus undergraduate samples, female-only samples versus controlling for gender). Furthermore, while there is a dearth of studies on maladaptive and adaptive cognitive ER strategies and DE, additional studies (particularly with adaptive ER strategies) are needed to investigate the way these strategies interact with ER deficits to predict engagement in DE.

Studies on Emotion Regulation, Disordered Eating, and Non-suicidal Self-injury

Given the common underlying emotion dysregulation between NSSI and DE, it is not surprising that these two behaviours frequently co-occur. Specifically, NSSI occurs between 25 to 45% of patients with eating disorders (Claes, Vanderycken, & Vertommen, 2001; Sansone & Levitt, 2002; Solano, Fernández-Aranda, Aitken, López, & Vallejo, 2005), and NSSI is particularly prevalent among patients with bulimia nervosa (i.e., ranging between 26 and 55.2%) and the bingeing-purging subtype of anorexia nervosa (i.e., between 27.8 and 68.1%; Claes et al., 2001; Svirko & Hawton, 2007). In addition, among eating disorder patients, individuals who engaged in NSSI reported greater body dissatisfaction than those who did not engage in this behaviour (Solano et al., 2005). Among non-clinical samples, around 32-70% of individuals engaging in DE also report episodes of NSSI (Darche, 1990; Favazza, DeRosear, & Conterio, 1989; Ross et al., 2009; Svirko & Hawton, 2007). Research investigating the dual experience of

these two behaviours would contribute to our understanding of their similarities and differences in ER processes and maintaining mechanisms, which could be targeted in treatment. Despite this, only a handful of studies have investigated the differential impact of emotion dysregulation in the co-occurrence of NSSI and DE.

One study investigating the role of ER deficits on both NSSI and DE among adolescents revealed that youth who engaged in NSSI reported significantly more DE, body dissatisfaction, desire for thinness, and more deficits identifying emotional states and regulating impulses compared to adolescents not engaging in NSSI (Ross et al., 2009). Interestingly, adolescents who stopped self-injuring at the time of the study, but had a history of NSSI, reported similar levels of DE compared to adolescents who continued to engage in NSSI. Furthermore, it was shown that adolescents who reported engaging in NSSI even only once reported greater levels of DE and eating pathology compared to individuals who had never engaged in NSSI. Thus, youth who engage in NSSI even once, or those who have stopped engaging in NSSI, may remain psychologically distinct from their non-NSSI peers.

Muehlenkamp, Peat, Claes, and Smits (2012) investigated the differences between undergraduate women engaging in NSSI, DE, or both behaviours on measures of depressive symptoms, ER, interoceptive deficits, and body dissatisfaction. In addition, the researchers utilized the Appearance Schemas Inventory-Revised (ASI-R; Cash, Melnyk, & Hrabosky, 2004), which assessed the level of psychological investment (e.g., importance, meaning, and perceived influence of one's appearance) that individuals place on their body image. Overall, individuals engaging in both NSSI and DE scored significantly higher on all measures, particularly ER deficits, compared to individuals engaging in only one of the behaviours (i.e., DE or NSSI only). However, individuals with DE-only placed significantly more importance and investment on

their appearance compared to individuals engaging in NSSI-only. The researchers concluded that individuals engaging in DE may also be trying to achieve a body-image ideal and therefore place greater investment in their physical appearance; whereas, individuals engaging in NSSI-only likely have to place less investment in their physical appearance in order to engage in a behaviour that disfigures the body and can potentially devalue one's physical appearance to others. It is unclear what is occurring among individuals who engage in both NSSI and DE regarding the role of value of physical appearance. In contrast to investment in physical appearance, individuals engaging in NSSI-only or both behaviours, reported significantly higher levels of depressive symptoms compared to individuals engaging in DE-only. This suggests that while low mood may be associated with both DE and NSSI, NSSI in particular may be instigated by negative affect when compared to DE behaviours. Thus, overall, it is likely that while depression and emotion dysregulation may be necessary for engagement in NSSI, DE may be more likely to occur when individuals experience emotion dysregulation, high levels of body dissatisfaction, and place a high value on their physical appearance. While the above study is notable in that it investigated differences between DE-only, NSSI-only, and comorbidity, the researchers only examined global ER (or total ER scores), as opposed to a more in-depth examination of the specific ER deficits that predict engagement in NSSI and/or DE. Furthermore, the researchers did not include a group of participants that did not report engaging in either NSSI or DE as a comparison group, which could help to further identify key group differences.

Within a cross-sectional sample of young adults, Buckholdt and colleagues (2015) assessed the co-occurrence of both DE and NSSI; however, while they examined global ER, they also investigated differences among specific ER deficits between the two behaviours. They

found that individuals engaging in both NSSI and DE were more likely to have difficulties accessing effective ER strategies, controlling impulses when distressed, and engaging in goal directed behaviour when distressed compared to individuals without clinical levels of comorbid DE and NSSI. Individuals with NSSI-only had significant difficulty engaging in goal-directed behaviours when distressed, and difficulty accepting emotional experiences when compared to individuals without clinically relevant NSSI and DE. Interestingly, individuals with DE-only did not differ on any of the subscales of ER compared to individuals who were not engaging in either of the maladaptive behaviours. However, it is important to note that group sample sizes were very small (i.e., $n = 8$ in DE-only group and $n = 91$ in the control group). Muehlenkamp and colleagues (2012) did not include a comparison group without NSSI or DE, did not examine specific ER deficits, and found that the difficulties with ER total scores were similar between NSSI-only and DE-only groups. Buckholdt and colleagues (2015) found that when including a comparison group with no DE or NSSI, the DE-only group did not significantly differ on any of the specific ER deficits compared to a control group without the behaviours. They did not report whether global ER scores between DE-only and control groups were significantly different. Thus, the present study attempted to consolidate the above findings by including a comparison group without NSSI or DE. Furthermore, the total ER deficit score as well as the specific types of ER deficits between groups were assessed to better understand the above findings.

In summary, the majority of research studies have investigated ER differences between either NSSI-only and control groups or DE-only and control groups, with few investigations comparing NSSI-only and DE-only, and comorbidity within the same study. This has made comparisons of group differences between these two highly correlated maladaptive behaviours difficult. Further research including comparisons between NSSI-only, DE-only, comorbidity, and

individuals without these behaviours, related to global ER and specific ER deficits, will allow for the development of improved and more specific prevention and intervention protocols for both NSSI and DE. Lastly, aside from a single study that found that rumination was associated with NSSI more than DE (Selby, Connell, & Joiner, 2010), there is a paucity of studies investigating both NSSI and DE and their relationship with both maladaptive and adaptive cognitive ER strategies. Not only do the findings of the present study further our understanding of how cognitive ER strategies (e.g., catastrophizing) contribute to prediction of NSSI and DE, but also provide insight into which cognitive ER strategies (e.g., positive reappraisal) are important to foster in prevention and treatment initiatives.

Moderators Between Emotion Regulation and Non-suicidal Self-injury and Disordered Eating

Depression. Research studies have consistently demonstrated a relationship between depressive symptoms and engagement in both NSSI (e.g., Hankin & Abela, 2011; Klonsky, Oltmanns, & Turkheimer, 2003; Richmond, Hasking, & Meaney, 2017) and DE (e.g., Dennard & Richards, 2013; Santos, Richards, & Bleckley, 2007). Depression has also been found to be associated with emotion dysregulation within both adolescent and young adult populations (Daughters et al., 2009; Mennin, Holaway, Fresco, Moore, & Heimberg, 2007). Thus, depressive symptoms may represent a potential moderator on the relationships between emotion dysregulation and engagement in NSSI and/or DE. Indeed, a study by Kranzler, Fehling, Anestis, and Selby (2016) found that emotion dysregulation was indirectly associated with frequency of NSSI through depressive symptoms. A single study that investigated the relationship between depressive symptoms, emotion dysregulation, NSSI, and DE found that greater depressive symptoms predicted NSSI-only compared to DE-only, and predicted comorbidity over DE-only

(Muehlenkamp et al., 2012). Furthermore, Muehlenkamp and colleagues (2012) posited that depressive symptoms and ER might be essential in elucidating why individuals engage in comorbid presentations compared to engagement in either NSSI or DE. In sum, it appears that depressive symptoms may be a key moderator within the relationship between ER and NSSI and DE. The present study aimed to extend the above findings by assessing whether depressive symptoms moderate the relationship between ER and DE-only, NSSI-only, Comorbidity, or neither of the behaviours.

Investment in physical appearance. Body image has been defined as a multidimensional construct involving thoughts and feelings regarding the satisfaction with, appraisal of, and physical experience of one's body (Cash & Pruzinsky, 2002). Body image is comprised of both an affective/evaluative component (e.g., body satisfaction), as well as a cognitive-behavioural component (e.g., investment in physical appearance; Cash & Pruzinsky, 2002). Given that NSSI and DE are both behaviours that appear to manage emotional distress through the body, it is not surprising that body image has been consistently identified as a salient risk factor for both behaviours. For example, Ross and colleagues (2009) found that both male and female adolescents who reported engaging in NSSI were significantly more likely to self-report greater body dissatisfaction, lower physical attractiveness, and ER deficits than those who did not engage in NSSI. Among college women, negative body image paired with emotional distress led indirectly to engagement in NSSI (Muehlenkamp, Swanson, & Brausch, 2005), while other findings have found that negative body image mediates the relationship between negative affect and NSSI (Muehlenkamp & Brausch, 2012). Furthermore, individuals with an eating disorder and who engage in NSSI scored significantly higher on measures of negative body

attitudes when compared to eating disorder patients who do not engage in NSSI (Claes, Vandereycken, & Vertommen, 2003; Solano et al., 2005).

However, the above literature has only focused on the affective or evaluative component of body image disturbance (i.e., body dissatisfaction) and has neglected the cognitive-behavioural component of body image (Ip & Jarry, 2008). Cash and colleagues (2004) have theorized that this second component of body image involves an individual's psychological investment and core beliefs about their physical appearance. To this end, the Appearance Schemas Inventory-Revised (Cash et al., 2004) splits this component of body image into two constructs, Self-evaluative Salience and Motivational Salience. Specifically, Self-evaluative Salience measures how much of an individuals' self-worth is determined by their physical appearance and how much they believe their appearance impacts their lives. The second construct, Motivational Salience, measures how much effort an individual puts into physical appearance. A single study by Muehlenkamp and colleagues (2012) investigated the role of the self-evaluative and motivational salience, as measured by the ASI-R, on the relationship between NSSI and DE. They found that individuals engaging in NSSI reported significantly less investment in physical appearance (including both Self-evaluative and Motivational salience) when compared to individuals engaging in DE behaviour. They theorized that individuals engaging in NSSI may have a reduced investment in their physical appearance in order to engage in self-harm behaviour that could potentially negatively impact their physical appearance (e.g., scarring, bruising). Thus, future investigation into the role of physical appearance investment as a moderator of the relationship between emotion dysregulation and the engagement in NSSI-only, DE-only, both NSSI and DE, or neither behaviours could reveal associations whereby these behaviours are instigated and maintained.

Suicidality. Despite NSSI involving behaviours without suicidal intent, literature has consistently found that individuals engaging in NSSI are significantly more likely to attempt suicide than individuals who do not have a history of NSSI (Brown, Beck, Steer, & Grisham, 2000; Lofthouse, Muehlenkamp, & Adler, 2009; Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein 2006). For example, life-course retrospective studies have found that previous NSSI is common among adolescents or young adults who die by suicide (Fortune, Steward, Yadav, & Hawton, 2007). In addition, the risk factors for suicide attempts among youth and young adults are similar to those for engagement in NSSI (Hamza & Willoughby, 2013; Marttunen, Aro, Henriksson, & Lönnqvist, 1994). Given the frequent co-occurrence of suicidality and NSSI, several researchers posit that NSSI behaviours open the door to increasingly severe self-harm behaviours that make eventual suicide more likely (Asarnow et al., 2011; Joiner, 2005; Whitlock et al., 2013). Studies on the function of NSSI have also found that some individuals engage in NSSI to prevent themselves from attempting suicide (e.g., Klonsky, 2007); however, this may also increase risk of eventual suicide if the severity of the NSSI is high. Furthermore, ER difficulties are a commonly cited risk factor for both NSSI and suicide attempts and ideation (Kranzler et al., 2016). In addition, it has been argued that there may be key differences between individuals engaging in NSSI with and without past suicide attempts that have yet to be explored (Gratz & Roemer, 2008). Thus, the investigation into the role of past suicide attempts and current suicide ideation or risk as potential moderators between ER and engagement in NSSI, DE, both behaviours, or neither behaviours could aid in the discovery of important individual differences between these behavioural groups.

Current Study

Given the high levels of comorbidity between NSSI and DE, studies investigating the role of ER deficits in the comorbidity of these two behaviours are important areas of future research (Duggan et al., 2013). Of the studies that do exist, investigations predominately focus on a total ER score opposed to specific ER deficits. Of the studies that do investigate specific ER deficits, findings are varied due to methodological differences, including different participant population samples and study designs. Furthermore, studies investigating both NSSI and DE behaviours suggest that while ER difficulties are a common risk factor, contextual factors may moderate the relationship between ER and the use of NSSI or DE, and there is a need for investigation into potential moderators that differentiate individuals who engage in one or both of the above behaviours (Duggan et al., 2013; Muehlenkamp et al., 2012; Ross et al., 2009). Lastly, there is a need for research to investigate both maladaptive (e.g., rumination) and adaptive (e.g., positive reappraisal) cognitive ER strategies that contribute to or protect against the relationship between ER deficits and NSSI and DE.

Thus, the present study investigated the relationship between ER deficits, cognitive ER strategies, and engagement in NSSI, DE, both (i.e., NSSI+DE), or neither behaviours, among a community sample of young adults. Emotion dysregulation was assessed both globally (i.e., total ER) and by its sub-components (i.e., non-acceptance of negative emotions, difficulty engaging in goal-directed behaviour, difficulty controlling impulsive behaviours, limited access to effective ER strategies, lack of emotional awareness, and lack of emotional clarity). In addition to emotion dysregulation, adaptive (i.e., putting into perspective, positive refocusing, positive reappraisal, acceptance, planning) and maladaptive (i.e., self-blame, other-blame, rumination, catastrophizing) cognitive ER strategies were assessed to determine if specific strategies predict

engagement in NSSI-only, DE-only, both or neither behaviours (i.e., may protect against engagement in NSSI and/or DE). In addition, the role of current suicide risk, past suicide attempts, depressive symptoms, and investment in physical appearance were explored as psychological variables associated with engagement in NSSI-only, DE-only, both behaviours, or neither behaviours. Furthermore, the psychological variables (i.e., current suicide risk, past suicide attempts, depressive symptoms, and investment in physical appearance) were assessed as moderators of the relationship between global and specific ER deficits, as well as cognitive ER strategies and predictors of one of the four behavioural groups (i.e., NSSI-only, DE-only, Comorbid, Control)[2]. As is common practice within the literature examining ER, NSSI and DE, body mass index (BMI) was assessed to determine if it should be included as a covariate within analyses to control for potential confounding associations. The findings from the present study will contribute to the development of advanced assessment and intervention protocols for two critical areas of difficulties among young adults: NSSI and DE.

Objectives

The primary goal of the current study was to identify the role of specific ER deficits and adaptive and maladaptive cognitive ER strategies in the use of NSSI and/or DE among young adults. Specifically, the current study had the following research objectives:

1) Examine the relationships between overall emotion dysregulation and use of NSSI-only, DE-only, engagement in both behaviours (i.e., Comorbid), or neither of the behaviours (i.e., Control group) among young adults.
2) Examine which specific ER deficits (i.e., non-acceptance of negative emotions, difficulty engaging in goal-directed behaviour, difficulty controlling impulsive behaviours, limited

[2] Going forward the four categorical outcome groups will be referred to as NSSI-only, DE-only, Comorbid (participants with NSSI and DE), and Control (participants with neither NSSI or DE). The terms "Comorbid" and "Control" will be capitalized to indicate that these groups are being referenced.

access to effective ER strategies, lack of emotional awareness, lack of emotional clarity) predict engagement in NSSI-only, DE-only, Comorbidity, or engagement in neither behaviours. This objective aimed to consolidate the previous conflicted findings reviewed and discussed above.

3) Investigate whether certain maladaptive cognitive ER strategies (i.e., self-blame, other-blame, rumination, catastrophizing) are predictive of engagement in NSSI-only, DE-only, Comorbidity, or neither behaviours.
4) Explore whether specific adaptive cognitive ER strategies (i.e., putting into perspective, positive refocusing, positive reappraisal, acceptance, planning) are predictive of engagement in NSSI, DE, Comorbidity, or in neither of the behaviours (i.e., Control group).
5) Explore whether depressive symptoms, investment in physical appearance, past suicide attempts, and current suicide risk predict group membership in one of the four behavioural groups: NSSI-only, DE-only, Comorbid, or Control.
6) To explore whether depressive symptoms, investment in physical appearance, past suicide attempts, and current suicide risk moderate the relationship between global emotion dysregulation, specific ER deficits, and ER cognitive strategies on the prediction of whether participants belong to one of the four behavioural groups: NSSI-only, DE-only, Comorbid, or Control.

Hypotheses

The following hypotheses were made for each study objective:

1) It was hypothesized that participants within the NSSI-only, DE-only, and Comorbid groups would report greater total emotion dysregulation scores than participants within

the Control group. Furthermore, it was hypothesized that participants within the NSSI-only and DE-only groups would not differ on total scores of ER, and that participants within the Comorbid group would report greater levels of total ER deficits than participants within the NSSI-only and DE-only groups.

2) Past literature comparing specific ER deficits between NSSI-only and Control groups, and DE-only and Control groups, have found inconsistent results using the same measures (i.e., DERS; see above review in introduction). Thus, due to the lack of consistency across the findings regarding the specific types of ER deficits that are associated with NSSI-only versus Control and DE-only versus Control, no specific hypotheses were made regarding what ER deficits would predict whether participants engage in NSSI or DE, when compared to the Control group. It was hypothesized that the above ER deficits would be greater in the Comorbid group than the Control group in the present study. To date, no known studies have investigated which specific ER deficits predict whether participants engage in NSSI-only, DE-only, or Comorbidity. Thus, this objective was explorative and no specific hypotheses were made.
3) It was hypothesized that the total maladaptive cognitive ER strategy score would be greater among participants in the NSSI-only, DE-only, and Comorbid groups compared to the Control group, and highest among participants in the Comorbid group. Regarding specific strategies, it was hypothesized that NSSI-only participants would score greater on catastrophizing, and rumination than Controls. It was hypothesized that DE-only participants would score greater on rumination, catastrophizing, and self-blame than Controls. There are no known studies investigating the differences on maladaptive

cognitive ER strategies between participants with comorbid NSSI and DE compared to controls.

4) It was hypothesized that the total adaptive cognitive ER strategy score would be greater among Control participants than participants in the NSSI-only, DE-only, and Comorbid groups, and the lowest total adaptive score would be among participants in the Comorbid group. With regards to specific adaptive ER strategies, it was hypothesized that participants in the Control group would score significantly higher on cognitive reappraisal than NSSI-only and DE-only. Due to a paucity of studies, no specific hypotheses were made regarding whether there would be differences on the adaptive ER strategies in predicting group membership between the NSSI-only, DE-only, and Comorbid groups.
5) Regarding depressive symptoms, it was hypothesized that participants in the NSSI-only, DE-only, and Comorbid groups will score higher on depressive symptoms compared to Control participants, with highest depressive symptom scores in the Comorbid group. It was hypothesized that participants within the NSSI-only and the Comorbid group would report similar levels of depressive symptoms, and both have greater depressive symptoms than the DE-only group. Regarding investment in physical appearance, it was hypothesized that participants in the DE-only and Comorbid groups would score higher than other groups. It was hypothesized that participants in the DE-only group would score higher on investment in physical appearance than the NSSI-only group, and that participants in the Comorbid group would score higher on investment in physical appearance than the NSSI-only group. It was postulated from past studies involving control participants that participants within the NSSI-only and Comorbid group would be

more likely to have a history of a past suicide attempt and be higher in current suicide risk when compared to the DE-only and Control groups.

6) Due to a lack of past studies, no specific hypotheses were made on whether depressive symptoms, investment in physical appearance, past suicide attempts, and current suicide risk moderate the relationship between global ER, specific ER deficits, and cognitive ER strategies on the prediction of whether participants belong to one of the four behavioural groups: NSSI-only, DE-only, Comorbid, or Control. Thus, this objective was exploratory.

Method

Procedure

Ethics approval was obtained from the York University Research Ethics Board to collect data from a community sample of young adult undergraduates completing an Introduction to Psychology Course at York University through the Undergraduate Research Participant Pool (URPP). Data collection for the present study occurred between September 2013 and October 2016. Following completion of an electronic consent form (See Appendix A), students completed a 30-minute online survey of self-report measures. Participants could choose not to answer any question without penalty and information for counseling services were provided in the debriefing form (Appendix B). The Ethics Board did not express further ethical responsibility to clients endorsing a history of NSSI or suicide risk above and beyond providing resources within the debriefing form. Participants received course credit for their participation.

Participants

The total sample across groups included 1,074 participants, with participant age ranging from 16-30 years, with a mean age of 19.81 (*SD* = 2.72). With regards to biological sex of the total sample, 75.7% were female, and 24.3% were male (see Table 1-4 for the specific

breakdown by behavioural group). Regarding ethnicity for the total sample, 26% were Caucasian, 16.1% Asian, 13% African/Caribbean, 2.7% Hispanic/Latino, 12.3% Middle Eastern, 25.2% South Asian, and 4.8% Other. Socioeconomic status (SES) was measured with a self-report item that asked participants to indicate how they would categorize their family of origin's income (i.e., ranging from below average income to above average income). Regarding SES of the full sample, 16.8% indicated that they were below average income, 59.3% average income, 21.2% above average income, and 2.7% identified as well above average income. Of the full sample, 95.9% of participants reported that they did not have a suicide attempt, while 4.1% reported a history of at least one attempt. The mean BMI for the entire sample was 23.76 (*SD* = 29.96), which is within the "healthy" range (normal range 18.5 to 24.9; World Health Organization, 2014).

For the purpose of the multinomial logistic regressions, the full sample was split into four behavioural groups: NSSI-only, DE-only, Comorbid, and Control. The NSSI-only group included participants who had engaged in NSSI at least once in their life and were not meeting clinically elevated levels of DE on the Eating Attitudes Test-26 (EAT-26; See Table 1 for full demographic details for this group). The DE-only group included participants who were currently meeting the clinical cut off of 11 or greater on the EAT-26 (Garner et al., 1982), and reported never engaging in NSSI (See Table 2 for full demographic details). The Comorbid group included participants who reported engagement in NSSI and met the clinical cut off for DE on the EAT-26 (See Table 3 for full demographic details). The Control group included all participants who had reported never engaging in NSSI and also did not meet the clinical cut-off for DE on the EAT-26 (See Table 4 for full demographics).

Measures

Psychometric properties of the measures are discussed in the Results section below.

Body mass index. Body mass index (BMI) was calculated by dividing the participant's self-reported weight (in pounds) by squared height (in inches) and then multiplying by 703 (Centers for Disease Control and Prevention, 2016). It is important to note that it has been found that self-reported weight and height are not always accurate (Rowland, 1990), and some population-based research studies have devised various correction equations. There is evidence that these correction equations are recommended when modeling the full population distribution of BMI (as in Statistics Canada) or when estimating the prevalence of obesity in an overall population (Dutton & McLaren, 2014). However, the corrected and self-reported BMI equally result in biased estimates when using BMI as a predictor variable for individual models (Dutton & McLaren, 2014). Thus, a correction equation was not used for the present study.

Depressive symptoms. Level of depressive symptoms was measured with the original 20-item version of the Centre of Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). Participants were asked to indicate how many times they had experienced each item in the past seven days. Possible responses ranged from 0 (*rarely or none of the time*) to 3 (*most of the time or all of the time*). These items are summed to create a total depression symptom score, with higher scores reflecting greater levels of depressive symptoms (total scores can range from 0 - 60). The CES-D 20-item version has excellent internal consistency (alphas = .88-.91), and test-retest reliability, and moderate discriminate and construct validity (Radloff, 1977).

Emotion regulation. ER was assessed with two separate measures. The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) is one of the most widely used and comprehensive measures of emotion dysregulation. The DERS provides a total emotion

dysregulation scale, and total scores on each of six subscales of ER deficits. Total scores can range from 0 to 180, with greater scores indicating more difficulties with ER. Total scores on the DERS within university and community adult samples fall within the 75 to 80 range on average (Gratz & Roemer, 2004). The six subscales include: Non-acceptance of negative emotions (e.g., "*When I'm upset, I become angry with myself for feeling that way*"), difficulties engaging in goal-directed behaviours when experiencing negative emotions (e.g., "*When I'm upset, I have difficulty getting work done*"), difficulties controlling impulsive behaviours when experiencing negative emotions (e.g., "*When I'm upset, I lose control over my behaviours*"), limited access to effective ER strategies (e.g., "*When I'm upset, I believe that there is nothing I can do to make myself feel better*"), lack of emotional awareness (e.g., reverse coded: "*When I'm upset, I acknowledge my emotions*"), and lack of emotional clarity (e.g., "*I have difficulty making sense out of my feelings*"). The DERS includes 36-items, and participants rate each item using a 5-point Likert scale with response options ranging from 1 (*almost never*) to 5 (*almost always*). The DERS has been shown to demonstrate good internal consistency (alpha = .93), good test-retest reliability, and adequate levels of construct and predictive validity (Gratz & Roemer, 2004; Weingberg & Klonsky, 2009). Each subscale of the DERS has adequate internal consistency, with alpha at .80 or greater (Gratz & Roemer, 2004; Weingberg & Klonsky, 2009). The 6-factor structure of the DERS has been confirmed among several samples (Gratz and Romer, 2008; Neumann, Lier, Gratz, & Koot, 2010; Weingberg & Klonsky, 2009).

The Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski et al., 2001) is a 36-item questionnaire that assesses both adaptive and maladaptive cognitive ER strategies. Specifically, participants are asked to indicate how true each item is for them following an experience of threatening or stressful events on a 5-point Likert scale ranging from 1 (*almost*

never) to 5 (*almost always*). The four maladaptive ER subscales include: self-blame (e.g., "*I feel that I am the one to blame for it*"), other-blame (e.g., "*I feel that others are responsible for what has happened*"), rumination (e.g., "*I am preoccupied with what I think and feel about what I have experienced*"), and catastrophizing (e.g., "*I keep thinking about how terrible it is what I have experienced*"). Adaptive cognitive ER subscales include: putting into perspective (e.g., "*I think that other people go through much worse experiences"*), positive refocusing (e.g., "*I think of something nice instead of what has happened*"), positive reappraisal (e.g., "*I think that I can become a stronger person as a result of what has happened*"), acceptance (e.g., "*I think that I must learn to live with it*"), and planning (e.g. "*I think about how I can best cope with the situation*"). Subscale scores can range from 4 to 20, with greater scores indicating more frequent use of that cognitive strategy. All subscales have demonstrated good internal consistencies (.68 to .86), and good test-retest reliability (Garnefski et al., 2001).

Non-suicidal self-injury. Inventory of Statements about Self-injury (ISAS; Klonsky & Olino, 2008; Klonsky & Glenn, 2009) is a self-report measure that comprehensively assesses the frequency and functions of NSSI behaviours. Part 1 of the ISAS assesses the lifetime frequency of 12 NSSI behaviours (i.e., cutting, biting, burning, carving, pinching, pulling hair, severe scratching, banging or hitting self, interfering with wound healing, rubbing skin against rough surface, sticking self with needles, and swallowing dangerous substances). This section also assesses age of first NSSI episode and date of most recent episode, whether they experience pain when engaging in NSSI, whether they are alone when engaging in NSSI, how much time elapses from the urge to self-harm to the act of self-harm, and whether they want to stop self-harming. Part 2 of the ISAS assess 13 potential functions of NSSI: Affect regulation, interpersonal boundaries, self-punishment, self-care, anti-dissociation, anti-suicide, sensation-seeking, peer-

bonding, interpersonal influence, toughness, marking distress, revenge, and autonomy. Participants indicate how relevant each strategy is for them on a 3-point Likert scale, ranging from 0 (*not relevant*) to 2 (*very relevant*). While an individual score can be obtained for each function, the 13 functions are grouped into two overarching factors: intrapersonal (other-focused functions; e.g., communication of pain to others) and interpersonal (self-focused functions, e.g., affect regulation) functions. Part 2 of the ISAS has demonstrated adequate internal consistency (alpha = .80 to .88; Klonsky & Glenn, 2009), and a well established two-factor structure that is consistent with research on the common functions of NSSI (Nock & Prinstein 2004). The behavioural scales of Part 1 have been shown to have good internal consistency ($\alpha = .84$) and short-term test–retest reliability ($r = .85$). Both Part 1 and Part 2 of the ISAS have demonstrated good construct validity (Klonsky & Glenn, 2009; Klonsky & Olino, 2008). Only Part 1 of the ISAS was used to identify participants who were engaging or who had engaged in NSSI for the NSSI-only and Comorbid groups.

Disordered eating. The Eating Attitudes Test (EAT-26; Garner et al., 1982) is a standardized 26-item measure of eating disorder symptoms and attitudes, with a focus on binging, purging, and restricting behaviours. Participants indicate how true each statement is for them on a 6-point Likert scale ranging from Never to Always, with the first three responses coded as 0, and the final three coded from 1 to 3. The EAT-26 has three subscales: Dieting (assessing the avoidance of fattening foods and body shape preoccupation; e.g., "*I am terrified about being overweight*"; "*I am aware of the calorie content of food that I eat*"), bulimia and food preoccupation (thoughts about food and bulimic behaviours; e.g., "*I find myself preoccupied with food*"; "*I have gone on eating binges where I feel that I may not be able to stop*"), and oral control (self-control behaviours regarding food consumption; e.g., "*I avoid*

eating when I am hungry," "*other people think I am too thin*"). In addition to the 26 items, there are a set of behavioural questions following the measure that examine extreme weight control behaviours (i.e., frequency of binge eating, self-induced vomiting, laxatives, and diet pills to control their weight or shape). Total scores equal to or greater than 11 suggests that an individual is at risk for development of an eating disorder and is demonstrating clinical levels of DE (Constaín, Ramírez, Rodríguez-Gázquez, Gómez, & Acosta, 2014; Orbitello et al., 2006). The EAT-26 has demonstrated high internal consistency with alphas ranging from .8 to .9, with acceptable criterion and internal validity (Garner et al., 1982).

Current suicide risk and suicide attempt history. The Suicide Behavior Questionnaire-Revised (SBQ-R; Osman, Bagge, Gutierrez, Konick, Kopper, & Barrios, 2001) is a 4-item measure of four separate dimensions of suicidality. The first item assesses lifetime suicide ideation or attempts on a scale from 1 (*have never thought about it*) to 6 (*I have attempted to kill myself, and really hoped to die*). The second item assesses the frequency of suicide ideation over the past year on a scale from 1 (*Never*) to 5 (*Very often/5 or more times*). The third item assesses whether the individual has told someone that they were thinking of attempting suicide, on a scale from 1 (*No*) to 5 (*yes, more than once and really wanted to do it*). The final item asks the individual how likely they feel that they will attempt suicide someday, and responses range from 0 (*never*) to 6 (*very likely*). The SBQ-R has demonstrated acceptable internal consistency among samples of both clinical and non-clinical adult and adolescent samples, and good criterion-related validity (Osman et al., 2001). The SBQ-R provides a total score ranging from 3 – 18, with a cut-off score of 7 or greater among undergraduate samples indicating individuals at current risk for suicidal behaviour. Participants were coded dichotomously indicating whether they were at current risk for suicidal behaviour or whether they were not at risk for suicidal

behaviour.

In addition to the SBQ-R, seven additional items were included to gather further information for the purposes of the present study. Specifically, items assessed the number of past suicide attempts in one's life, the date and age during their first suicide attempt and whether medical attention was required, the date and age of the most recent suicide attempt and whether medical attention was required, whether they had a family member or close friend who had attempted suicide, and whether they had a family member or close friend who had completed suicide. From the above information, participants were dichotomously coded as having had at least one suicide attempt or no history of a suicide attempt.

Investment in physical appearance. The Appearance Schemas Inventory-Revised (ASI-R; Cash et al., 2004) is a 20-item measure of beliefs regarding the importance of one's physical appearance and the investment one puts into their physical appearance. Participants indicate how much they agree or disagree with each statement on a 5-point Likert scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). The measure has two subscales: Self-Evaluative Salience and Motivational Salience. Self-evaluative Salience assesses how much of an individuals' self-worth is determined by their physical appearance (e.g., "*If I dislike how I look on a given day, it's hard to feel happy about other things*"), and how much they believe their appearance impact their lives (e.g., "*by controlling my appearance, I can control many social and emotional events in my life"*). Motivational Salience assesses how much effort one actually puts into their physical appearance (e.g., "*I often check my appearance in the mirror just to make sure I look okay*") and how much they desire to improve their appearance (e.g., "*I fantasize about what it would be like to be better looking than I am*"). The ASI-R has good reliability and validity among female college samples (Cash, 2009), and has demonstrated high convergent

validity with other measures of body image and psychosocial functioning (e.g., Cash, Jakatdar, & Williams, 2004; Cash et al., 2004; Cash, Santos, & Williams, 2005, Thompson, Berg, Roehrig, Guarda, & Heinberg, 2004). The ASI-R has been normed on both men and women and demonstrates similar reliability and validity across genders (Cash et al., 2004). On average, women report greater mean scores on the ASI-R compared to men.

Statistical Analyses

Multinomial logistic regression (MLR) was used for the present study in order to allow the prediction of the four behavioural outcome groups (i.e., NSSI-only, DE-only, Comorbid, Control). MLR is an extension of logistic regression in that it is appropriate for the analysis of a categorical dependent variable with more than two levels, and allows for the simultaneous prediction of all four behavioural outcomes based on several predictors (Field, 2009). Further benefits of MLR are that it does not make assumptions of normality, equal variance-covariance matrices across groups, and does not require continuous data (Tabachnick, Fidell, & Osterlind, 2001). This is particularly important because departures from normality are common when predicting dummy coded low probability events such as DE and NSSI among non-clinical samples. Furthermore, it does not require linear relationships between the dependent and independent variables, and the independent variables can be both categorical and continuous (Tabachnick et al., 2001).

Group Creation

The first step to place participants into the four behaviour groups was to indicate whether participants had a history of NSSI and whether they met the clinical cut-off for DE. Regarding NSSI, Part 1 of the ISAS (Klonsky & Olino, 2008; Klonsky & Glenn, 2009) was used. Specifically, Part 1 included several items asking participants to indicate lifetime frequency of 12

NSSI behaviours, and if participants indicated engaging in any of these behaviours they were coded as having a history of NSSI. In order to determine whether participants reported clinically elevated levels of DE, the total score of the EAT-26 (Garner et al., 1982) was calculated and participants with a score of 11 or greater were coded to have at risk levels of DE. This cut-off score was chosen because a review of the literature suggested that this cut-off optimized sensitivity and specificity for identifying individuals at clinical risk for development of an eating disorder and DE (e.g., Constain et al., 2014; Orbitello et al., 2006). For example, Constain and colleagues (2014) and Orbitello and colleagues (2006) both conducted psychiatric diagnostic interviews to confirm eating disorder diagnoses and determined through discriminatory analyses that the a cut-off score of 11 on the EAT-26 reduced false negatives and was an appropriate cut-off for screening individuals at risk of an eating disorder.

Once participants were coded as having a history of NSSI and clinical levels of DE, the data was assessed to determine how many of these participants were positively coded as having both NSSI and DE. These participants were then re-coded as being Comorbid, and the remaining participants with NSSI without DE were coded as NSSI-only, and the remaining participants with DE without NSSI were coded as DE-only. The participants with neither NSSI nor DE were then coded as Control.

Following statistical consultation, it was deemed that calculating power for multinomial logistic regression was very complex and that programs such as G*Power could only approximate the power through the calculation of individual logistic regressions. It was determined that each paired analysis would require a minimum of 10 participants per independent variable (Schwab, 2002). Thus, for the largest MLR models (i.e., those with the individual CERQ and DERS subscales) the minimum required total sample across any two

groups being compared in the model would be 90 participants. Thus, the goal was to have a minimum of 45 participants within each behavioural group. Due to the lower sample size within the DE-only (i.e., *n* = 19) and Comorbid groups (i.e., *n* = 28), there were not enough participants for optimal power when comparing these two groups within the MLR analyses.

Continuous Analyses

While MLR does not require that the samples size across all levels of the dependent variable need to be the same (Field, 2009), the lower sample size in the DE-only and Comorbid groups may reduce the ability to detect significant group differences. Thus, following the creation of the four behavioural groups, it was decided that supplemental analyses would be run using approximated continuous outcomes in order to address low sample sizes of the DE-only and Comorbid groups.

Specifically, the predictors were assessed for their relationship with the continuous outcome of DE (EAT-26 total scores) without the use of the clinical cut-off score. Second, the predictors were assessed for their relationship with the continuous outcome of NSSI frequency. Specifically, instead of categorizing participants as engaging in NSSI or not, the number of times participants reported engaging in each NSSI behaviour within Part 1 of the ISAS was utilized to create a frequency of NSSI outcome. While these variables are inherently not the same as the categorical variables (i.e., DE continuous also includes Comorbid participants and the NSSI frequency item includes both NSSI-only and Comorbid participants), it was hoped that the findings would approximate the categorical analysis findings and provide support to the conclusions made within the MLR analyses.

Results

Means and Standard Deviations

Means and standard deviations for continuous variables and percentages of categorical variables were computed for each of the behavioural outcome groups (i.e., NSSI-only, DE-only, Comorbid, and Control; See tables 1-4).

Internal Consistency Analysis

Internal consistency of the DERS total scale and subscales, and the CERQ total scale and subscales, were assessed with Cronbach's alpha. Chronbach's alphas for the DERS and CERQ total scales and the individual subscales were each above the .70 recommended cutoff (Nunnally & Berstein, 2010; See table 9 and 10).

The EAT-26, which was used to determine whether participants were reporting clinically elevated levels of DE, had a Cronbach's alpha of .83. The Cronbach's alpha for the SBQ-R scale for current suicide risk had a Cronbach's alpha of .80. The Cronbach's alpha for the ASI-R scale was .88. The Cronbach's alpha for the CES-D measure of depressive symptoms was .90. Thus, all Cronbach's alphas were above the recommended cutoff (Nunnally & Berstein, 2010).

Missing Data Analysis

A Little's Missing Completely At Random (MCAR) Test (Little, 1988) was run with all study variables and demographic data to determine whether there were any significant and meaningful patterns with regards to missing data. The results indicated that the data was missing completely at random; $x^2(1101) = 114.88$, $p = .38$. To handle missing items within measures, composite scores were estimated using prorating methods (Strube, 1985).

Correlations and Chi-square Analyses

Multicolinearity. In order to assess for multicolinearity, inter-correlations were run between all the demographic and predictor variable, the six dichotomous behavioural dummy coded outcomes (i.e., NSSI vs. Control, DE vs. Control, Comorbid vs. Control, NSSI vs. DE, NSSI vs. Comorbid, DE vs. Comorbid), and the continuous outcomes (EAT-26 total scores, NSSI frequency). Except when total scores for scales were correlated with the subscales making up the total scores, none of the correlations among the independent variables were greater than .8, suggesting that there were no issues of multicollinearity (Berry & Feldman, 1985). In addition, the Tolerance statistics were greater than 0.1, and the Variance Inflation Factors (VIF) were also not greater than 10, providing further evidence that multicollinearity was not an issue among the variables (Myers, 1990).

Correlations. Regarding demographic variables, two of the ethnicity dummy coded variables were significantly correlated with the dichotomous dummy coded NSSI-only versus the Control group (see Table 5). Chi-square analyses indicated a significant association between the dummy coded Asian versus Caucasian and the NSSI-only versus Control groups ($x^2(1) = 17.35$, $p < .001$). Specifically, cross tabs indicated that there are more Asians within the NSSI-only group than the Control group compared to Caucasians (i.e., NSSI-only: Asian = 53.5%; adjusted residual +4.2, Caucasian = 36.1%; adjusted residual -4.2; Control: Asian=46.7%; adjusted residual -4.2; Caucasian = 63.9%; adjusted residual +4.2). Chi-square analyses were conducted for the significant association between the dummy coded Hispanic or Latino versus Caucasian and the NSSI-only versus Control groups ($x^2(1) = 4.85$, $p < .05$). Cross tabs indicated that there are significantly more Hispanic and Latino participants within the NSSI-only group than the Control group compared to Caucasians (i.e., NSSI-only: Hispanic/Latino = 59.3%; adjusted

residual +2.2; Caucasian = 38.3%; adjusted residual -2.2; Control: Hispanic/Latino = 40.7%; adjusted residual -2.2; Caucasian = 61.7%; adjusted residual+2.2). Despite the significant finding between Caucasians and Hispanic or Latinos, this dummy coded ethnicity variable will not be included within the logistic regressions because there were not enough Hispanic or Latinos within the DE-only and Comorbid groups to ensure statistical soundness. Specifically, comparisons would violate assumptions of the logistic regression model. There were no significant associations between participant sex, age, and socioeconomic status by the dummy coded behavioural group outcomes. Accordingly, these will not be included in the logistic regressions.

Correlations were run between the DERS total and subscale scores and the six dichotomous behavioural dummy coded groups to explore whether certain subscales were more associated with different behavioural groups (see Table 6). Correlations were run between the CERQ total maladaptive and adaptive scores, each individual subscale score, and the six dichotomous behavioural dummy coded groups to explore whether certain subscales were more associated with certain behavioural (See Table s). Correlations were run between BMI, depression (CES-D), appearance schemas (ASI-R), current suicide risk (SBQ-R), suicide attempt history, the continuous outcomes, and the six dichotomous behavioural dummy coded groups to explore whether certain predictors were differentially associated with the behavioural groups (see Table 8). Participant BMI was not associated with any of the dummy behavioural group comparisons and will therefore not be included as a covariate within the logistic regressions.

Multinomial Logistic Regression

Six multinomial logistic regressions were conducted to address the primary research questions. Given the correlations, for each of the analyses, the ethnicity dummy coded variable comparing Asian to Caucasian participants was controlled.

OBJECTIVE 1. Are DERS total scores differentially associated with whether a participant engages in NSSI-only, DE-only, DE and NSSI (Comorbid), or neither of the behaviours (Control)?

In order to assess whether the total DERS score was associated with different group membership outcomes, a multinomial logistic regression was conducted (see Table 11). The model with the DERS total score fit the data significantly better than the baseline model, $x^2(6) = 72.64$, $p < .001$. Specifically, a significant chi-square statistic for the model indicated that the final model explained a significant amount of the unexplained variance from the baseline model. The baseline model in MLR is the model without any predictors or control variables (Field, 2009). Thus, the baseline model attempts to predict participant membership in one of the categorical groups without the measured predictors by assuming that participants will be more likely to be in the group with the greatest number of participants. Therefore, when comparing the DE-only and Control group, the baseline model will predict that all the participants would be in the Control group because they have a greater sample size.

NSSI-only and DE-only. Participant DERS total scores did not significantly differentiate between NSSI-only or DE-only groups, $\beta = .00$, Wald $x^2(1) = .19$, $p = .66$.

NSSI-only and Comorbid. Participant DERS total scores significantly predicted whether participants were in the NSSI-only or Comorbid group, $\beta = .02$, Wald $x^2(1) = 5.95$, $p = 02$.

Specifically, as the DERS total score increased, participants were more likely to be in the Comorbid group compared to the NSSI-only group.

NSSI-only and Control. Participant DERS total scores significantly predicted whether participants were in the NSSI-only or Control group, β = -.02, Wald $x^2(1) = 37.26$, $p < .001$. Specifically, as the DERS total score increased, participants were more likely to be in the NSSI-only group compared to the Control group. In addition, Caucasian participants were significantly more likely to be in the Control group than the NSSI-only group compared to the Asian participants; β = .56, Wald $x^2(1) = 9.78$, $p = .002$.

DE-only and Comorbid. Participant DERS total scores did not significantly differentiate between the DE-only and Comorbid groups, β = .02, Wald $x^2(1) = 1.63$, $p = .20$.

DE-only and Control. Participant DERS total scores significantly predicted whether participants were in the DE-only or Control group, β = -.02, Wald $x^2(1) = 5.12$, $p = .02$. Specifically, greater DERS total scores resulted in participants being more likely to belong to the DE-only group than the Control group.

Comorbid and Control. Participant DERS total scores significantly predicted whether participants were in the Comorbid or Control group, β = -.04, Wald $x^2(1) = 21.06$, $p < .001$. Specifically, greater DERS total scores resulted in participants being more likely to belong to the Comorbid group than the Control group.

OBJECTIVE 2. Are different subscales of the DERS differentially associated with whether a participant engages in NSSI-only, DE-only, DE and NSSI (Comorbid), or neither of the behaviours (Control)?

In order to assess whether different types of ER deficits predicted group differences among participants, a multinomial logistic regression was conducted with the DERS individual

subscales as predictors (See Table 12). The model with the DERS subscales fit the data significantly better than the baseline model, $x^2(21) = 95.42$, $p < .001$.

NSSI-only and DE-only. Similar to the total DERS score, none of the DERS subscales significantly differentiated between NSSI-only or DE-only groups (i.e., all p-values are greater than .05, see Table 12).

NSSI-only and Comorbid. Regarding specific subscales, the DERS subscale Limited Access to ER Strategies significantly predicted whether participants were in the NSSI-only or Comorbid group, $\beta = .14$, Wald $x^2(1) = 9.96$, $p = .002$. Specifically, participants with greater difficulties accessing ER strategies are more likely to be in the Comorbid group than the NSSI-only group. All other subscales of the DERS did not significantly predict group membership (i.e., p-values greater than .05, see Table 12).

NSSI-only and Control. The Lack of Emotional Awareness subscale significantly predicted group membership between NSSI-only and Control; $\beta = -.04$, Wald $x^2(1) = 5.76$, $p = .02$. As the Lack of Emotional Awareness score increased participants were more likely to be categorized in the NSSI-only group compared to Control. The Limited Access to ER Strategies also significantly predicted group membership between NSSI-only and Control; $\beta = -.05$, Wald $x^2(1) = 7.70$, $p = .01$. As Limited Access to ER Strategies increased participants were more likely to belong to the NSSI-only group than the Control group. Caucasian participants were significantly more likely to be in the Control group than the NSSI-only group compared to the Asian participants; $\beta = .55$, Wald $x^2(1) = 9.19$, $p = .002$. All other DERS subscales were not significant predictors of group membership (i.e., p-values greater than .05; see Table 12).

DE-only and Comorbid. Limited Access to ER Strategies was a significant predictor between DE-only and the Comorbid groups; $\beta = .15$, Wald $x^2(1) = 4.27$, $p = .04$. Specifically, as

Limited Access to ER Strategies on the DERS increased, participants are more likely to belong to the Comorbid group than the DE-only group. All other DERS subscales were not significant predictors of group membership (i.e., p-values greater than .05; see Table 12).

DE-only and Control. None of the individual DERS subscales significantly differentiated between the groups (i.e., p-values greater than .05; see Table 12).

Comorbid and Control. Limited Access to ER Strategies was a significant predictor between the Comorbid group and the Control group; β = -.19, Wald $x^2(1) = 17.84$, $p < .001$. Specifically, as Limited Access to ER Strategies increased, participants were significantly more likely to belong to the Comorbid group than the Control group.

OBJECTIVE 3 and 4 (part 1). Are CERQ total scores (i.e., CERQ total Maladaptive score, and Total Adaptive score) differentially associated with whether a participant engages in NSSI-only, DE-only, DE and NSSI (Comorbid), or neither of the behaviours (Control)?

A third multinomial logistic regression was run to assess whether total Adaptive CERQ and Maladaptive CERQ scores significantly differentiated group membership (See Table13). The multinomial model with CERQ totals as predictors was significantly better than the baseline model, $x^2(9) = 47.09$, $p < .001$.

NSSI-only and DE-only. The CERQ Maladaptive total score (β = -.04, Wald $x^2(1) = 2.34$, $p = .126$) and Adaptive total score (β = .01, Wald $x^2(1) = .35$, $p = .55$) were not significant predictors of whether participants engaged in NSSI-only or DE-only.

NSSI-only and Comorbid. The CERQ Maladaptive total score significantly predicted whether participants were in the NSSI-only or Comorbid group; β = .04, Wald $x^2(1) = 4.72$, $p = .03$. As the CERQ Maladaptive total score increased, participants were more likely to belong to the Comorbid group compared to the NSSI-only group. The CERQ Adaptive total score was not

a significant predictor of whether participants were categorized in the NSSI-only or Comorbid group; β = -.02, Wald $x^2(1) = 1.25$, $p = .26$.

NSSI-only and Control. The CERQ Maladaptive total score (β = -.03, Wald $x^2(1) = 19.87$, $p < .001$) and Adaptive total score (β = .01, Wald $x^2(1) = 5.96$, $p = .02$) were both significant predictors of whether participants were categorized into the NSSI-only or Control group. As the CERQ Maladaptive total score increased, participants were significantly more likely to belong to the NSSI-only group than the Control group. In contrast, as the CERQ Adaptive total score increased, participants were more likely to belong to the Control group than the NSSI-only group. Caucasian participants were significantly more likely to be in the Control group than the NSSI-only group compared to the Asian participants; β = .59, Wald $x^2(1) = 10.54$, $p = .001$.

DE-only and Comorbid. The CERQ Maladaptive total score significantly predicted whether participants were in the DE-only or Comorbid group; β = .08, Wald $x^2(1) = 6.59$, $p = .01$. As the CERQ Maladaptive total score increased participants were more likely to be in the Comorbid group than the DE-only group. The CERQ Adaptive total score was not a significant predictor of whether participants were categorized in the DE-only or Comorbid group; β = -.03, Wald $x^2(1) = 1.45$, $p = .23$.

DE-only and Control. The CERQ Maladaptive total score (β = .01, Wald $x^2(1) = .09$, $p = .77$) and Adaptive total score (β = .001, Wald $x^2(1) = .01$, p = .89) were not significant predictors of whether participants were in the DE-only or Control group.

Comorbid and Control. The CERQ Maladaptive total score significantly predicted whether participants were in the Comorbid or Control group; β = -.07, Wald $x^2(1) = 15.35$ $p < .001$. As the CERQ Maladaptive total score increased, participants were more likely to belong to

the Comorbid group than the Control group. The CERQ Adaptive total score significantly predicted whether participants were in the Comorbid or Control group; β = .03, Wald $x^2(1)$ = 4.00, p = .04. Specifically, as the CERQ Adaptive total score increased, participants were more likely to belong to the Control group than the Comorbid group.

OBJECTIVE 3 and 4 (part 2). Are subscales of the CERQ differentially associated with whether a participant engages in NSSI-only, DE-only, DE with NSSI (Comorbid), or neither of the behaviours (Control)?

In order to assess whether different types of cognitive ER strategies predicted group differences among participants, a multinomial logistic regression was conducted with the CERQ individual subscales as predictors (See Table 14). The model with the CERQ subscales fit the data significantly better than the baseline model, $x^2(30) = 83.59$, $p < .001$.

NSSI-only and DE-only. None of the subscales significantly differentiated between the groups (i.e., p-values greater than .05; see Table 14).

NSSI-only and Comorbid. None of the CERQ subscales significantly predicted group membership between the NSSI-only and Comorbid groups (i.e., p-values greater than .05; see Table 14).

NSSI-only and Control. The cognitive ER strategies Refocus on Planning (β = .08, Wald $x^2(1) = 4.29$, p = .04) and Positive Refocusing (β = .06, Wald $x^2(1) = 5.52$, p = .02) were significant predictors of whether participants were in the NSSI-only or Control groups. As participant scores on the Refocus on Planning subscale and Positive Refocusing increased of the CERQ increased, they were more likely to be in the Control group than the NSSI-only group. In addition, Caucasian participants were significantly more likely to belong to the Control group

than the NSSI-only group, compared to Asian participants; β = .59, Wald $x^2(1) = 10.02$, p = .002.

DE-only and Comorbid. The cognitive ER skill of Refocus on Planning (β = -.33, Wald $x^2(1) = 4.73$, p = .03) was a significant predictor of whether participants where in the DE-only or Comorbid group. As Refocus on Planning increased, participants were more likely to belong to the DE-only group than the Comorbid group.

DE-only and Control. None of the CERQ subscales significantly predicted group membership between the DE-only and Control groups (i.e., p-values greater than .05; see Table 14).

Comorbid and Control. Acceptance was a significant predictor of whether participants were in the Comorbid group or the Control group; β = -.15, Wald $x^2(1) = 4.43$, p = .04. As Acceptance scores increased, participants were more likely to belong to the Comorbid group than the Control group. Refocus on Planning was a significant predictor of whether participants were in the Comorbid group or the Control group; β = .20, Wald $x^2(1) = 4.61$, p = .03. As Refocus on Planning increased, participants were more likely to belong to the Control group than the Comorbid group.

OBJECTIVE 5. Does participant history of a suicide attempt, current suicide risk, symptoms of depression, and investment in physical appearance, predict whether participants engage in NSSI-only, DE-only, DE with NSSI (Comorbid), or neither of the behaviours (Control)?

In order to assess whether having a suicide attempt history, current level of suicidal risk, symptoms of depression, or investment in physical appearance predict group differences among participants, a multinomial logistic regression was conducted (See Table15). The model with the

above predictors fit the data significantly better than the baseline model, $x^2(15) = 118.65$, $p < .001$.

NSSI-only and DE-only. Symptoms of Depression on the CES-D, investment in physical appearance as measured by the ASI-R, current suicide risk as indicated by the SBQ-R, and the history of at least one suicide attempt did not significantly predict whether participants were in the NSSI-only or DE-only groups (i.e., all p-values greater than .05, see Table 15).

NSSI-only and Comorbid. The ASI-R significantly predicted group membership between NSSI-only and the Comorbid groups; $\beta = .85$, Wald $x^2(1) = 4.19$, $p = .04$. As ASI-R increased, participants were more likely to belong to the Comorbid group than the NSSI-only group.

NSSI-only and Control. Depressive symptoms ($\beta = -.02$, Wald $x^2(1) = 11.03$, $p = .001$), being categorized as having current suicide risk ($\beta = 1.11$, Wald $x^2(1) = 24.75$, $p < .001$), and suicide attempt history ($\beta = 1.54$, Wald $x^2(1) = 5.60$, $p = .02$) were significant predictors of whether participants were in the NSSI-only or Control groups. Specifically, greater symptoms of depression, having current suicide risk, and a history of at least one suicide attempt, each individually predicted that participants were more likely to belong in the NSSI-only group than the Control group.

Regarding demographic control variables, Caucasians were more likely to in the Control group than the NSSI-only group compared to Asian participants ($\beta = .45$, Wald $x^2(1) = 5.22$, $p = .02$).

DE-only and Comorbid. Current suicide risk was a significant predictor of whether participants were in the DE-only group or the Comorbid group, $\beta = -2.49$, Wald $x^2(1) = 3.87$, $p = .04$. Being categorized as having current suicide risk resulted in participants being more likely to be in the Comorbid group than the DE-only group.

DE-only and Control. None of the clinical predictors or the demographic control variables significantly predicted group membership between DE-only and Control groups (i.e., all p-values greater than .05, see Table 15).

Comorbid and Control. Investment in physical appearance (β = -1.00, Wald $x^2(1) = 5.79$, $p = .02$) and depressive symptoms (β = -.04, Wald $x^2(1) = 4.08$, $p = .04$) significantly predicted group membership between the Comorbid and Control group. As investment in physical appearance and depressive symptoms increased, participants were more likely to be in the Comorbid group than the Control group. Current suicide risk was a predictor between Comorbid and Control ($\beta = 1.37$, Wald $x^2(1) = 6.96$, $p = .01$), such that if participants were categorized as meeting current suicide risk, that they were more likely to belong to the Comorbid group than the Control group.

OBJECTIVE 6 (part 1). Does the inclusion of a history of a suicide attempt, current suicidal risk, symptoms of depression, and/or investment in physical appearance moderate the relationship of the DERS Total score on whether a participant engages in NSSI-only, DE-only, DE and NSSI (Comorbid), or neither of the behaviours (Control)?

In order test for moderation effects of the psychological predictors on the relationship between DERS total score and prediction of membership in one of the behavioural groups, all main effects (i.e., suicide attempt history, current suicidal risk, symptoms of depression, investment in physical appearance, and DERS total score) and all interactions between the DERS total score and the additional predictors (i.e., suicide attempt*DERS total score; Current suicide risk*DERS total score; Depressive symptoms*DERS total score; Investment in physical appearance*DERS total score) were forced into a multinomial logistic regression model. The significant ethnicity dummy coded variables were controlled. The model fit the data significantly

better than the baseline model, $x^2(30) = 123.496$, $p < .001$. However, none of the interactions were significant and none of the main effects were significant.

QUESTION 7. Does the inclusion of a history of a suicide attempt, current suicidal risk, symptoms of depression, and/or investment in physical appearance moderate the relationship of the DERS subscales on whether a participant engages in NSSI-only, DE-only, DE and NSSI (Comorbid), or neither of the behaviours (Control)?

In order to test for moderation effects of the psychological predictors on the relationship between the DERS subscale scores and the prediction of membership in one of the behavioural groups, all main effects (i.e., suicide attempt history, current suicidal risk, symptoms of depression, investment in physical appearance, and all DERS subscales) and all interactions between the DERS subscale scores and the additional predictors were forced into a multinomial logistic regression model. Suicide risk significantly interacted with the Lack of Emotional Clarity, Difficulty with Goal Directed Behaviour, and Limited Access to Strategies subscales. These interactions and their associated main effects were added into a final model (See Table 16). The model fit the data significantly better than the baseline model, $x^2(24) = 142.536$, $p < .001$. Within the final model, none of the interactions were significant (all $p > .05$; See table 16). There was a significant main effect of Limited Access to ER Strategies between NSSI-only and Comorbid ($\beta = .19$, Wald $x^2(1) = 6.24$, $p = .01$) and between Comorbid and Control ($\beta = -.23$, Wald $x^2(1) = 7.04$, $p = .01$). As scores on the subscale of Limited Access to ER Strategies increased, participants were more likely to be in the Comorbid group compared to both the NSSI-only group and Control group (which is consistent with earlier models without interactions, see Table 12).

OBJECTIVE 6 (part 2). Does the inclusion of a history of a suicide attempt, current suicidal risk, symptoms of depression, and/or investment in physical appearance impact the relationship of the CERQ total scores (i.e., maladaptive and adaptive) on whether a participant engages in NSSI-only, DE-only, DE and NSSI (Comorbid), or neither of the behaviours (Control)?

In order to test for moderation effects of the psychological predictors on the relationship between CERQ Maladaptive and Adaptive Total scores and the prediction of membership in one of the behavioural groups, all main effects (i.e., suicide attempt history, current suicidal risk, symptoms of depression, investment in physical appearance, CERQ Total Maladaptive Score, and CERQ Total Adaptive Score) and all interactions between the CERQ total scores and the additional predictors were forced into a multinomial logistic regression model. The significant ethnicity dummy coded variables were controlled. There was a significant interaction between investment in appearance schemas and CERQ Adaptive total score in predicting whether participants were in NSSI-only or the Comorbid group, and a significant interaction between depressive symptoms and the CERQ Maladaptive total score in predicting whether participants were in the NSSI-only or Control groups.

These significant interactions and their associated main effects were placed into a final model (See Table 17). The model fit the data significantly better than the baseline model, $x^2(21) = 100.38$, $p < .001$. There was a main effect of investment in physical appearance between Comorbid and NSSI-only ($\beta = 4.05$, Wald $x^2(1) = 9.02$, $p = .003$) and between Comorbid and Control ($\beta = -4.29$, Wald $x^2(1) = 10.10$, $p = .001$), such that as investment in physical appearance increased, participants were more likely to belong to the Comorbid group than both the NSSI-only group and the Control group. This was a main effect previously found in the original model

without moderation effects (see Table 15). There was a significant main effect of Total Adaptive Cognitive ER strategies between Comorbid and NSSI-only (β = .19, Wald $x^2(1) = 5.90$, p = .02) and Comorbid and Control (β = -.19, Wald $x^2(1) = 5.93$, p = .02) such that as total Adaptive Cognitive ER strategies increased participants were more likely to be categorized in the Comorbid group than the NSSI-only and Control groups. In the original model without moderation, the Total Adaptive Cognitive ER score was not a significant predictor of group membership between Comorbid and NSSI-only, but it was a significant predictor of Control participants over Comorbid participants (see table 13).

There was a significant interaction between investment in physical appearance and the Total Adaptive Cognitive score in predicting whether participants were in the NSSI-only or Comorbid group, β = -.05, Wald $x^2(1) = 6.57$, p = .01. The Johnson-Neyman (J-N) technique (Johnson & Neyman, 1936) was used to probe the significant interactions in order to understand how a two-way interaction is impacting dichotomous outcome variables. The technique identifies areas in the range of the moderator variable (in this case, mean score ranges of investment in physical appearance) where the effect of the predictor (total adaptive cognitive scores) on the outcome (NSSI or Comorbid) is statistically significant and not significant. Thus, the J-N technique was used to ascertain where on the scores for investment in physical appearance the effect of total adaptive cognitive ER strategies transitions between statistically significant and not significant. This revealed that the effect of total adaptive cognitive ER strategies on predicting membership in NSSI-only compared to the Comorbid group is significantly negative at low levels of investment in physical appearance (ASI-R total score of 2.76 or lower), and significantly positive at high levels of investment in physical appearance (ASI-R total score at or above 4.55). In other words, at lower scores of investment in physical appearance, as adaptive

ER strategies increased, the probability of participants being in the NSSI-only group went down, and they became more likely to be categorized as Comorbid (see Figure 1). In contrast, at higher scores of investment in physical appearance, as adaptive ER strategies increased, the probability of participants being in the NSSI-only group went up, and they became less likely to be in the Comorbid group. Thus, at high investment in physical appearance you are more likely to be in the Comorbid group than the NSSI-only group, but as adaptive cognitive ER strategies increased, participants became slightly less likely to be in the Comorbid group. There is no significant moderation effect between appearance investment and adaptive cognitive ER strategies at moderate levels of investment in physical appearance (ASI-R total scores between 2.78 and 4.45).

There was a significant interaction between investment in physical appearance and the total Adaptive Cognitive score in predicting whether participants were in the Comorbid group or the Control group, $\beta = .06$, Wald $x^2(1) = 6.81$, $p = .01$. Thus, the J-N technique was again used to ascertain where on the scores for investment in physical appearance the effect of total adaptive cognitive ER strategies transitions between statistically significant and not significant. This revealed that the effect of total adaptive cognitive ER strategies on predicting membership in Comorbid compared to the Control group is significantly positive at low levels of investment in physical appearance (ASI-R total score of 2.77 or lower), and significantly negative at high levels of investment in physical appearance (ASI-R total score at or above 4.08). Specifically, at low levels of investment in physical appearance, as total adaptive cognitive ER strategies increased, participants were more likely to be in the Comorbid group than the Control group (see Figure 2). At high levels of investment in physical appearance, as total adaptive cognitive ER strategies increased, participants were more likely to be in the Control group than the Comorbid

group. There was no significant relationship between adaptive cognitive ER strategies and investment in physical appearance at moderate levels of investment in physical appearance. Thus, at moderate levels of investment in physical appearance, participants were more likely to belong to the Comorbid group than the Control group regardless of adaptive ER strategies.

There was a significant main effect of depressive symptoms (β = -.09, Wald $x^2(1)$ = 14.74, p < .001), such that as depressive symptoms increased, participants were more likely to belong to the NSSI-only group than the Control group. This finding remains consistent with the original model without moderation (see Table 15). There was a significant main effect of Total Maladaptive Cognitive ER score (β = -.04, Wald $x^2(1) = 7.94$, p = .01), such that as Total Maladaptive Cognitive ER scores increased participants were more likely to belong to the NSSI-only group than the Control group. This finding is consistent with the results of the original model without moderation (see Table 13). There was a significant interaction between depressive symptoms and CERQ total Maladaptive scores in predicting whether participants were in the NSSI-only or Control group, β = .001, Wald $x^2(1) = 6.68$, p = .01. The J-N technique identified that the effect of total Maladaptive cognitive ER strategies on predicting membership in the NSSI-only group was significantly positive at low and moderate levels of depressive symptoms (CES-D total scores at or below 16.79; see Figure 3). At low and moderate levels of depressive symptoms, being categorized into the NSSI-only group over the Control group depends on the levels of total maladaptive ER cognitive strategies. Specifically, the more maladaptive cognitive ER strategies a person used, the more likely they are within the NSSI-only group than the Control group among participants with low and moderate depressive symptoms. There was no significant interaction effect at high levels of depressive symptoms, such that at high levels of

depressive symptoms, participants are more likely to belong to the NSSI-only group than Control regardless of total maladaptive cognitive ER strategies.

OBJECTIVE 6 (part 3). Does the inclusion of a history of a suicide attempt, current suicidal risk, symptoms of depression, and/or investment in physical appearance impact the relationship of the CERQ subscales on whether a participant engages in NSSI-only, DE-only, DE and NSSI (Comorbid), or neither of the behaviours (Control)?

In order to test for moderation effects of the psychological predictors on the relationship between the CERQ subscale scores and the prediction of membership in one of the behavioural groups, all main effects (i.e., suicide attempt history, current suicidal risk, symptoms of depression, investment in physical appearance, and all CERQ subscales) and all interactions between the CERQ subscale scores and the additional predictors were forced into a multinomial logistic regression model. Depressive symptoms significantly interacted with Self-blame and Refocus on Planning, and investment in physical appearance interacted with Self-blame. These interactions and their associated main effects were added into a final model (See table 18).

The model fit the data significantly better than the baseline model, $x^2(24) = 107.891$, $p < .001$. Within the final model, the only previous significant interaction that remained significant was between depressive symptoms and self-blame in predicting whether participants were within the NSSI-only or Control groups, $\beta = .01$, Wald $x^2(1) = 8.85$, $p = .003$. There was a significant main effect of depressive symptoms ($\beta = -.08$, Wald $x^2(1) = 9.39$, $p = .002$), such that as depressive symptoms increased participants were more likely to be in the NSSI-only group than the Control group. This finding is consistent with the main effects within the original model without moderation (see Table 15). The J-N technique revealed that the effect of self-blame on predicting membership in NSSI-only compared to Control was significantly positive at low and

moderate levels of depressive symptoms (total CES-D scores at or below 26.15), and is not significant above this value at high levels of depressive symptoms. Thus, at low and moderate levels of depressive symptoms greater self-blame increased the odds that participants would be in the NSSI-only group than the Control group (see Figure 4). At low levels of depressive symptoms, participants are not at risk to be in the NSSI-only group unless they also have high self-blame. At high levels of depressive symptoms, participants are more likely to be in the NSSI-only group than the Control group regardless of levels of self-blame. The interactions between depressive symptoms and refocus on planning, and the interaction between investment in physical appearance and self-blame were no longer significant (i.e., $p > .05$, See Table 18). There was a main effect of self-blame between the Comorbid and Control group ($\beta = -.79$, Wald $x^2(1) = 4.95$, $p = .03$), such that greater self-blame resulted in participants being more likely to be in the Comorbid group than the Control group. Within the original models without moderation, there was no significant main effect of self-blame on predicting group membership between the Comorbid and Control groups (see Table 13). There was a significant main effect of investment in physical appearance ($\beta = -3.05$, Wald $x^2(1) = 6.86$, $p = .01$), such that as investment in physical appearance increased, participants were more likely to be in the Comorbid group than the Control group.

Continuous Analyses

Given that the DE-only and Comorbid group sample sizes were small, there is a chance that some associations between groups could be missed due to low power. Thus, subsequent analyses using continuous outcomes were run to inform the main research questions. First, a series of regression analyses were run with the total score of the EAT-26 as the dependent variable (of which the DE-only group was created based on clinical cut-off scores). Second, a

series of regression analyses were run with the total lifetime frequency of NSSI episodes as the dependent variable. It is important to note that the NSSI-only group within the multinomial logistic regression analyses was created based on whether a participant had ever had an episode of self-harm (and no clinically elevated disordered eating scores on the EAT-26). In contrast, the outcome of the second set of regressions was whether predictors were associated with higher frequencies of self-harm within the group of participants who were engaging in NSSI at some point in their lives. This was the closest outcome to assess the relationship among the predictors with a continuous outcome to capture more participants; however, the results are not directly comparable with those from the multinomial logistic regressions. Specifically, the EAT-26 outcome would include participants who have also engaged in NSSI, as well as participants within the Comorbid group. The outcome of frequency of NSSI would also include participants within the Comorbid group. Thus, the results do not directly map onto the main research questions.

Linear Regression of EAT-26 Total Scores

Linear regression of EAT-26 total scores on DERS total score. A hierarchical multiple linear regression was calculated to predict a continuous DE outcome based on DERS total scores, while controlling for the dummy coded ethnicity variable comparing Caucasian participants to Hispanic participants (see Table 19). The amount of variance accounted for in the model with the DERS total score was significantly greater than the model with only the demographic control variables; R^2 change = .007. The final model significantly predicted DE on the EAT-26; $F(2, 1008) = 7.03$, $p = .01$. Greater DERS total scores were associated with greater DE scores on the EAT-26; $B = .02$, $p < .01$.

Linear regression of EAT-26 total scores on DERS subscales. A hierarchical multiple linear regression was calculated to predict DE based on DERS subscale scores, while controlling for the dummy coded ethnicity variable comparing Caucasian participants to Hispanic participants (see Table 20). The amount of variance accounted for in the model with the DERS subscales was significantly greater than the model with only the demographic control variables; R^2 change = .027. The final model significantly predicted DE on the EAT-26; $F(7, 985) = 4.80$, $p < .001$. Greater scores on the Lack of Emotional Awareness ($B = .08$, $p < .05$) and Limited Access to ER Strategies ($B = .15$, $p < .001$) subscales were associated with significantly greater scores on the EAT-26. The remaining DERS subscales and control variables were not significantly associated with disordered eating scores (all $p > .05$).

Linear regression of EAT-26 on CERQ total scores. A hierarchical multiple linear regression was calculated to predict DE based on the CERQ Total Maladaptive and Total Adaptive scores, while controlling for the dummy coded ethnicity variable comparing Caucasian participants to Hispanic participants (see Table 21). While the final model significantly predicted DE on the EAT-26 ($F(3, 921) = 3.88$, $p < .05$, the amount of variance accounted for by the final model with the CERQ total scores was not significantly greater than the variance accounted for by the initial model with only the control variables; R^2 change = .004, $p = .13$. The CERQ total Maladaptive score and the CERQ total Adaptive score were not significantly associated with scores on the EAT-26.

Linear regressions of EAT-26 on CERQ subscales. A hierarchical multiple linear regression was calculated to predict DE based on the CERQ subscales, while controlling for the dummy coded ethnicity variable comparing Caucasian participants to Hispanic participants (see Table 22). The amount of variance accounted for by the final model with the CERQ subscale

scores was not significantly greater than the variance accounted for by the initial model with only the control variables; R^2 change = .008, p = .66. The final model was not significant, F(10, 896) = 1.43, p = .16. None of the CERQ subscales were significant predictors of the EAT-26 total score (all $p > .05$).

Linear regressions of EAT-26 on psychological predictors. A hierarchical multiple linear regression was calculated to predict DE based on depressive symptoms, investment in physical appearance, current suicide risk, and history of suicide attempts, while controlling for the dummy coded ethnicity variable comparing Caucasian participants to Hispanic participants (see Table 23). The amount of variance accounted for in the model with the clinical predictors was significantly greater than the model with only the demographic control variables; R^2 change = .013, p = .02. The final model significantly predicted DE on the EAT-26; F(5, 932) = 2.69, p = .02. Participants with a history of a suicide attempt scored significantly greater on the EAT-26 than participants without a history of a suicide attempt (B = 2.38, $p < .05$). Participant depressive symptoms, current suicide risk, and investment in physical appearance were not significantly associated with DE scores on the EAT-26 (all $p > .05$).

Linear Regression of NSSI Lifetime Frequency

Linear regression of NSSI lifetime frequency on DERS total score. A hierarchical multiple linear regression was calculated to predict lifetime frequency of NSSI episodes based on DERS total scores, while controlling the dummy coded ethnicity variable comparing Caucasian participants to South Asian participants (see Table 24). The amount of variance accounted for in the model with the DERS total score was significantly greater than the model with only the demographic control variables; R^2 change = .015, $p < .001$. The final model significantly

predicted NSSI lifetime frequency; $F(2, 1988) = 9.28$, $p < .001$. Greater DERS total scores were associated with higher frequencies of NSSI episodes; $B = 1.84$, $p < .001$.

Linear regression of NSSI lifetime frequency on DERS subscales. A hierarchical multiple linear regression was calculated to predict lifetime frequency of NSSI episodes based on DERS subscales, while controlling for the dummy coded ethnicity variable comparing Caucasian participants to South Asian participants (see Table 25). The amount of variance accounted for in the model with the DERS subscales was significantly greater than the model with only the demographic control variables; R^2 change = .02, $p = .004$. The final model significantly predicted NSSI lifetime frequency; $F(7, 965) = 3.21$, $p = .002$. Greater scores on the Limited Access to ER Strategies was associated with higher frequencies of NSSI episodes; $B = 6.79$, $p < .05$. All remaining DERS subscales were not significant predictors ($p > .05$).

Linear regression of NSSI lifetime frequency on CERQ total scores. A hierarchical multiple linear regression was calculated to predict lifetime frequency of NSSI episodes based on the CERQ Total Maladaptive and Total Adaptive scores, while controlling for the dummy coded ethnicity variable comparing Caucasian participants to South Asian participants (see Table 26). The amount of change in variance accounted for in the model with the predictors from the model with demographic variables was significant; R^2 change = .007, $p = .04$. The final model significantly predicted NSSI frequency ($F(3, 904) = 3.45$, $p = .02$. Greater Total Maladaptive scores were associated with greater NSSI episodes; $B = 2.96$, $p < .05$. Total Adaptive scores were not significantly associated with NSSI frequency ($p > .05$).

Linear regressions of NSSI lifetime frequency on CERQ subscales. A hierarchical multiple linear regression was calculated to predict lifetime frequency of NSSI episodes based on the CERQ subscales, while controlling for the dummy coded ethnicity variable comparing

Caucasian participants to South Asian participants (see Table27). The final model did not significantly predict NSSI frequency ($F(10, 881) = 1.14$, $p = .33$.

Linear regressions of NSSI lifetime frequency on psychological predictors. A hierarchical multiple linear regression was calculated to predict total episodes of NSSI based on depressive symptoms, investment in physical appearance, current suicide risk, and history of suicide attempts, while controlling for the dummy coded ethnicity variable comparing Caucasian participants to South Asian participants (see Table 28). The amount of variance accounted for in the model with the psychological predictors was significantly greater than the model with only the demographic control variables; R^2 change = .03, $p < .001$. The final model significantly predicted number of NSSI episodes; $F(5, 920) = 6.43$, $p < .001$. Participant current suicide risk was associated with greater levels of NSSI frequency; $B = 132.86$, $p < .001$. Participants categorized as being at risk of suicide were associated with greater lifetime episodes of NSSI. Depressive symptoms, investment in physical appearance, and history of suicide attempts were not significantly associated with NSSI lifetime frequency (all $p > .05$).

Comparisons of Continuous to Categorical Findings

Please refer to Table 29 for a summary of all categorical and continuous findings.

Continuous DE. Despite the continuous outcome of DE including participants with Comorbid NSSI, the regression analyses provided outcomes similar to that of the categorical analyses comparing the DE-only to Control group. Specifically, greater overall emotion dysregulation was associated with greater continuous DE scores, and the DE-only group was more likely to have greater overall emotion dysregulation than the Control group. Furthermore, greater total maladaptive and adaptive cognitive ER scores as well as their individual subscales

were not associated with continuous DE scores, and were also not predictive of group membership between the DE-only and Control groups.

Regarding differences between the continuous and categorical findings, greater lack of emotional awareness and limited access to ER strategies were associated with increasing levels of DE continuous scores. This contrasts to the categorical findings in that there were no ER deficits predictive of group membership between the DE-only and Control groups. However, limited access to ER strategies was a significant predictor of Comorbid participants compared to DE-only participants, and lack of emotional awareness was predictive of NSSI-only compared to Control participants. Thus, these differences could be a result of the continuous analyses including participants with NSSI. Regarding psychological predictors, participants with a history of suicide attempts were more likely to have greater continuous DE scores. While suicide attempt history was not a significant predictor of group membership between the DE-only and Control groups, it was a significant predictor between the NSSI-only and Control groups. Thus, again these differentiated findings are likely a result of the continuous DE outcome including participants with NSSI.

Frequency of NSSI. Similar to the continuous DE findings, some of the main continuous findings are consistent with the categorical results and some are partially inconsistent. It is important to note that the continuous outcome of NSSI frequency is a different variable than the NSSI-only categorical group. Regarding similarities, greater overall emotion dysregulation was associated with a higher frequency of NSSI episodes, and the NSSI-only group was more likely to have greater overall emotion dysregulation than the Control group. Greater difficulty accessing ER strategies was associated with greater NSSI episodes, and was predictive of the NSSI-only group over the Control group. Greater overall maladaptive cognitive ER strategies

were associated with greater episodes of NSSI, and were predictive of membership within the NSSI-only group over the Control group. There were no significant specific cognitive ER strategies associated with the amount of NSSI episodes, and there were no cognitive strategies predictive of the NSSI-only group over the Control group. Lastly, participants with suicide risk were more likely to have greater NSSI episodes, and were predictive of the NSSI-only group over the Control group.

The differences between the categorical and continuous outcomes involved a loss of significant group differences. Specifically, while greater depressive symptoms and a suicide attempt history were predictive of the NSSI-only group over the Control group, these predictors were not associated with greater NSSI episodes.

Discussion

Summary of Findings

While past research has provided empirical support for the relationship between emotion dysregulation and NSSI and DE, the specific ER deficits, cognitive ER strategies, and other potential moderators of the relationship between ER and these behaviours have yet to be elucidated. Furthermore, despite the high levels of comorbidity between NSSI and DE, few studies have investigated ER deficits and clinical predictors among individuals with comorbid presentations. As such, the current study investigated whether there were differences regarding the types of ER deficits and cognitive ER strategies utilized between participants presenting as engaging in NSSI-only, DE-only, both NSSI and DE (Comorbid group), or neither of the behaviours (Control group). In addition, the present study investigated whether depressive symptoms, suicide attempt history, current suicide risk, and investment in physical appearance were differentially associated with group membership, and whether these predictors moderated

the relationship between ER deficits as well as cognitive ER strategies and the association with behavioural group outcomes (i.e., NSSI-only, DE-only, Comorbid, or Control).

In the sections to follow, results will be explained in detail along with their relationship to current theory and research, as well as clinical implications. First group differences regarding total ER scores will be discussed, followed by group differences regarding specific ER deficits. The association between both maladaptive and adaptive cognitive ER strategies and membership to the behavioural groups will then be discussed. This will be followed by a discussion of group differences regarding depressive symptoms, suicide attempt history, current suicide risk, and investment in physical appearance, in addition to a discussion of the moderation findings.

Total ER Scores and Group Membership

The first research objective was to examine the relationships between overall ER and use of NSSI-only, DE-only, engagement in both behaviours (i.e., Comorbid), or neither of the behaviours (i.e., Control group) among young adults. Consistent with existing literature, participants with greater total emotion dysregulation were more likely to be engaging in NSSI-only and DE-only than participants not engaging in either of these behaviours, and participants within the Comorbid group reported the greatest levels of total emotion dysregulation across groups (Gratz & Roemer, 2008; Perez et al., 2012; Whiteside et al., 2007; Buckholdt, 2015). Greater total ER deficits were also associated with greater continuous DE scores and greater lifetime episodes of NSSI.

The present results support findings by Muehlenkamp and colleagues (2012), such that total ER scores did not differentiate membership between the NSSI-only and DE-only groups. Accordingly, the findings suggest that while emotion dysregulation is associated with NSSI and DE, that individuals engaging in these behaviours are experiencing similar levels of overall

emotion dysregulation. As total emotion dysregulation increased, participants were more likely to experience comorbid NSSI and DE, instead of NSSI-only. It is possible that individuals are with comorbidity are utilizing a variety of maladaptive ER behaviours (e.g., NSSI and DE) to cope with increasing levels of emotion dysregulation. However, in contrast to what was predicted, total ER scores did not significantly differentiate participants within the DE-only group and the Comorbid group. This finding conflicts with the hypothesis that young adults utilize comorbid behaviours in order to manage greater levels of emotion dysregulation. A potential explanation may rest on the differential effectiveness of NSSI and DE to regulate emotion. Specifically, NSSI may be more effective than DE at regulating emotions, such that young adults engaging in NSSI require a significantly greater increase in emotion dysregulation to employ an additional maladaptive behaviour (i.e., DE) when compared to young adults engaging in DE-only (who may not require a significant increase in emotion dysregulation to add additional behaviours). The comparative ER effectiveness of DE and NSSI has not yet been directly investigated. However, in support of this interpretation, Walsh (2006) theorized that DE includes behaviours that cause physical damage to the body (e.g., organ damage, esophageal rupture with purging) in a slower and accumulative fashion, whereas NSSI causes immediate and direct visible physical damage to the body (e.g., damage to skin). Perhaps the slow onset of physical consequences makes DE a less effective ER strategy if the physical impact of the behaviour plays a role in the regulation of emotion (e.g., endorphin release), and therefore individuals do not require a significant increase in overall emotion dysregulation before using NSSI. It is also possible that young adults engaging in DE engage in the behaviour for functions other than ER. For example, literature suggests that young adults with DE may utilize the behaviour to regulate body weight and/or may be motivated by body dissatisfaction in addition to

emotion dysregulation (Timko, Juarascio, Martin, Faherty, & Kalodner, 2014). Alternatively, due to the small sample size within the DE-only and Comorbid groups, it is possible that there was insufficient power in the current study to detect existing group differences in total ER scores. However, a recent study investigating total emotion dysregulation between young adults with DE-only and comorbid NSSI and DE also found no significant differences on the DERS between these two groups (Pisetsky, Haynos, Lavender, Crow, & Peterson, 2017).

Specific ER Deficits and Group Membership

The second research objective was to examine whether specific ER deficits (i.e., non-acceptance of negative emotions, difficulty engaging in goal-directed behaviour, difficulty controlling impulsive behaviours, limited access to effective ER strategies, lack of emotional awareness, lack of emotional clarity) predict engagement in NSSI-only, DE-only, Comorbidity, or neither behaviours. Due to the inconsistent findings across past studies, these analyses were exploratory.

NSSI-only and Control. In line with findings from Anderson and Crowther (2012), Gratz and Roemer (2008), and Perez and colleagues (2012), as limited access to ER strategies increased, participants were more likely to belong to the NSSI-only group than the Control group. These findings were consistent with the supplemental continuous analyses, such that greater difficulty accessing ER strategies was also associated with more lifetime episodes of NSSI. This suggests that one reason young adults with emotion dysregulation may engage in NSSI is because they have a limited awareness of alternative ER coping strategies. In line with this, Chapman, Gratz, and Brown (2006) hypothesized that individuals with limited access to effective ER strategies are at increased risk of NSSI when faced with unbearable intense emotions because NSSI is effective at avoiding negative emotional states. When applying this to

intervention for NSSI, providing alternative coping strategies for ER may help reduce engagement in NSSI and promote better overall ER. Indeed, one of the most well-researched and proven treatments for emotion dysregulation and chronic NSSI is Dialectical Behaviour Therapy (DBT; Linehan, 1993), which includes an emphasis on providing clients with distress tolerance and ER strategies to replace NSSI behaviours (e.g., Linehan, Bohus, & Lynch, 2007; McMain, Korman, & Dimeff, 2001).

The current study also uncovered a novel finding regarding emotional awareness. Specifically, the present study found that participants with greater lack of emotional awareness were more likely to belong to the NSSI-only group than the Control group. While this has not been found in past research utilizing the DERS (Gratz & Roemer, 2004), some studies have found that difficulty identifying and describing emotions differentiated NSSI-only and Control groups (e.g., Polk & Liss, 2007; Ross, Heath, & Toste, 2009). This suggests that individuals with limited awareness of their emotions are more likely to engage in NSSI when distressed, as compared to individuals with more awareness of the emotions they are experiencing. In line with these results, the biopsychosocial theory of emotion dysregulation proposes that, in tandem with a predisposition to emotional vulnerability (e.g., high emotional intensity, sensitivity to emotional stimuli, and slow return to baseline), a chronically invalidating environment during development can lead individuals to question their ability to understand their internal emotional experience (Linehan, 1993). In turn, this may lead to greater self-reported difficulty in identifying internal emotional experiences and future emotion dysregulation.

It is also possible that a bidirectional relationship exists between NSSI and limited emotional awareness. In addition to the bio-psycho-social theory suggesting that limited emotion awareness can lead to NSSI (Linehan, 1993), Ross and colleagues (2009) found that among a

community sample of adolescents engaging in NSSI, adolescents engaging in more frequent episodes of NSSI were more likely to have difficulty identifying and labeling their emotions compared to individuals engaging in less frequent NSSI. These results were replicated by Sleuwaegen and colleagues (2017), within a sample of adults with Borderline Personality Disorder (BPD; a disorder characterized by chronic emotion dysregulation and NSSI). Together, these findings introduce the possibility that, in addition to difficulty identifying emotions being a potential risk factor for the development of NSSI as suggested by Linehan (1993), that engagement in NSSI may lead to further increased difficulty with emotional awareness. While longitudinal studies are required to understand the directionality of these constructs, the above research suggests that NSSI may further reduce emotional awareness due to its immediate reduction of negative emotions, and thereby making it difficult to process negative emotions and prompting continued avoidance (e.g., Ross et al., 2009; Sleuwaegen et al., 2017). Thus, skills training in DBT involves the practice of mindfulness, or awareness of current emotional experiences, in order to "expose" the client to uncomfortable negative emotions, instead of resorting to maladaptive avoidance behaviours such as NSSI (Linehan, 1993, McMain et al., 2001).

Contrary to past research, the present study did not find that participants with NSSI-only reported experiencing greater lack of emotional clarity, non-acceptance of emotions, difficulty with impulse control, and difficulty with goal directed behaviour when compared to control participants (Buckholdt et al., 2015; Gratz & Reomer, 2008; Slee et al., 2008). It is likely that this is partially a result of different population samples (e.g., clinical versus normative groups), and differences in NSSI coding (e.g., lifetime history versus a clinical cut-off, differentiating between suicidal and non-suicidal self-injury). For example, Slee and colleagues (2008), who

had the most discrepant findings from the present study, investigated a clinical sample with a long history of self-harm and compared them to a control group of undergraduate students. This comparison increases the probability of finding group differences more so than the current study because the present study utilized normative samples for all groups. Specifically, it would be expected that there would be greater differences in emotion regulation between a non-clinical control group and a clinical sample with higher mental health concerns, compared to two behavioural groups from a non-clinical sample, such as the present study. Furthermore, they did not differentiate between whether the self-harm was with or without suicidal intent, which assumes that NSSI and suicide attempts belong to the same construct, despite past findings suggesting otherwise (e.g., the function of suicide attempts and NSSI are different; Brown, Comtois, & Linehan 2002). While Buckholdt and colleagues (2015) utilized an undergraduate sample, they required the NSSI to occur monthly or involve several methods of NSSI. Such discrepancies highlight the dire need to develop a clear and consistent definition of NSSI behaviour for future investigations. In addition, future studies that include ER deficits among both clinical and non-clinical groups across developmental periods would also benefit the field.

DE-only and Control. While participants who endorsed more total emotion dysregulation were more likely to belong to the DE-only group than the Control group, none of the specific ER deficits significantly differentiated membership between these two groups. The current findings go against the results from Whiteside and colleagues (2007) who found that participants with DE were more likely to have limited access to ER strategies and a lack of emotional clarity than Controls. The current findings also are inconsistent with the findings by Robinson and colleagues (2014) who found that participants with DE reported more difficulty with impulse control and non-acceptance of emotions than Controls. Methodological differences

may explain these discrepancies. Specifically, Whiteside and colleagues (2007) assessed binge eating only, whereas the present study looked at DE generally (e.g., including restricting), and did so with only two items instead of a full measure as in the present study. Furthermore, both Whiteside and colleagues (2007) and Robinson and colleagues (2014) utilized continuous analyses and did not assess whether the ER deficits predicted group membership categorically. Indeed, studies that have looked at both continuous and categorical measures of these constructs have found conflicting results between their categorical and continuous analyses (e.g., Slee et al., 2008), suggesting that these analysis strategies address different research questions. In support of this conclusion, the present study ran supplemental analyses with the continuous outcome of DE and the ER deficits. When not conducting categorical analyses for the purpose of group membership prediction, greater lack of emotional awareness and limited access to ER strategies were significantly associated with increasing levels of DE. Thus, when replicating the type of analyses used within the above studies, the current findings support the conclusions from Whiteside and colleagues (2007). Furthermore, a recent study by Pisetsky and colleagues (2017) also found that limited access to ER strategies was a significantly associated with greater continuous scores of DE among a sample of young adults seeking treatment for eating disorders.

When looking at past research utilizing logistic regression, the current findings align with the study conducted by Buckholdt and colleagues (2015), who found that participants with DE did not endorse more ER deficits than Control participants. The study by Buckholdt and colleagues (2015) most closely resembled the present study in that they also grouped undergraduate participants into the same four behavioral categories (i.e., NSSI-only, DE-only, Comorbid, and Control).

Thus, the present study suggests that while DE is associated with greater overall ER difficulties than individuals not engaging in DE, there are no specific ER deficits (i.e., as measured by the DERS) that are more elevated among individuals engaging in DE when compared to individuals not engaging in either NSSI or DE. Applying these findings to intervention, treatments targeting overall emotion dysregulation among individuals with DE-only may be more beneficial than specifically targeting individual ER deficits. This is in contrast to individuals presenting with NSSI-only where specific targets may be helpful. However, individuals with more severe DE are at increased risk for difficulties with emotional awareness and limited access to ER strategies. Targeting these deficits specifically may have therapeutic benefits for young adults with more severe DE.

Comorbid and Control. In line with findings by Buckholdt and colleagues (2015), participants in the Comorbid group were more likely to have difficulty accessing alternative ER strategies than Control participants. This suggests that a key focus of intervention for comorbid NSSI and DE may be to provide young adults with specific alternative coping strategies for emotion dysregulation. These could include distress tolerance skills such as using cold water to lower body temperature, intense aerobic exercise, paced breathing, and progressive muscle relaxation (DBT TIPP Skills; Linehan, 2014). Unlike Buckholdt and colleagues (2015), the present study did not find that Comorbid participants had greater impulsivity and lacked goal directed behaviour compared to Control participants. While this may be a true difference in findings, it is also possible that these differences were not detected due to a low sample size within the Comorbid group (n = 28). Future research would benefit from replicating these findings with a larger sample of Comorbid participants.

NSSI-only and DE-only. Similar to the total ER findings, none of the ER deficits significantly differentiated between NSSI-only or DE-only groups. This finding supports the only known study that compared DERS subscale differences among participants engaging in NSSI-only and DE-only; namely, Buckholdt and colleagues (2015) also found no significant differences in specific ER deficits among NSSI-only and DE-only participants. Thus, individuals engaging in NSSI-only and DE-only are reporting similar levels of total ER difficulties, with no significant differences among the specific ER deficits. Regarding implications for intervention, this suggests that it is more helpful to look at different ER deficits between NSSI and Control and DE and Control versus between NSSI and DE. Specifically, according to the findings described in the above sections, that individuals with NSSI-only would benefit from focusing on increasing access to ER strategies, and improving emotional awareness; whereas, individuals with DE-only would benefit from an overall approach targeting emotion dysregulation generally. Furthermore, in addition to targeting ER more generally, it is possible that there are additional treatment targets for DE-only clients that are more specific to their psychopathology. For example, there may be key cognitions about body image and weight that maintain the DE behaviour beyond ER (e.g., Timko et al., 2014).

NSSI-only and Comorbid. Individuals engaging in Comorbid behaviours were reporting experiencing more difficulty accessing ER strategies compared to individuals with NSSI-only. This finding is novel in that no known studies have looked at whether there are different ER deficits differentiating individuals with NSSI from individuals engaging in comorbid DE and NSSI. When Buckholdt and colleagues (2015) investigated differences between comorbid DE and NSSI and Controls, they found that Comorbid participants had greater difficulties with impulse control, goal oriented behaviour, and lack of access to ER strategies compared to

controls. Thus, the present findings are supportive of Comorbid young adults experiencing particular difficulty accessing effective and adaptive ER strategies. This is meaningful because young adults engaging in NSSI-only already experienced elevated difficulty accessing adaptive ER strategies compared to Controls, and therefore Comorbid young adults report even greater difficulty doing so. Accessing adaptive ER strategies is a particular area of difficulty for Comorbid young adults. Overall, the findings suggest that greater overall emotion dysregulation increases the risk of individuals engaging in both NSSI and DE, as opposed to NSSI alone, and that this comorbidity is associated with the greatest difficulty accessing ER strategies. It is also possible that the use of two maladaptive behaviours increase the levels of emotion dysregulation due to the avoidance of painful emotions, and thereby not having the opportunity to learn how to regulate emotion (Linehan, 1993). Intervention initiatives for young adults with comorbid NSSI and DE should include a strong emphasis on building alternative ER coping strategies. These could include DBT TIPP distress tolerance skills (see above), healthy distraction (e.g., cognitive activities such as puzzles), self-soothe skills, and reducing overall emotion dysregulation by taking care of the physical body (e.g., sleeping and eating habits, regular physical activity, avoiding non-prescribed substances; Linehan, 2014). Regarding the development of comorbidity, it is possible that with increasing difficulty accessing adaptive ER strategies, combined with increasing emotion dysregulation, individuals require more than one maladaptive strategy to regulate intense negative emotions. Longitudinal studies could investigate whether increasing difficulty accessing ER strategies over time confers risk for individuals with NSSI-only to progress into a comorbid presentation, and whether Comorbid behaviours leads to greater emotion dysregulation across time.

DE-only and Comorbid. Similar to the comparison between the Comorbid group and NSSI-only group, individuals engaging in Comorbid behaviours experienced significantly more difficultly accessing ER strategies than individuals with DE-only. This provides further support that as difficulty accessing ER strategies increases, individuals require more than one maladaptive coping strategy to modulate negative emotional experiences. Again, longitudinal investigations are required to fully test this hypothesis. The current findings suggest that it is crucial that clinicians presented with clients with comorbid DE and NSSI particularly focus on providing the client with alternative ER coping strategies (see above for suggestions).

Maladaptive and Adaptive Cognitive ER Strategies and Group Membership

The third and fourth research objectives were to examine whether certain maladaptive cognitive ER strategies (i.e., self-blame, other-blame, rumination, and catastrophizing) and adaptive cognitive ER strategies (i.e., putting into perspective, positive refocusing, positive reappraisal, acceptance, and planning) were predictive of engagement in NSSI-only, DE-only, Comorbidity, or neither of the behaviours (i.e., Control group). First, the subscales were grouped to create an overall maladaptive and overall adaptive cognitive ER strategy score; these total scores were used to predict group membership. This was followed by an examination of whether the specific individual strategies were differentially associated with the four behavioural groups.

NSSI-only and Control. In support of the hypotheses, individuals who reported more overall maladaptive strategies were more likely to be in the NSSI-only group than the Control group, and individuals that reported more overall adaptive strategies were more likely to be in the Control group than the NSSI-only group. While some researchers have posited that no strategies are inherently “adaptive” or “maladaptive”, and that it is the context that determines whether a strategy is helpful or not (e.g., Forsythe & Compas, 1987), these current findings

support the idea that it may be possible that traditionally considered "maladaptive" and "adaptive" strategies may be predictive of clinically relevant outcomes, such as NSSI. It is possible that it is not the use of these individual cognitive strategies in isolation that predict NSSI, but that perhaps the use of an overall combination of strategies such as catastrophizing, self-blame, rumination and other-blame is predictive of psychopathology. Furthermore, within the continuous analyses (i.e., looking at NSSI frequency without removing individuals with DE) greater levels of maladaptive strategies was also associated with greater lifetime episodes of NSSI. The total adaptive strategies and specific cognitive strategies were not associated with lifetime frequency of NSSI. This suggests that maladaptive cognitive ER strategies are associated with whether someone has engaged in NSSI and the frequency of the NSSI. Lower overall adaptive cognitive strategies is associated with engagement in NSSI but is not related to the frequency of NSSI. This suggests that when treating individuals engaging in NSSI, that the focus on reducing overall maladaptive cognitive ER strategies may reduce the frequency of NSSI episodes. Increasing adaptive cognitive ER strategies may not be directly effective at reducing NSSI frequency.

Regarding specific cognitive ER strategies, young adults within the Control group were more likely to engage in positive refocusing and refocus on planning than young adults in the NSSI-only group. This suggests that positive refocusing and planning may be protective against engaging in NSSI to regulate emotions, and/or NSSI results in a reduction in positive refocusing and planning. Longitudinal studies would help elucidate the directionality of these constructs.

The present findings did not support previous studies that have found that individuals engaging in NSSI report more catastrophizing (Slee et al., 2008) and rumination (Cerutti et al., 2012; Richmond et al., 2017) than individuals without a history of NSSI. These differences may

be the result of the use of different study samples and methodologies. For example, Slee and colleagues (2008), may have had conflicting findings than the present study with regards to catastrophizing due to sample differences; specifically, their comparison of a clinical population engaging in self-harm to a normative group. Furthermore, the authors' definition of self-harm included suicide attempts, which differs from the NSSI definition used in the current study. Regarding rumination, the study by Richmond and colleagues (2017) utilized the Rumination Thought Style Questionnaire (Brinker & Dozois, 2009), which is a full measure designed to measure rumination specifically. It is possible that this measure is more sensitive to rumination within a normative sample than the CERQ, which albeit validated as a measure of several cognitive ER strategies, has fewer items for each strategy measured. Future studies would benefit from the inclusion of more in-depth measures of the cognitive ER strategies of interest among normative young adults engaging in NSSI.

Overall, individuals reporting more maladaptive cognitive ER strategies were more likely to be in the NSSI-only group than the Control group and were more likely to have a greater number of NSSI episodes. In contrast, individuals reporting more adaptive cognitive ER strategies were more likely to be in the Control group than the NSSI-only group, with a particular emphasis on positive refocusing and refocus on planning. Regarding intervention, the results suggest that NSSI prevention programs could focus on building skills relating to positive refocusing and planning strategies when faced with negative events and emotions.

DE-only and Control. In contrast to what was hypothesized, maladaptive and adaptive cognitive ER total scores and the individual strategies were not significant predictors of whether individuals were in the DE-only or Control group. While this could also be a result of the small sample size in the DE-only group, it is also possible that individuals with DE are using similar

levels of overall adaptive and maladaptive cognitive ER strategies as individuals not engaging in either DE or NSSI. Cognitive ER strategies may not differentiate whether a normative young adult engages in DE-only or neither DE or NSSI. In support of these conclusions, the supplemental analyses on the continuous outcome of DE (for the purpose of increased sample size) showed no significant associations between DE and total cognitive ER maladaptive and adaptive scores, or the individual strategies.

Methodological differences may help explain why the current study failed to replicate past research between rumination, catastrophizing, self-blame and DE. The majority of past studies either investigated rumination as a mediator between DE and another disorder, such as depression (e.g., Harrel & Jackson, 2008), or measured rumination differently than the present study. For example, Selby and colleagues (2008) combined the CERQ subscales of "rumination" and "catastrophizing" to comprise their rumination subscale. Furthermore, their outcome was a "dysregulated behaviour" latent variable that included both DE and substance use. Regarding catastrophizing and self-blame, previous studies utilized different measures for both DE and cognitive ER strategies, and compared clinical populations to normative populations (e.g., Cohen & Petrie, 2005; Morrison et al., 2006). Thus, there is still a need for a consolidation of past findings through continued research with consistent definitions of clinical constructs, measures, and populations studied.

Comorbid and Control. Regarding total scores, Comorbid young adults reported greater use of maladaptive cognitive ER strategies than young adults not engaging in either behaviour. Young adults without either behaviours reported greater total adaptive cognitive ER strategies than Comorbid individuals. Thus, not only are individuals engaging in comorbid DE and NSSI

using a greater number of maladaptive cognitive strategies than participants not engaging in DE or NSSI, but they are also using less adaptive cognitive strategies than these individuals.

Regarding specific cognitive strategies, Comorbid individuals were reporting more acceptance as a cognitive strategy when distressed than individuals without NSSI or DE. In contrast, individuals reporting that they refocus on planning more when distressed were more likely to belong to the Control group than the Comorbid group. Regarding the elevated levels of acceptance within the Comorbid group, the subscale has been defined as including thoughts regarding resigning to what has happened, and includes items such as, "I cannot change anything about it" and "I must learn to live with it" (Garnefski et al., 2001). While acceptance has been shown to be a valid and adaptive coping strategy when faced with problems that cannot be changed (e.g., such as with chronic pain: McCracken & Eccleston, 2003), if individuals always default to acceptance of negative situations regardless of whether problem solving is possible, this could lead to increased levels of distress (Forsythe & Compas, 1987), and potentially helplessness and emotion dysregulation. It is also possible that the use of both NSSI and DE results in individuals using more acceptance-based strategies because they have learned that they cannot actively solve their problems.

Refocusing on planning, which could be considered to be a more active approach to difficulties than acceptance-based strategies, was greater among individuals within the Control group compared to Comorbid group. This provides support that individuals with comorbidity may be over-relying on acceptance-based strategies and under relying on problem solving strategies. This may result in increased levels of helplessness and emotion dysregulation, which when combined with their lack of access to ER strategies as discussed earlier, further increases the risk of engagement in both DE and NSSI to cope with negative affect. These findings may

also have implications for the decision to engage in multiple body-harming ER strategies. Specifically, that harming your body to cope with emotions may result from a lack of planning and future thinking. Due to the cross-sectional nature of the present study, it is difficult to determine whether the apparent over-reliance on acceptance versus problem solving leads to comorbid DE and NSSI, or whether comorbid DE and NSSI leads to over reliance on acceptance. Regarding intervention implications for Comorbid clients, it may be beneficial to increase the use of planning and problem solving when faced with life difficulties in order to potentially reduce the use of NSSI and DE to regulate emotion. Furthermore, it may be beneficial to explore the use of acceptance strategies as a first step prior to solving a problem. Indeed, some problems require acceptance prior to being able to see the situation clear enough for taking steps to change the situation.

NSSI-only and DE-only. The present study did not find any significant differences of maladaptive or adaptive cognitive ER total scores or individual strategies between the NSSI-only and DE-only groups. There were no specific hypotheses for this research aim due to a lack of past studies addressing total scores between these groups. Thus, this finding is novel and may suggest that individuals engaging in NSSI or DE may be engaging in similar amounts of overall maladaptive and adaptive cognitive ER strategies, and/or that there are more important factors differentiating these two groups.

NSSI-only and Comorbid. In support the present hypothesizes, individuals in the Comorbid group reported using more maladaptive cognitive ER strategies than individuals within the NSSI-only group. However, despite the lower total ER difficulties and the use of only a single maladaptive ER behaviour (i.e., compared to two within the Comorbid group: NSSI+DE), individuals within the NSSI-only group did not reporting engaging in more total

adaptive cognitive ER scores compared to the Comorbid group. Thus, while young adults with comorbidity are utilizing significantly more maladaptive cognitive strategies than individuals with NSSI-only, they are engaging in similar amounts of adaptive strategies than individuals engaging in NSSI-only. This suggests that it is not the mere absence of more adaptive cognitive ER strategies that is associated with comorbid DE and NSSI, but the use of more maladaptive cognitive ER strategies. Furthermore, no specific individual cognitive subscales was associated with group membership between NSSI-only and Comorbid. This suggests that when comparing individuals with comorbid NSSI and DE to individuals with NSSI-only, individuals with comorbidity are particularly struggling with a greater use of overall maladaptive cognitive ER strategies. Thus, in treatment, clinicians may want to focus on reducing the total number of maladaptive cognitive ER strategies that their comorbid clients are using in addition to reducing overall emotion dysregulation.

DE-only and Comorbid. Parallel to the findings between individuals within the NSSI-only and Comorbid groups, individuals within the Comorbid group reported using more total maladaptive cognitive ER scores than did individuals within the DE-only group, and there were no significant differences regarding total adaptive cognitive scores. Thus, this provides further support that while comorbid individuals are using more maladaptive cognitive strategies that they are not necessarily using less adaptive strategies than individuals engaging in DE-only.

Regarding specific strategies, individuals in the DE-only group reported refocusing on planning more when distressed than the Comorbid group. Again, it is possible that Comorbid participants are over-relying on acceptance based strategies (even when the problem may be solvable) and are underutilizing problem-based strategies such as planning.

Psychological Predictors and Group Membership

The fifth research objective explored whether the psychological constructs of depressive symptoms, investment in physical appearance, past suicide attempts, and current suicide risk are predictive of engagement in NSSI-only, DE-only, both (i.e., Comorbid group) or neither of the behaviours (i.e., Control group).

NSSI-only and Control. Young adults within the NSSI-only group were more likely to endorse more depressive symptoms, currently be at risk for suicide, and report a history of at least one suicide attempt than young adults in the Control group. These findings provide further support to past findings that individuals engaging in NSSI are more likely to have symptoms of depression and suicidality compared to individuals without a history of NSSI (e.g., Brown et al., 2000; Hankin & Abela, 2011; Klonsky et al., 2003; Nock et al., 2006; Richmond et al., 2017). Furthermore, while suicide attempts and NSSI are separate constructs, there is a plethora of research indicating that individuals currently engaging in NSSI, or those that have engaged in NSSI in the past, are at greater risk of suicide (Brown et al., 2000; Lofthouse et al., 2009; Nock et al., 2006). Given the frequent co-occurrence of suicidality and NSSI, several researchers posit that NSSI behaviours open the door to increasingly severe self-harm behaviours that make eventual suicide more likely (Asarnow et al., 2011; Joiner, 2005; Whitlock et al., 2013). Furthermore, as previously noted, NSSI is sometimes reported as a technique to prevent suicide, but could sometimes accidentally lead to injury severe enough to cause death. Thus, clinicians working with individuals with a history of or current NSSI would benefit from continual assessment of current suicide risk and the nature of the NSSI (e.g., degree of lethality). Furthermore, the present study also found that current suicide risk was associated with greater

lifetime NSSI episodes. Thus, attending to current suicide risk factors within intervention may also be beneficial for reducing the frequency of NSSI.

DE-only and Control. In contrast to past literature (Dennard & Richards, 2013; Santos et al., 2007), depressive symptoms were not a predictor of DE-only compared to Control. While it is possible that the small sample of the DE-only group obscured true group differences, it is also possible that young adults engaging in DE-only are not more depressed than individuals without DE or NSSI. In support of this, continuous analyses of DE, conducted to increase sample size, also did not find associations between depressive symptoms and DE. Perhaps what would be considered clinically elevated levels of DE may be normative within undergraduate populations (Smith-Jackson, Flint, Brown, & Lehmack, 2017), and clinically elevated levels of depression are not required to engage in DE. Suicide attempt history, current suicide risk, and investment in physical appearance were also not significantly associated with group membership. However, within continuous analyses and the use of a larger sample, individuals reporting more DE behaviours were more likely to have a history of suicide attempts. Thus, it is unclear whether suicidality was not a significant predictor of DE within categorical analyses because of a low sample size (n = 19), or whether the significance found in the continuous analyses was driven by individuals engaging in NSSI not being removed from the sample. Future categorical research with a larger number of participants reporting clinically elevated levels of DE is required to elucidate the relationship between depressive symptoms, suicide attempts, and DE.

Comorbid and Control. While Muehlenkamp and colleagues (2012) did not include a Control group, based on their comparisons between NSSI-only, DE-only, and Comorbid groups, it was hypothesized that individuals with comorbidity would report greater investment in physical appearance and greater depressive symptoms than individuals with neither behaviours.

Furthermore, it was postulated that individuals in the Comorbid group would be more likely to be at current risk for suicide and be more likely to have a history of a suicide attempt than the Control group (Brown et al., 2000, Nock et al., 2006). In support of the hypotheses, Comorbid individuals were more likely to be at current risk of suicide, have greater depressive symptoms, and to invest more time and value into their physical appearance than individuals without DE or NSSI. This suggests that cognitions about the importance of physical appearance may be a key cognition to restructure when working with clients with comorbid DE and NSSI. Furthermore, it will be important for clinicians to continue to assess for depression and current suicide risk when treating clients with comorbid NSSI and DE. To inform prevention initiatives, future research should implement longitudinal designs to determine whether investment in physical appearance and suicidality is predictive of comorbid NSSI and DE or whether it is a consequence of these behaviours.

NSSI-only and DE-only. In direct contrast to the findings by Muehlenkamp and colleagues (2012), the NSSI-only group was not more likely to have greater depressive symptoms than the DE-only group, and the DE-only group was not endorsing greater investment in physical appearance than the NSSI-only group. While it is possible that the DE-only group in the present study was too small to detect group differences (n = 19), it is also possible that individuals engaging in NSSI-only and DE-only are experiencing similar levels of depressive symptoms and investment in physical appearance. Participants within the NSSI-only and DE-only groups reported similar levels of overall emotion dysregulation and therefore it is not unlikely that they experience similar levels of depressive symptoms. Muehlenkamp and colleagues (2012) hypothesized that individuals within their DE-only group were reporting more investment in physical appearance than individuals with NSSI-only because their eating habits

were partially motivated by a desire to achieve the ideal body image, whereas NSSI visibly damaged body tissue and is not a socially rewarded behaviour. Thus, they hypothesized that individuals engaging in NSSI must have less investment in physical appearance to be able to disfigure themselves. Given that investment in physical appearance is not significantly different between the NSSI-only and DE-only groups, the findings of the present study suggest that DE predominately serves an ER function instead of a method to achieve an ideal body image within the current group of young adults. Thus, given that participants within the NSSI-only and DE-only groups reported similar levels of overall emotion dysregulation, it is likely that both behaviours serve an ER function rather than an appearance-related function. Further studies are required to determine whether the present study or Muehlenkamp and colleagues' (2012) findings are replicable and whether other mediating factors exist to determine the importance of depressive symptoms and physical appearance investment. In contrast to what was hypothesized, current suicide risk and past suicide attempts were not significant predictors of group membership between the NSSI-only and DE-only groups. These hypotheses were made based on past research, which has generally focused on highlighting the greater suicide risk of individuals engaging in NSSI compared to individuals without NSSI, which was supported by the present study, as opposed to comparing participants with either NSSI or DE. The present findings suggest that suicidality is not a salient differentiator between NSSI and DE within normative populations.

NSSI-only and Comorbid. In support of the past literature, participants in the NSSI-only and Comorbid groups reported experiencing similar levels of depressive symptoms (Muehlenkamp et al., 2012). A novel finding was that history of suicide attempts and current suicide risk also did not differ between the NSSI-only and Comorbid groups. Thus, within

clinical practice, clients with a history of, or current, NSSI and a combined presentation of NSSI and DE should be similarly assessed for current suicide risk.

The findings also replicated the results of Muehlenkamp and colleagues' (2012) study in that the Comorbid group endorsed greater investment in physical appearance compared to the NSSI-only group. It is possible that with comorbid NSSI and DE, investment in physical appearance becomes a more salient risk factor than NSSI-alone. Interestingly, investment in physical appearance was not associated with continuous DE scores. This suggests that maladaptive levels of investment in physical appearance are occurring in the context of both NSSI and DE.

DE-only and Comorbid. Unlike past research, depressive symptoms were not a significant predictor of group membership between the DE-only and Comorbid groups (Muehlenkamp et al., 2012). However, as predicted, investment in physical appearance was not a significant predictor between the DE-only and Comorbid groups (Muehlenkamp et al., 2012). As hypothesized, participants within the Comorbid group were significantly more likely to be at current suicide risk compared to DE-only participants. This suggests that with increasing emotion dysregulation and the use of two maladaptive coping behaviours (i.e., NSSI+DE), in combination with limited access to ER strategies (see above), individuals with comorbidity are at a heightened risk of suicide. These results align with the findings discussed above with relation to acceptance as an ER strategy in the Comorbid group. Specifically, Comorbid individuals that are currently at risk for suicide may be more likely to use acceptance if they are considering suicide. Clinicians should be particularly sensitive to conducting suicide risk assessments when treating clients with comorbid DE and NSSI.

Psychological Predictors and Moderation of ER on Group Membership

The sixth objective was to explore whether depressive symptoms, investment in physical appearance, past suicide attempts, and current suicide risk moderate the relationship between global ER, specific ER deficits, and cognitive ER strategies on the prediction of whether individuals belong to one of the four behavioural groups: NSSI-only, DE-only, Comorbid, Control. Due to a lack of past studies investigating this research objective, no hypotheses were offered as it was exploratory.

The psychological predictors did not moderate the relationships between the behavioural outcomes and total ER scores and individual ER deficits. There was a significant interaction between investment in physical appearance and total adaptive cognitive ER strategies in predicting whether participants were in the NSSI-only or Comorbid groups, and the Comorbid or Control groups. Specifically, at low levels of investment in physical appearance, as adaptive cognitive ER strategies increased, participants are more likely to be in the Comorbid group than the NSSI-only or Control groups. At high levels of investment in physical appearance, as adaptive cognitive ER strategies increased, participants were more likely to be in the NSSI-only or Control group than the Comorbid group. Thus, high investment in physical appearance, combined with greater adaptive cognitive ER strategies is associated with lower levels of emotion dysregulation.

While the present study has conceptualized investment in physical appearance as a set of maladaptive behaviours and cognitions, the present interaction findings could indicate that investment in physical appearance is on a continuum. Specifically, that both high and low levels of investment in physical appearance represent maladaptive points on a continuum, whereas moderate levels are adaptive. For example, perhaps high levels of investment in physical

appearance involve an obsession with achieving an unhealthy physical ideal, whereas low levels of investment in physical appearance are characterized by the cessation of basic physical care routines such as daily grooming. Indeed, the interaction was not significant at moderate levels of investment in physical appearance, suggesting that medium investment in one's appearance is normative and healthy. For example, perhaps at low levels of investment in physical appearance, combined with greater levels of adaptive cognitive ER strategies, that low investment represents a maladaptive devaluing of physical appearance (e.g., not taking care of one's appearance, not engaging in regular physical grooming). It is possible that the greater dysregulation and mental health needs of participants in the Comorbid group is associated with subsequent disregard for appearance. With regards to greater use of adaptive cognitive ER strategies, in light of findings discussed above, it is possible that for the Comorbid group, high adaptive cognitive ER scores are largely a result of the acceptance subscale. As discussed previously, young adults in the present study engaging in both NSSI and DE were scoring higher on the acceptance subscale, which likely drives the total adaptive cognitive ER strategy score up. Thus, this may not reflect an overall greater amount of "adaptive" strategies, but a greater level of acceptance. An examination of the items of the CERQ acceptance subscale suggests that this subscale may not be a valid measure of acceptance, but more a measure of futility or the belief that nothing can be done to change one's difficulties. Thus, it is possible that Comorbid individuals scoring high on futility or self-efficacy to change difficulties may also be less likely to invest in their physical appearance.

It is possible that among the NSSI-only and Control groups, that use of greater overall adaptive cognitive ER strategies compared to the Comorbid group is protective against maladaptive low or high levels of investment in physical appearance. While engagement in

NSSI-only is still associated with high levels of emotion dysregulation and greater suicidality, perhaps this group is using adaptive cognitive ER strategies other than acceptance (e.g., refocus on planning), which protects them from developing comorbid DE. Indeed when looking at individual scores across behavioural groups for the subscales of the adaptive cognitive ER strategies (see Tables 1-4), individuals within the Comorbid group are reporting the highest acceptance rates compared to all other groups (i.e., NSSI, DE, and Control), and the lowest scores on all the other adaptive subscales (positive refocusing, refocus on planning, positive reappraisal, putting into perspective) compared to the remaining groups. Thus, for young adults in the Comorbid group, total adaptive cognitive ER strategies is reflecting greater acceptance and lower use of other adaptive strategies. In contrast, individuals within the remaining groups are endorsing lower levels of acceptance but greater levels of the remaining adaptive strategies compared to the Comorbid group. Indeed, the Control group utilized more refocusing on planning than the Comorbid group, which may be protective against comorbid NSSI and DE. Thus, the above interaction findings suggest that both overall adaptive cognitive ER strategies and investment in physical appearance function as both adaptive and maladaptive constructs depending on what specific strategies are being used. Further longitudinal research is needed to determine whether and why these constructs are functioning differently within these behavioural groups and investigate additional potential predictors of this relationship. Regarding clinical implications, converging evidence suggests that clinicians treating young adults with comorbid NSSI and DE may want to foster greater use of a wider variety of adaptive cognitive ER strategies (such as positive refocusing, planning and positive reappraisal), while at the same time increasing the value that they are placing on their physical wellbeing and appearance (if the client has dropped basic self-care/grooming). The exploration of how these clients are

conceptualizing the use of acceptance and in what situations acceptance is being used may also be a helpful target for intervention. Given the greater suicide ideation among Comorbid young adults within the present study, clinicians should be mindful of how the use of acceptance-based strategies may be influenced by suicidal plans and cognitions.

There was a significant interaction between depressive symptoms and total maladaptive cognitive ER strategies on whether participants were in the NSSI-only or Control group. Individuals endorsing high levels of depressive symptoms were more likely to be in the NSSI-only group regardless of their total maladaptive cognitive ER strategies. This suggests that depressive symptoms are a key risk factor for NSSI in non-clinical young adult populations and may be a primary target in intervention. However, it is also possible that high depressive symptoms develop as a result of ongoing NSSI, and that the treatment of NSSI would result in reduced depressive symptoms. Thus, it will be important for clinicians to assess whether depressive symptoms are a predictor or consequence of NSSI in order to better inform treatment formulation and planning. At low and moderate levels of depressive symptoms, being categorized into the NSSI-only group is dependent on levels of maladaptive cognitive ER strategies. Specifically, as young adults with low or moderate depressive symptoms endorsed using more overall maladaptive cognitive ER strategies they became more likely to be in the NSSI-only group than the Control group. Regarding prevention initiatives within university and college samples, future longitudinal research could screen students for low and moderate levels of depressive symptoms and provide support for reducing the use of maladaptive cognitive ER strategies in order determine if this protects against the development of NSSI.

There was a significant interaction between depressive symptoms and self-blame between young adults within the NSSI-only and Control groups. Young adults endorsing high depressive

symptoms were more likely to be in the NSSI-only group than the Control group, regardless of self-blame. Again the presence of depressive symptoms is a key construct when considering the use of NSSI among young adult samples. At low and moderate levels of depressive symptoms, being categorized into the NSSI-only group was dependent on the level of self-blame. Specifically, among young adults endorsing low and moderate levels of depressive symptoms, as self-blame increased they were more likely to be in the NSSI-only group than the Control group. Therefore, engagement in self-blame as an ER strategy is a meaningful intervention target for young adults experiencing low to moderate levels of depressive symptoms for the treatment and prevention of NSSI. This is in line with findings that some individuals report that a secondary function of NSSI is self-punishment (Klonsky, 2007). It is possible that a greater tendency to blame oneself in the face of emotion dysregulation is more likely to lead to NSSI, and/or engagement in NSSI leads to the use of greater self-blame. At high levels of depressive symptoms, targeting self-blame will not be as important a treatment target as low mood will be, with regards to the treatment and/or prevention of NSSI.

Ethnicity

While not an objective of the present study, it was consistently found across all models that Asian young adults were more likely to be in the NSSI-only group than the Control group compared to Caucasian young adults. While some studies have found that Asian young adults are less likely to be engaging in NSSI compared to Caucasians (e.g., Whitlock, Eckenrode, & Silverman, 2005), others have found that Asian women between the ages of 16 to 24 years are significantly more likely to engage in NSSI compared to Caucasian women (Husain, Waheed, & Husain, 2006). Furthermore, it has been found that Asian youth in the United States are more

likely to be admitted for self-inflicted injury to emergency rooms for both suicide and non-suicidal self-injury than Caucasian youth (Cutler, Flood, Dreyfus, Ortega, & Kharbanda, 2015). It is possible that Asian young adults within the present study may have greater levels of NSSI than Caucasian young adults due to greater parental and family pressure for academic success upon entering post-secondary education among collectivist cultures (Chao & Tseng, 2002), and the implications of academic success on familial image. While there are limited studies investigating these factors among Asian young adults who engage in NSSI, it has been found that greater collectivist interdependence and parent-driven perfectionism are associated with greater levels of depressive symptoms and distress among Asian American undergraduate students (Yoon & Lau, 2008). Given that greater levels of depressive symptoms were a strong predictor of NSSI within the present study, it is possible that these factors also increase Asian young adult risk for NSSI. Future research is needed to explore these factors among Asian young adults who engage in NSSI.

Limitations and Future Directions

The following limitations should be taken into consideration when reviewing the results of the present study. First, the cross-sectional nature of the study design does not allow for determining causality among the variables or inferences regarding potential reciprocal effects between emotion dysregulation, psychological constructs, and DE and NSSI. For example, while finding that NSSI is associated with limited emotional awareness, longitudinal studies are required to determine whether limited emotional awareness leads to NSSI or whether NSSI leads to limited emotional awareness. It is also possible that these constructs have reciprocal effects (e.g., Ross et al., 2009; Linehan, 1993). Longitudinal investigations could also determine whether engagement in NSSI and/or DE over time leads to increased emotion dysregulation, and

whether this leads to additional ER deficits becoming more relevant across time. Furthermore, future studies would benefit from the longitudinal investigation of the interplay of NSSI and DE over time among comorbid samples. Specifically, while some longitudinal investigations have found that as engagement in NSSI increases, engagement in DE decreases, and vice versa (Washburn, Gebhardt, Styer, Juzwin, & Gottlieb, 2012), others have found that as NSSI frequency increases, severity of DE increases (Turner et al., 2015). Thus, future studies would benefit from investigating the changing relationship between comorbid DE and NSSI over time, with regards to emotion dysregulation and clinical constructs such as suicidality.

A limitation to consider when interpreting the study findings is the lower number of participants within the DE-only and Comorbid groups compared to the Control and NSSI-only groups. While there is no assumption in multinomial logistic regression that requires that the levels of the dependent variable include an equal number of participants and that the sample includes the total number of participants across levels of the dependent variable (Field, 2009), there is lower power to detect differences between the DE-only and Comorbid groups. Thus, it is possible that the present study is missing significant associations between the DE-only and Comorbid groups and the remaining groups. However, the conclusions of the present study are further supported by the fact that the majority of the findings from the continuous analyses (that included large sample sizes) were largely consistent with the categorical analysis findings. However, given the objectives of the present study, the low number of Comorbid participants was a particular limitation. While it is possible that the level of Comorbid individuals in the present study may be an accurate representation of the distribution of Comorbidity in a non-clinical young adult sample, it is also possible that the low sample size is a result of the small amount of participants being detected with clinical DE. However, Muehlenkamp and colleagues

(2012) conducted similar categorical analyses to the present study with a different DE measure (i.e., Eating Disorder Inventory- Second Edition) within an undergraduate sample and found a total of 24 comorbid participants (current study *n* = 28). Thus, this may be a true representation of comorbid NSSI and DE among undergraduate young adults. While the EAT-26 is a commonly used measure to detect clinical risk for DE among both non-clinical and clinical samples, future research may benefit from confirming these levels through diagnostic clinical interviewing to assess whether some young adults with clinical DE are being missed. This would increase the Comorbid sample size.

Regarding the NSSI-only group, the present study did not differentiate between current and past engagement in NSSI, and only considered whether participants had engaged in NSSI at some point in their life. Despite measurement of lifetime prevalence of NSSI being common practice in the reviewed literature, forthcoming research would benefit from investigating whether the current study findings vary when NSSI is defined as a current or past behaviour. In reference to the implications of the current study, Ross and colleagues (2009) found that there were no differences in the amount or severity of DE between participants with current or past NSSI. Furthermore, Anderson and Crowther (2012) found similar findings to the present study among undergraduate students with both current and past NSSI. Specifically, regardless of whether participants had current or past NSSI, they scored greater on emotion dysregulation compared to control participants and endorsed greater lack of emotional awareness and limited access to ER strategies. Young adults with current NSSI had greater non-acceptance of emotions and impulsivity than young adults with past NSSI. Thus, it is hypothesized that if the present investigation separated current and past NSSI, our study would find that the findings on the DERS would be the same (i.e., lack of access to ER strategies, lack of emotional awareness), but

that young adults with current NSSI may have additional deficits compared to individuals who have stopped engaging in NSSI (i.e., non-acceptance of emotions, and impulsivity). Furthermore, Whitlock and colleagues (2015) found that while undergraduate students with both current and past NSSI have limited access to ER strategies, individuals with current NSSI have more significant deficits in this area. Thus, it may be expected that if current and past NSSI was separated within the present study that the current NSSI group would be reporting even greater difficulties accessing ER strategies compared to the group that had a past history of NSSI.

The present study did not directly assess sex differences across the research objectives as some behavioural groups, such as the DE-only and Comorbid groups, had sample sizes that were too small to be separated by sex. However, when the data was initially explored, sex was not identified as a significant covariate. That being said, while past studies have found that men and women with DE report similar levels of ER difficulties, sex differences have been found regarding the specific types of ER deficits experienced between men and women (Ambwani, Slane, Thomas, Hopwood, & Grilo, 2014; Robinson et al., 2014). Thus, future investigations would benefit from conducting the above analyses between sexes to determine if group differences vary by sex among individuals engaging in NSSI-only, DE-only, or both behaviours.

Various sample selection factors impact the generalizability of the study results to the overall population of young adults. The present sample was comprised of individuals attending university, but there are young adults that begin working immediately after high school, attend post-secondary education at a later point in life, or are not successful at enrollment. Thus, a proportion of young adults are not represented in the present study. In addition, the university from which the present sample was obtained is considered a “commuter” school, which means that the majority of students continue to live at home, which may be qualitatively different from

individuals living on their own at other post-secondary institutions. Thus, future research would benefit from investigating a more representative sample of young adults in order to increase generalizability. Furthermore, as data were collected through self-report measures, the findings may be impacted by subjectivity bias. As such, future studies should introduce measures such as standardized clinical interviews to assess behavioural constructs. However, past research has found that social desirability bias is lower for sensitive questions on computer based self-report measures than face-to-face interviews (e.g., Richman, Kiesler, Weisband, & Drasgow, 1999).

In addition to the above limitations, the present study did not consider the timeline or number of past suicide attempts. It is possible that more frequent suicide attempts have clinical implications regarding whether individuals are at risk of NSSI, DE, or comorbid NSSI and DE. Furthermore, while the inclusion of two maladaptive ER behaviours such as NSSI and DE is a strength of the present study, there are other harmful ER behaviours that were not assessed. For example, participants across behavioural groups, including the Control group, may have been using elicit substances to regulate emotions. This would not be surprising given that increased substance use is normative within university populations (Ross & DeJong, 2008; Sutfin et al., 2009). It would cloud the understanding of ER difficulties across groups if participants were engaging in additional regulative behaviours. Thus, future studies should take into consideration additional maladaptive ER coping behaviours such as substance use. Lastly, since the categorical analyses required a clinical cut-off score on the EAT-26, the main analyses did not take into account young adults with sub-clinical DE. Thus, it is possible that the Control group contains young adults with non-clinical but meaningful levels of DE that could account for some non-significant findings between the Control and DE groups.

Study Implications

The current study makes several unique contributions to the extant literature by exploring global ER, specific ER deficits, and cognitive ER strategies within NSSI-only, DE-only and comorbid presentations. Furthermore, existing theoretical frameworks and conceptual models of both NSSI and DE would benefit from the inclusion of psychological factors such as depressive symptoms, investment in physical appearance, suicide attempt history, and current suicide risk. The percentage of participants endorsing use of NSSI provides further support that NSSI is not exclusive to clinical inpatient populations but may be becoming an increasingly common behaviour among normative samples of youth and young adults.

The findings of the present study affirmed that ER is a key factor in the engagement of NSSI and DE and comorbid presentations of these behaviours. Overall, young adults with NSSI-only, DE-only, and Comorbidity are reporting higher levels of emotion dysregulation than individuals without either of these behaviours. This further suggests that NSSI and DE are used as a means of providing ER when distressed. Furthermore, individuals with Comorbidity are endorsing the greatest levels of emotion dysregulation. This suggests that young adults with greater emotion dysregulation may require multiple maladaptive behaviours to reduce emotional pain and/or that comorbid DE and NSSI lead to greater levels of emotion dysregulation. Future research should utilize longitudinal designs to determine the progression of ER deficits and comorbid NSSI and DE.

The present study found that young adults with DE or NSSI are reporting similar levels of emotion dysregulation. This suggests that ER difficulties are equally associated with both NSSI and DE behaviours, and that young adults with NSSI are not experiencing greater emotion dysregulation than those engaging in DE. In spite of this similarity, the present findings suggest

there are key differences in the ways in which DE, NSSI, and Comorbidity should be treated with respect to ER. Specifically, while all of these behaviours would benefit from targeting overall emotion dysregulation, that there are specific ER deficits and skills that could be targeted among individuals with NSSI-only and Comorbidity; whereas young adults with DE-only may benefit from a broad treatment targeting ER (i.e., a full course of DBT).

Specifically, the present study identified that a key deficit found among individuals with NSSI-only and Comorbidity is a lack of access to adaptive ER strategies. This difficulty in identifying alternative strategies is even more important for Comorbid young adults than young adults with NSSI-only. Thus, young adults engaging in these behaviours may be utilizing NSSI and DE because they do not have a well-developed repertoire of additional adaptive strategies that enable them to regulate their emotions effectively. Intervention with young adults with NSSI-only or Comorbidity would benefit from specific instruction on and practice of alternative distress tolerance and ER skills. For example, DBT distress tolerance skills such as TIPP (temperature, intense aerobic exercise, progressive muscle relaxation, and paced breathing), distraction, self-soothing, and daily living skills aimed to improve overall ER (e.g., sleeping and eating habits, regular physical activity, avoiding non-prescribed substances, coping ahead plans, building mastery, and behavioural activation; Linehan, 2014) would provide alternative strategies to NSSI and DE.

In addition to increasing access to ER strategies, young adults with Comorbidity and NSSI-only were also found to have greater levels of overall maladaptive cognitive ER strategies and lower overall adaptive cognitive ER strategies compared to individuals with neither behaviours. Thus, when treating clients with NSSI-only or Comorbidity, it would be prudent to assess for the use of maladaptive and adaptive cognitive strategies, and target interventions to

reduce the overall use of maladaptive strategies and increase adaptive cognitive strategies. With regards to specific cognitive strategies, the present study suggested that Comorbid young adults are engaging in greater levels of acceptance based strategies than active problem solving strategies. While acceptance is effective for problems that cannot be changed (e.g., such as with chronic pain: McCracken & Eccleston, 2003), if individuals default to acceptance of negative situations regardless of whether problem solving is possible, this could lead to increased levels of distress (Forsythe & Compas, 1987). However, the acceptance subscale used in the present study may also be assessing a construct closer to "futility" or "giving up," and it may not be a valid measure of acceptance-based strategies. Regardless, when treating Comorbid young adults, intervention could provide psycho-education on the balanced use of acceptance and problem-solving strategies for difficulties.

Furthermore, specific to young adults with NSSI-only, a key ER deficit identified was a lack of emotional awareness. This suggests that intervention for NSSI should focus on improving the identification of emotions and increasing the understanding of functions of emotions. Mindfulness of body sensations that provide "clues" for clients to identify internal emotional experiences may help increase emotional awareness and "expose" clients to uncomfortable negative emotions, which may help reduce the need to resort to NSSI to quickly eliminate distress (Linehan, 1993; McMain et al., 2001).

With respect to psychological constructs, clinicians should continue to assess for depressive symptoms and current suicide risk among clients with NSSI and Comorbid presentations. In particular for Comorbid young adults, high and low levels of investment in physical appearance could be assessed as a potential novel target for intervention. For young

adults with NSSI-only, and low to moderate levels of depressive symptoms, the cognitive strategy of self-blame appears to become a key target for intervention.

With regards to suicidality, the findings of the current study indicate that past suicide attempts and current suicide ideation/risk are predictive of NSSI-only and Comorbid groups. In particular, the Comorbid group was most associated with greater suicide ideation/risk. The Interpersonal-Psychological Theory of Suicide (Joiner, 2005) may explain the higher rate of suicide risk among young adults with DE and NSSI. One of the components of this theory is that individuals slowly develop the ability to engage in a lethal suicide by continuously engaging in NSSI and suicide attempts. Specifically, that multiple acts of NSSI and past suicide attempts slowly erode the natural instinct of self-preservation due to processes of habituation to higher tolerance for pain and reduced fear of death. Indeed, young adults in the present study with greater episodes of NSSI were more likely to have current suicide risk and ideation. It is possible that the young adults within the Comorbid group are increasing their risk of suicide by engaging in both NSSI and DE. While NSSI is a more direct form of self-harm, DE has also been conceptualized as a self-harm behaviour that slowly damages the body (Walsh, 2006). Indeed, young adults in the current study with a history of a suicide attempt were more likely to have greater scores on the continuous outcome of DE. Thus, immediate intervention to promote the cessation of both NSSI and DE among comorbid young adults may be imperative to reduce risk of future suicide attempts. Ongoing suicide risk and safety planning should be encouraged among clinical work with clients with comorbid NSSI and DE.

While young adults with clinically elevated levels of DE may not benefit from intervention focusing on specific ER deficits, the present findings indicate that global elevated emotion dysregulation remains a key construct for intervention. However, greater continuous DE

scores were associated with greater difficulties with emotional awareness and limited access to ER strategies and may be areas to initially focus intervention for ER. It is also likely that there are more prudent targets in the treatment of DE-only, such as maladaptive cognitions about body image ideals, weight, and body dissatisfaction that are not captured within the current study. Furthermore, the measure of DE utilized in the present study did not differentiate between restricting and binge-purge behaviours. It is possible that binging behaviours are a function of emotion dysregulation, whereas restricting may be associated with more traditional eating disordered cognitions and goals of weight loss. Indeed, some studies have found that participants with the binge-purge subtype of anorexia nervosa have greater emotion dysregulation than restricting subtypes (e.g., Rowsell, MacDonald, & Carter, 2016). Future research investigating ER differences between young adults with predominantly restricting and binge/purge profiles may be more sensitive to differences regarding ER deficits.

The study has important implications for prevention and intervention initiatives for clinicians, educators, and mental health service providers working with young adults, and policy makers in the area of mental health. The present findings strongly suggest that a discussion of alternative healthy ER strategies with youth and young adults is key for both prevention and intervention initiatives against NSSI and comorbid NSSI and DE. Given the high levels of NSSI within the present sample, undergraduate programs would benefit from wellness programming aimed at building understanding of the importance of ER, how maladaptive strategies such as DE and NSSI negatively impact wellbeing, and information regarding alternative healthy ER strategies. Ideally, group ER and distress tolerance skills coaching sessions (e.g., DBT-based group skills coaching manuals) could be made available for incoming undergraduate students during frosh week to provide a foundation of ER education and strategies prior to the stress of

university curricula. Indeed, a recent meta-analysis of mental health prevention programs among post-secondary students determined that the current best-practice was to engage students in group-based programming that incorporated skills training such as ER in tandem with supervised practice and feedback regarding skills use (Conley, Durlak, & Kirsch, 2015).

The present study represents an initial investigation into the important role of ER among individuals with NSSI, DE, and Comorbidity. However, there are many other functions of NSSI and DE that play a role in the development and maintenance of these behaviours (e.g., Hooley & Franklin, 2018; Klonsky, 2007; Stanford & McCabe, 2002). For example, Nock and Prinstein's (2004) Four Factor Model of NSSI, and Hooley and Franklin's (2018) Benefits and Barriers Model of NSSI both suggest that in addition to ER, NSSI can also regulate the social environment and serve social functions (e.g., bring attention and care; express emotional suffering; increase peer affiliation). Future research including an examination of the interplay between both the ER and social function of these behaviours, as well as the impact of interpersonal ER strategies, may provide new avenues for clinical intervention and research.

Conclusion

In summary, the present study explored differences regarding the types of ER deficits and maladaptive and adaptive cognitive ER strategies used across individuals engaging in NSSI-only, DE-only, both NSSI and DE, or neither behaviours among a non-clinical sample of young adults. In addition, the present study investigated whether depressive symptoms, suicide attempt history, current suicide risk, and investment in physical appearance were differentially associated with group membership, and whether these psychological variables moderated the relationship between each behavioural group and ER. Results support that NSSI and DE are associated with high levels of emotion dysregulation, and that engagement in NSSI, DE, or both behaviours are

associated with different specific ER deficits and cognitive ER coping strategies. Furthermore, novel associations between psychological variables and these behavioural groups were also discovered. The results contribute to the growing literature on ER and engagement in a variety of maladaptive ER coping behaviours. The results can inform the development of prevention and intervention initiatives for emotion dysregulation globally, and for specific treatment targets that are more salient among individuals engaging in NSSI, DE, or both behaviours. Future studies are required to replicate the present findings and extend them to longitudinal designs and across additional maladaptive ER behaviours, such as substance use.

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Table 1
Characteristics of the Study Sample (N = 395) for NSSI-only Group

Characteristic	*M* (SD) or *N* (%)of categorical variables
Demographic Variables	
Age	19.63 (2.62)
Sex	
Male	89 (22.5)
Female	306 (77.5)
Household Income	
Below Average Income	76 (19.8)
Average Income	221 (57.6)
Above Average Income	77 (20.1)
Well Above Average Income	10 (2.6)
Ethnic origin	
Caucasian	89 (22.6)
Asian	88 (22.4)
African/Caribbean	44 (11.2)
Hispanic or Latino	16 (4.31
First Nation, Inuit or Metis	0 (0)
Middle Eastern	50 (12.7)
South Asian	86 (21.9)
Other	20 (5.1)
BMI	23.14 (5.15)
Key Predictor Variables	
DERS Total Score	98.50 (23.83)
ACCEPT	15.74 (6.06)
GOALS	16.70 (4.62)
IMPULSE	15.53 (5.91)
AWARE	15.77 (4.93)
STRATEGIES	21.48 (7.71)
CLARITY	13.23 (4.23)
CERQ Total Maladaptive Score	41.12 (11.45)
Self-blame	11.13 (3.78)
Rumination	12.07 (3.72)
Catastrophizing	9.47 (3.81)
Other-blame	8.41 (3.26)
CERQ Total Adaptive Score	60.55 (15.88)
Acceptance	12.56 (3.49)
Positive Refocusing	10.45 (3.93)
Refocus on Planning	12.21 (3.92)
Positive Reappraisal	12.65 (4.22)
Putting into Perspective	12.71 (4.02)
Secondary Psychological Predictors	
CES-D	22.42 (12.01)
ASI-R	3.52 (.64)

SBQ-R	
Low Suicide Risk	241 (68.7)
High Suicide Risk	110 (31.3)
ATTEMPT	
No Suicide Attempt History	319 (90.1)
History of Suicide Attempt	35 (9.9)

Note: NSSI=Non-suicidal Self-injury; DERS=Difficulties with Emotion Regulation Scale; ACCEPT=Non-acceptance of emotional responses; GOALS=Difficulty engaging in goal-directed behaviour; IMPULSE=Difficulties with impulse control; AWARE=lack of emotional awareness; STRATEGIES=limited access to emotion regulation strategies; CLARITY=lack of emotional clarity; CERQ=Cognitive Emotion Regulation Questionnaire; CES-D=Centre for Epidemiologic Studies Depression Scale; ASI-R=Appearance Schemas Inventory-Revised; SBQ-R = Suicide Behavior Questionnaire-Revised (a measure of suicide risk with a cut-off); ATTEMPT= history of suicide attempt.

Table 2
Characteristics of the Study Sample (N = 19)[a] *for DE-only Group*

Characteristic	*M* (SD) or *N* (%)of categorical variables
Demographic Variables	
Age	19.84 (2.65)
Sex	
Male	6 (31.6)
Female	13 (68.4)
Household Income	
Below Average Income	2 (10.5)
Average Income	9 (47.4)
Above Average Income	8 (42.1)
Well Above Average Income	0 (0)
Ethnic origin	
Caucasian	9 (47.4)
Asian	2 (10.5)
African/Caribbean	3 (15.8)
Hispanic or Latino	0 (0)
First Nation, Inuit or Metis	0 (0)
Middle Eastern	1 (5.3)
South Asian	4 (21.1)
Other	0 (0)
BMI	23.92 (4.32)
Key Predictor Variables	
DERS Total Score	100.11 (18.88)
ACCEPT	17.05 (6.11)
GOALS	16.21 (5.45)
IMPULSE	14.84 (6.35)
AWARE	15.89 (6.03)
STRATEGIES	21.58 (7.14)
CLARITY	14.53 (3.92)
CERQ Total Maladaptive Score	36.94 (9.21)
Self-blame	10.06 (3.99)
Rumination	11.17 (3.40)
Catastrophizing	8.06 (2.73)
Other-blame	7.677 (3.12)
CERQ Total Adaptive Score	60.50 (18.99)
Acceptance	11.6 (3.99)
Positive Refocusing	11.39 (4.77)
Refocus on Planning	12.78 (4.51)
Positive Reappraisal	12.11 (3.97)
Putting into Perspective	12.61 (4.06)
Secondary Psychological Predictors	
CES-D	20.74 (8.82)
ASI-R	3.49 (.43)

SBQ-R	
Low Suicide Risk	16 (88.9)
High Suicide Risk	2 (11.1)
ATTEMPT	
No Suicide Attempt History	17 (94.4)
History of Suicide Attempt	1 (5.6)

Note: DERS=Difficulties with Emotion Regulation Scale; ACCEPT=Non-acceptance of emotional responses; GOALS=Difficulty engaging in goal-directed behaviour; IMPULSE=Difficulties with impulse control; AWARE=lack of emotional awareness; STRATEGIES=limited access to emotion regulation strategies; CLARITY=lack of emotional clarity; CERQ=Cognitive Emotion Regulation Questionnaire; CES-D=Centre for Epidemiologic Studies Depression Scale; ASI-R=Appearance Schemas Inventory-Revised; SBQ-R = Suicide Behavior Questionnaire-Revised (a measure of suicide risk with a cut-off); ATTEMPT= history of suicide attempt.

Table 3
Characteristics of the Study Sample (N =28)[a] *for Comorbid Group*

Characteristic	*M* (SD) or *N* (%)of categorical variables
Demographic Variables	
Age	19.54 (1.93)
Sex	
Male	4 (14.3)
Female	24 (85.7)
Household Income	
Below Average Income	6 (21.4)
Average Income	16 (57.1)
Above Average Income	5 (17.9)
Well Above Average Income	1 (3.6)
Ethnic origin	
Caucasian	12 (42.9)
Asian	3 (10.7)
African/Caribbean	1 (3.6)
Hispanic or Latino	2 (7.1)
First Nation, Inuit or Metis	0 (0)
Middle Eastern	4 (14.3)
South Asian	5 (17.9)
Other	1 (3.6)
BMI	23.96 (3.93)
Key Predictor Variables	
DERS Total Score	109.13 (25.87)
ACCEPT	18.11 (7.01)
GOALS	18.40 (4.57)
IMPULSE	17.78 (6.30)
AWARE	14.89 (6.27)
STRATEGIES	26.68 (8.01)
CLARITY	13.39 (4.47)
CERQ Total Maladaptive Score	45.27 (10.52)
Self-blame	11.99 (3.52)
Rumination	13.00 (3.79)
Catastrophizing	10.89 (3.37)
Other-blame	9.35 (3.40)
CERQ Total Adaptive Score	59.24 (15.61)
Acceptance	13.49 (3.60)
Positive Refocusing	9.96 (4.04)
Refocus on Planning	11.46 (3.98)
Positive Reappraisal	12.19 (4.46)
Putting into Perspective	12.11 (3.83)
Secondary Psychological Predictors	
CES-D	26.68 (11.47)
ASI-R	3.88 (.50)

SBQ-R	
Low Suicide Risk	14 (56)
High Suicide Risk	11 (44)
ATTEMPT	
No Suicide Attempt History	22 (91.7)
History of Suicide Attempt	2 (8.3)

Note: DERS=Difficulties with Emotion Regulation Scale; ACCEPT=Non-acceptance of emotional responses; GOALS=Difficulty engaging in goal-directed behaviour; IMPULSE=Difficulties with impulse control; AWARE=lack of emotional awareness; STRATEGIES=limited access to emotion regulation strategies; CLARITY=lack of emotional clarity; CERQ=Cognitive Emotion Regulation Questionnaire; CES-D=Centre for Epidemiologic Studies Depression Scale; ASI-R=Appearance Schemas Inventory-Revised; SBQ-R = Suicide Behavior Questionnaire-Revised (a measure of suicide risk with a cut-off); ATTEMPT= history of suicide attempt.

Table 4
Characteristics of the Study Sample (N =632)[a] *for Control Group*

Characteristic	*M* (SD) or *N* (%)of categorical variables
Demographic Variables	
Age	19.89 (2.80)
Sex	
Male	161 (25.5)
Female	471 (74.5)
Household Income	
Below Average Income	92 (15.3)
Average Income	362 (57.3)
Above Average Income	131 (21.8)
Well Above Average Income	17 (2.8)
Ethnic origin	
Caucasian	170 (27.5)
Asian	77 (12.5)
African/Caribbean	88 (14.2)
Hispanic or Latino	11 (1.8)
First Nation, Inuit or Metis	0 (0)
Middle Eastern	77 (12.5)
South Asian	167 (27)
Other	28 (4.5)
BMI	24.13 (39.12)
Key Predictor Variables	
DERS Total Score	88.37 (22.93)
ACCEPT	14.06 (6.16)
GOALS	15.53 (4.67)
IMPULSE	13.82 (5.53)
AWARE	14.76 (4.68)
STRATEGIES	18.43 (7.45)
CLARITY	11.80 (4.05)
CERQ Total Maladaptive Score	37.90 (10.75)
Self-blame	9.90 (3.30)
Rumination	11.00 (3.63)
Catastrophizing	8.70 (3.45)
Other-blame	8.26 (2.95)
CERQ Total Adaptive Score	61.58 (15.97)
Acceptance	11.76 (3.64)
Positive Refocusing	11.17 (3.86)
Refocus on Planning	12.78 (3.79)
Positive Reappraisal	13.12 (3.97)
Putting into Perspective	12.76 (3.78)
Secondary Psychological Predictors	
CES-D	16.70 (10.77)
ASI-R	3.36 (.61)

SBQ-R	
Low Suicide Risk	551 (92.1)
High Suicide Risk	47 (7.9)
ATTEMPT	
No Suicide Attempt History	606 (99.3)
History of Suicide Attempt	4 (.7)

Note: DERS=Difficulties with Emotion Regulation Scale; ACCEPT=Non-acceptance of emotional responses; GOALS=Difficulty engaging in goal-directed behaviour; IMPULSE=Difficulties with impulse control; AWARE=lack of emotional awareness; STRATEGIES=limited access to emotion regulation strategies; CLARITY=lack of emotional clarity; CERQ=Cognitive Emotion Regulation Questionnaire; CES-D=Centre for Epidemiologic Studies Depression Scale; ASI-R=Appearance Schemas Inventory-Revised; SBQ-R = Suicide Behavior Questionnaire-Revised (a measure of suicide risk with a cut-off); ATTEMPT= history of suicide attempt.

Table 5.

Correlations and Point Biserial Correlations between Demographics, Behavioural Dichotomous and Continuous Outcomes

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.	Age	1																
2.	Sex	.030	1															
3.	SES	-.036	.030	1														
4.	Other vs. Caucasian	.016	.003	.008	1													
5.	Asian vs. Caucasian	-.014	.087**	-.080*	-.099**	1												
6.	African vs. Caucasian	.065*	-.065*	-.059	-.087**	-.169**	1											
7.	Hispanic vs. Caucasian	.016	-.028	-.041	-.037	-.073*	-.064*	1										
8.	Middle Eastern vs. Caucasian	-.009	.012	-.007	-.084**	-.163***	-.144***	-.062*	1									
9.	South Asian vs. Caucasian	-.051	-.031	-.024	-.131**	-.254***	-.224***	-.096**	-.217***	1								
10.	NSSI vs. Control	-.046	-.033	-.047	.013	.131***	-.044	.069*	.004	-.058	1							
11.	Comorbid vs. Control	-.026	-.052	-.026	-.009	-.011	-.063	.078	.011	-.042	c	1						
12.	DE vs. Control	-.003	.024	.049	-.038	-.010	.008	-.023	-.037	-.023	c	c	1					
13.	NSSI vs.DE	-.017	-.045	-.078	.050	.060	-.030	.044	.048	.004	c	c	c	1				
14.	NSSI vs. Comorbid	.009	.050	.007	.017	.071	.061	-.038	.012	.024	c	c	c	c	1			
15.	DE vs. Comorbid	.068	.207	.193	-.121	-.003	.215	-.174	-.144	.040	c	c	c	c	c	1		
16.	EAT-26	-.004	-.028	.014	.016	-.042	-.027	.069*	-.051	-.012	.032	.828***	.833***	-.865***	-.843***	-.078	1	
17.	ISAS:FREQ	-.007	-.003	-.034	.024	.043	-.018	.028	-.017	-.061*	.226***	.599***	-.006	.054	.005	-.419**	.021	1

Note. *$p < .05$, **$p < .01$, *** $p < .001$

C. Cannot be computed because at least one of the variables is constant; correlations between dummy coded ethnicity variables should not be interpreted

Note. EAT-26: Eating Attitudes Test-26 item; ISAS:FREQ: Inventory of Statements about Self-injury: Frequency of NSSI

Table 6.

Correlations between DERS, Behavioural Dummy Coded Outcomes, and Continuous Outcomes

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. DERS Total Score	1														
2. Non-accept	.812***	1													
3. Goals	.661***	.487***	1												
4. Impulse	.838***	.642***	.534***	1											
5. Aware	.204***	-.070*	-.175***	-.027	1										
6. Strategies	.906***	.733***	.602***	.782***	-.013	1									
7. Clarity	.694***	.457***	.288***	.442***	.360***	.502***	1								
8. NSSI vs. Control	.207***	.132***	.121***	.145***	.102**	.193***	.167** *	1							
9. Comorbid vs. Control	.183***	.132**	.126**	.143***	.006	.223***	.08*	c	1						
10. DE vs. Control	.089*	.084*	.025	.032	.041	.073	.115* *	c	c	1					
11. NSSI vs. DE	-.015	-.047	.022	.025	-.005	-.003	-.066	c	c	c	1				
12. NSSI vs. Comorbid	-.112*	-.097	-.094	-.095	.044	-.169**	-.010	c	c	c	c	1			
13. DE vs. Comorbid	-.190*	-.080	-.217	-.228	.081	-.316*	.132	c	c	c	c	c	1		
14. EAT-26	.088**	.05	.017	.062*	.070*	.116***	.038	.032	.828***	.833***	-.865***	-.843***	-.078	1	
15. ISAS:FREQ	.114***	.074*	-.082**	.101**	-.011	.127***	.075*	.226***	.599***	-.006	.058	.005	-.419**	.021	1

Note. $*p < .05$, $**p < .01$, $***p < .001$

Note. Non-accept: Non-Acceptance of Emotional Responses subscale; Goals: Difficulties Engaging in Goal Directed Behaviour subscale; Impulse: Impulse Control Difficulties subscale; Aware: Lack of Emotional Awareness subscale; Strategies: Limited Access to Emotion Regulation Strategies subscale; Clarity: Lack of Emotional Clarity subscale; EAT-26: Eating Attitudes Test-26 item; ISAS:FREQ: Inventory of Statements about Self-injury: Frequency of NSSI

Table 7.

Correlations between CERQ, Behavioural Dummy Coded Outcomes, and Continuous Outcomes

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1.	CERQ MAL	1																		
2.	SELF	.809***	1																	
3.	RUMIN	.844***	.699***	1																
4.	CAT	.834***	.520***	.564***	1															
5.	OTHER	.692***	.324***	.389***	.577***	1														
6.	CERQ ADAPT	.345***	.320***	.414***	.162***	.206***	1													
7.	ACCEPT	.542***	.556***	.596***	.306***	.252***	.679***	1												
8.	POS REF	.213***	.152***	.245***	.122***	.176***	.804***	.398***	1											
9.	REF PLAN	.288***	.255***	.358***	.135***	.183***	.891***	.494***	.669***	1										
10.	REAPRAISE	.177***	.166***	.248***	.052	.096**	.887***	.447***	.637***	.814***	1									
11.	PERSPECT	.216***	.208***	.277***	.063	.141***	.844***	.485***	.588***	.670***	.717***	1								
12.	NSSI vs. Control	.141***	.169***	.141***	.114**	.025	-.032	.109**	-.090**	-.071*	-.056	-.007	1							
13.	Comorbid vs. Control	.145**	.133**	.116**	.134**	.078	-.031	.101*	-.066	-.073	-.049	-.036	c	1						
14.	DE vs. control	-.016	.008	.008	-.033	-.035	-.012	-.007	.010	.000	-.045	-.007	c	c	1					
15.	NSSI vs. DE	.079	.061	.052	.081	.049	.001	.058	-.050	-.030	.028	.005	c	c	c	1				
16.	NSSI vs. Comorbid	-.094	-.059	-.065	-.096	-.073	.021	-.068	.032	.050	.028	.038	c	c	c	c	1			
17.	DE vs. Comorbid	-.384**	-.252	-.245	-..413**	-.248	.037	-.243	.162	.156	.-.009	.064	c	c	c	c	c	1		
18.	EAT-26	-.011	-.012	-.008	.000	-.014	-.072*	-.027	-.050	-.065*	-.089**	-.06	.032	.828***	.833***	-.865***	-.843***	-.078	1	
19.	ISAS: FREQ	.070*	.070*	.053	.067*	.034	-.018	.014	-.019	-.023	-.032	-.007	.226***	.599***	-.006	.058	.005	-.419**	.021	1

Note. $*p < .05$, $**p < .01$, $***p < .001$

Note. CERQ MAL: Cognitive Emotion Regulation Questionnaire Maladaptive Composite; CERQ ADAPT: Cognitive Emotion Regulation Questionnaire Adaptive Composite; SELF: Self-blame; RUMIN: Rumination; CAT: Catastrophizing; OTHER: Other-blame; ACCEPT: Acceptance; POS REF: Positive Refocusing; REF PLAN: Refocus on Planning; REAPRAISE: Positive Reappraisal; PERSPECT: Putting into Perspective subscale; EAT-26: Eating Attitudes Test-26 item; ISAS:FREQ: Inventory of Statements about Self-injury: Frequency of NSSI

Table 8.

Correlations between Clinical Predictors, Behavioural Dummy Coded Outcomes, and Continuous Outcomes

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. BMI	1												
2. CES-D	.031	1											
3. ASI-R	-.013	.298***	1										
4. SBQ-R	-.001	.365***	.218***	1									
5. SA	.003	.238***	.188***	.343***	1								
6. NSSI vs. Control	-.015	.240***	.131***	.305***	.226***	1							
7. Comorbid vs. Control	-.001	.183***	.172***	.244***	.151***	c	1						
8. DE vs. Control	-.001	.063	.038	.020	.092*	c	c	1					
9. NSSI vs. DE	-.032	.030	.011	.095	.031	c	c	c	1				
10. NSSI vs. Comorbid	-.041	-.088	-.138**	-.068	.013	c	c	c	c	1			
11. DE vs. Comorbid	-.005	-.273	-.379**	-.353**	-.053	c	c	c	c	c	1		
12. EAT-26	-.009	.059	.062*	.070*	.073*	.032	.828***	.833***	-.865***	-.843***	-.078	1	
13. ISAS:FREQ	-.006	.114***	.094**	.168***	.085**	.226***	.599***	-.006	.058	.005	-.419**	.021	1

Note. *$p < .05$, **$p < .01$, ***$p < .001$

Note. BMI: Body Mass Index CES-D: Center for Epidemiologic Studies Depression Scale; ASI-R: Appearance Schemas Inventory-Revised; SBQ-R: Suicide Behaviour Questionnaire-Revised (Current Suicide Risk; categorical); SA: History of Suicide Attempt (Categorical predictor);EAT-26: Eating Attitudes Test-26 item; ISAS:FREQ: Inventory of Statements about Self-injury: Frequency of NSSI.

Table 9.
Reliability Analyses of the DERS

	Cronbach's alpha
DERS Total Scale	.43
Non-Acceptance of Emotions Subscale	.91
Difficulty with Goal Directed Behaviour Subscale	.82
Difficulty with Impulse Control Subscale	.86
Lack of Emotional Awareness Subscale	.82
Limited Access to ER Strategies Subscale	.90
Lack of Emotional Clarity Subscale	.79

Table 10.
Reliability Analyses of the CERQ

	Cronbach's alpha
Total Maladaptive Scale	.89
Self-blame	.80
Rumination	.77
Catastrophizing	.77
Other blame	.79
Total Adaptive Scale	.93
Acceptance	.77
Positive Refocusing	.84
Refocus on Planning	.83
Positive Reappraisal	.84
Putting into Perspective	.80

Table 11

Multinomial Logistic Regression with Total DERS Score Predicting Group Membership

Reference Category		Predictor	*β*	*SEβ*	Wald	*df*	*p*	e^{β}(odds ratio)
NSSI-only (1)	DE-only (2)	Asian(1) vs. Caucasian (0)	.952	.760	1.56	1	.211	2.501
		DERS Total	.004	.010	.190	1	.663	1.004
	Comorbid (3)	Asian(1) vs. Caucasian (0)	1.052	.629	2.800	1	.094	2.864
		DERS Total	.020	.008	5.945	1	.015*	1.021
	Control (4)	Asian(1) vs. Caucasian (0)	.561	.179	9.778	1	.002**	1.752
		DERS Total	-.018	.003	37.259	1	.000***	.982
DE-only (1)								
	Comorbid (3)	Asian(1) vs. Caucasian (0)	.100	.971	.011	1	.918	1.105
		DERS Total	.016	.013	1.631	1	.202	1.016
	Control (4)	Asian(1) vs. Caucasian (0)	-.391	.763	.263	1	.608	.676
		DERS Total	-.022	.010	5.115	1	.024*	.978
Comorbid (1)								
	Control (4)	Asian(1) vs. Caucasian (0)	-.492	.632	.605	1	.437	.612
		DERS Total	-.039	.008	21.064	1	.000***	.962
Model Fitting		**AIC**	**BIC**	**-2 Log Liklihood**	***x²***	***df***	***p***	***Pseudo R^2(Nagelkerke)***
	Intercept Only	866.376	881.111	860.376				
	Final	805.739	849.945	787.739	72.64	6	.000	.085

Note. Asian(1) vs. Caucasian: dummy coded comparison between Caucasian and Asian participants; DERS Total: Difficulty in Emotion Regulation Scale total score.

*Note. *p* < .05, ***p* < .01, ****p* < .001

Table 12

Multinomial Logistic Regression with DERS Subscale Scores Predicting Group Membership

Reference Category		Predictor	*β*	*SEβ*	Wald	*df*	*p*	e^{β}(odds ratio)
NSSI-only (1)	DE-only (2)	Asian(1) vs. Caucasian (0)	.928	.767	1.466	1	.226	2.530
		Non-accept	.057	.054	1.102	1	.294	1.058
		Goals	-.041	.068	.373	1	.541	.959
		Impulse	-.067	.066	1.053	1	.305	.935
		Aware	-.026	.052	.255	1	.614	.974
		Strategies	-.007	.060	.012	1	.911	.993
		Clarity	.106	.068	2.399	1	.098	1.117
	Comorbid (3)	Asian(1) vs. Caucasian (0)	.890	.637	1.952	1	.162	2.435
		Non-accept	-.021	.045	.221	1	.638	.979
		Goals	-.017	.063	.072	1	.789	.983
		Impulse	-.041	.049	.701	1	.403	.960
		Aware	-.010	.045	.054	1	.816	.990
		Strategies	.144	.046	9.956	1	.002**	1.155
		Clarity	-.058	.058	.980	1	.322	.944
	Control (4)	Asian(1) vs. Caucasian (0)	.551	.182	9.186	1	.002**	1.735
		Non-accept	.000	.017	.000	1	.998	1.00
		Goals	-.015	.019	.613	1	.434	.985
		Impulse	.011	.020	.329	1	.566	1.011
		Aware	-.040	.016	5.760	1	.016*	.961
		Strategies	-.048	.017	7.704	1	.006*	.953
		Clarity	-.023	.021	1.160	1	.281	.977
DE-only (1)								
	Comorbid (3)	Asian(1) vs. Caucasian (0)	-.038	.981	.002	1	.969	.963
		Non-accept	-.078	.068	1.305	1	.253	.925
		Goals	.025	.090	.075	1	.784	1.025
		Impulse	.026	.079	.107	1	.743	1.026
		Aware	.016	.066	.056	1	.813	1.016
		Strategies	.151	.073	4.274	1	.039*	1.163
		Clarity	-.164	.087	3.534	1	.060	.849

	Control (4)	Asian(1) vs. Caucasian (0)	-.377	.768	.241	1	.623	.686
		Non-accept	-.057	.054	1.120	1	.290	.945
		Goals	.026	.067	.154	1	.695	1.027
		Impulse	.079	.065	1.451	1	.228	1.082
		Aware	-.013	.051	.069	1	.793	.987
		Strategies	-.042	.059	.496	1	.481	.959
		Clarity	-.129	.068	3.610	1	.057	.879
Comorbid (1)								
	Control (4)	Asian(1) vs. Caucasian (0)	-.339	.640	.280	1	.597	.713
		Non-accept	.021	.045	.222	1	.638	1.021
		Goals	.002	.062	.001	1	.978	1.002
		Impulse	.053	.049	1.144	1	.285	1.054
		Aware	-.029	.045	.419	1	.517	.971
		Strategies	-.192	.046	17.836	1	.000***	.971
		Clarity	.034	.058	.354	1	.552	1.035
Model Fitting		**AIC**	**BIC**	**-2 Log Liklihood**	***x²***	***df***	***p***	***Pseudo R²(Nagelkerke)***
	Intercept Only	1674.224	1688.905	1668.224				
	Final	1620.808	1738.256	1572.808	95.416	*21*	.000	.113

Note. Asian(1)vs. Caucasian: dummy coded comparison between Caucasian and Asian participants; Non-accept: Non-Acceptance of Emotional Responses subscale; Goals: Difficulties Engaging in Goal Directed Behaviour subscale; Impulse: Impulse Control Difficulties subscale; Aware: Lack of Emotional Awareness subscale; Strategies: Limited Access to Emotion Regulation Strategies subscale; Clarity: Lack of Emotional Clarity subscale.

Note. $*p < .05$, $**p < .01$, $***p < .001$

Table 13

Multinomial Logistic Regression with Total CERQ Maladaptive and Adaptive Scores Predicting Group Membership

Reference Category		Predictor	*β*	*SEβ*	Wald	*df*	*p*	e^{β}(odds ratio)
NSSI-only (1)	DE-only (2)	Asian(1) vs. Caucasian (0)	.815	.763	1.140	1	.286	2.259
		CERQ Maladaptive	-.038	.025	2.338	1	.126	.963
		CERQ Adaptive	.010	.016	.351	1	.554	1.010
	Comorbid (3)	Asian(1) vs. Caucasian (0)	.955	.627	2.318	1	.128	2.598
		CERQ Maladaptive	.038	.018	4.719	1	.030*	1.039
		CERQ Adaptive	-.015	.013	1.252	1	.263	.985
	Control (4)	Asian(1) vs. Caucasian (0)	.589	.181	10.542	1	.001**	1.802
		CERQ Maladaptive	-.031	.007	19.874	1	.000***	.970
		CERQ Adaptive	.012	.005	5.960	1	.015*	1.012
DE-only (1)								
	Comorbid (3)	Asian(1) vs. Caucasian (0)	.140	.973	.021	1	.885	1.150
		CERQ Maladaptive	.076	.030	6.593	1	.010*	1.079
		CERQ Adaptive	-.025	.021	1.452	1	.228	.976
	Control (4)	Asian(1) vs. Caucasian (0)	-.226	.763	.088	1	.767	.798
		CERQ Maladaptive	.007	.025	.088	1	.767	1.007
		CERQ Adaptive	.002	.016	.018	1	.892	1.002
Comorbid (1)								
	Control (4)	Asian(1) vs. Caucasian (0)	-.366	.629	.338	1	.561	.693
		CERQ Maladaptive	-.069	.018	15.347	1	.000***	.933

		CERQ Adaptive	.027	.013	3.997	1	.044*	1.027
Model Fitting		**AIC**	**BIC**	**-2 Log Liklihood**	***x²***	***df***	***p***	***Pseudo R^2(Nagelkerke)***
	Intercept Only	1472.726	1487.195	1466.726				
	Final	1443.640	1501.520	1419.640	47.085	*9*	.000	.061

Note. Asian(1)vs. Caucasian: dummy coded comparison between Caucasian and Asian participants; CERQ Maladaptive: Cognitive Emotion Regulation Questionnaire Maladaptive Composite; CERQ Adaptive: Cognitive Emotion Regulation Questionnaire Adaptive Composite.

*Note. *p* < .05, ***p* < .01, ****p* < .001

Table 14

Multinomial Logistic Regression with CERQ Subscales Predicting Group Membership

Reference Category		Predictor	*β*	*SEβ*	Wald	*df*	*p*	e^{β}(odds ratio)
NSSI-only (1)	DE-only (2)	Asian(1) vs. Caucasian (0)	.842	.772	1.189	1	.275	2.321
		Self-blame	-.028	.101	.077	1	.782	.972
		Rumination	.004	.107	.001	1	.972	1.004
		Catastrophizing	-.114	.107	1.138	1	.286	.893
		Other blame	-.031	.105	.087	1	.769	.970
		Acceptance	-.076	.101	.567	1	.452	.926
		Refocusing	.121	.087	1.932	1	.164	1.129
		Planning	.205	.125	2.683	1	.101	1.228
		Reappraisal	-.227	.114	3.925	1	.048	.797
		Perspective	-.004	.097	.002	1	.967	.996
	Comorbid (3)	Asian(1) vs. Caucasian (0)	.998	.633	2.482	1	.115	2.713
		Self-blame	-.007	.080	.008	1	.929	.993
		Rumination	-.016	.087	.036	1	.849	.984
		Catastrophizing	.054	.072	.555	1	.456	1.055
		Other blame	.065	.071	.838	1	.360	1.067
		Acceptance	.118	.077	2.361	1	.124	1.125
		Refocusing	-.012	.073	.027	1	.870	.988
		Planning	-.126	.093	1.825	1	.177	.881
		Reappraisal	.046	.089	.272	1	.602	1.047
		Perspective	-.037	.082	.202	1	.653	.964
	Control (4)	Asian(1) vs. Caucasian (0)	.588	.186	10.017	1	.002**	1.800
		Self-blame	-.057	.030	3.544	1	.060	.945
		Rumination	-.050	.032	2.469	1	.116	.952
		Catastrophizing	-.023	.028	.629	1	.428	.978
		Other blame	.029	.029	.978	1	.323	1.029
		Acceptance	-.033	.029	1.253	1	.263	.913
		Refocusing	.061	.026	5.517	1	.019*	1.063
		Planning	.075	.036	4.288	1	.038*	1.077
		Reappraisal	-.009	.034	.063	1	802	.991
		Perspective	-.037	.029	1.582	1	.208	.9645

DE-only (1)								
	Comorbid (3)	Asian(1) vs. Caucasian (0)	.156	.985	.025	1	.874	1.169
		Self-blame	.021	.125	.028	1	.868	1.021
		Rumination	-.020	.134	.023	1	.880	.980
		Catastrophizing	.168	.126	1.772	1	.183	1.182
		Other blame	.096	.123	.599	1	.439	1.100
		Acceptance	.194	.124	2.459	1	.117	1.214
		Refocusing	-.133	.111	1.439	1	.230	.875
		Planning	-.331	.152	4.727	1	.030*	.718
		Reappraisal	.273	.141	3.743	1	.053	1.314
		Perspective	-.033	.124	.070	1	.791	.968
	Control (4)	Asian(1) vs. Caucasian (0)	-.254	.771	.109	1	.742	.775
		Self-blame	-.029	.100	.083	1	.773	.972
		Rumination	-.053	.106	.254	1	.615	.948
		Catastrophizing	.091	.106	.743	1	.389	1.090
		Other blame	.060	.104	.330	1	.565	1.062
		Acceptance	.043	.100	.187	1	.665	1.044
		Refocusing	-.060	.086	.480	1	.488	.942
		Planning	-.131	.124	1.110	1	.292	.877
		Reappraisal	.218	.113	3.707	1	.054	1.244
		Perspective	-.033	.096	.117	1	.733	.968
Comorbid (1)								
	Control (4)	Asian(1) vs. Caucasian (0)	-.410	.637	.415	1	.520	.605
		Self-blame	-.050	.080	.390	1	.533	.951
		Rumination	-.033	.086	.148	1	.700	.967
		Catastrophizing	-.076	.072	1.113	1	.291	.927
		Other blame	-.036	.071	.255	1	.614	.905
		Acceptance	-.152	.072	4.433	1	.044*	.860
		Refocusing	.073	.073	1.005	1	.316	1.076
		Planning	.201	.093	4.611	1	.032*	1.222
		Reappraisal	-.055	.089	.383	1	.536	.947
		Perspective	.000	.082	.000	1	.999	1.000

Model Fitting		**AIC**	**BIC**	**-2 Log Liklihood**	x^2	*df*	*p*	***Pseudo R^2(Nagelkerke)***
	Intercept Only	1551.567	1565.981	1545.567				
	Final	1527.974	1686.527	1461.974	83.59	*30*	.000	.107

Note. Asian(1)vs. Caucasian: dummy coded comparison between Caucasian and Asian participants; Refocusing: Positive Refocusing; Planning: Refocus on Planning; Reappraisal: Positive Reappraisal; Perspective: Putting into Perspective.
Note. *$p < .05$, **$p < .01$, ***$p < .001$

Table 15

Multinomial Logistic Regression with Psychological Variables Predicting Group Membership

Reference Category		Predictor	*β*	*SEβ*	Wald	*df*	*p*	e^{β}(odds ratio)
NSSI-only (1)	DE-only (2)	Caucasian (0) vs. Asian (1)	1.303	1.044	1.559	1	.212	3.680
		CES-D	.006	.022	.080	1	.778	1.006
		ASI-R	.187	.448	.173	1	.677	1.205
		SBQ-R	2.232	1.182	3.566	1	.059	9.318
		SA	-1.033	1.270	.661	1	.416	.356
	Comorbid (3)	Asian(1) vs. Caucasian (0)	.499	.647	.594	1	.441	1.646
		CES-D	.016	.019	.648	1	.421	1.016
		ASI-R	.848	.414	4.187	1	.041*	2.334
		SBQ-R	-.260	.509	.262	1	.609	.771
		SA	.471	.858	.301	1	.583	1.601
	Control (4)	Asian(1) vs. Caucasian (0)	.456	.199	5.220	1	.022*	1.577
		CES-D	-.024	.007	11.026	1	.001**	.977
		ASI-R	-.148	.127	1.352	1	.245	.863
		SBQ-R	1.106	.222	24.75	1	.000***	3.021
		SA	1.537	.649	5.604	1	.018*	4.653
DE-only (1)								
	Comorbid (3)	Asian(1) vs. Caucasian (0)	-.804	1.213	.439	1	.507	.447
		CES-D	.009	.029	.105	1	.746	1.009
		ASI-R	.661	.595	1.234	1	.267	1.936
		SBQ-R	-2.492	1.268	3.865	1	.044*	.083
		SA	1.504	1.491	1.018	1	.313	4.499
	Control (4)	Asian(1) vs. Caucasian (0)	-.847	1.041	.662	1	.416	.429
		CES-D	-.030	.022	1.820	1	.177	.971
		ASI-R	-.334	.443	.570	1	.450	.716
		SBQ-R	-1.126	1.188	.899	1	.343	.324
		SA	2.570	1.365	3.546	1	.060	13.071

Comorbid (1)								
	Control (4)	Asian(1) vs. Caucasian (0)	-.043	.652	.004	1	.948	.958
		CES-D	-.039	.019	4.080	1	.043*	.962
		ASI-R	-.995	.413	5.794	1	.016*	.370
		SBQ-R	1.366	.518	6.960	1	.008*	3.919
		SA	1.067	1.027	1.078	1	.299	2.906
Model Fitting		**AIC**	**BIC**	**-2 Log Liklihood**	***x²***	***df***	***p***	***Pseudo R²(Nagelkerke)***
	Intercept Only	1468.551	1483.073	1462.551				
	Final	1379.905	1467.035	1342.905	118.646	*15*	.000	.147

Note. Asian(1)vs. Caucasian: dummy coded comparison between Caucasian and Asian participants; CES-D: Center for Epidemiologic Studies Depression Scale; ASI-R: Appearance Schemas Inventory-Revised; SBQ-R: Suicide Behaviour Questionnaire-Revised (Current Suicide Risk; categorical); SA: History of Suicide Attempt (Categorical predictor).
Note. *$p < .05$, **$p < .01$, ***$p < .001$

Table 16

Multinomial Logistic Regression with Significant DERS subscale Interactions Predicting Group Membership

Reference Category		Predictor	*β*	*SEβ*	Wald	*df*	*p*	e^{β}(odds ratio)
NSSI-only (1)	DE-only (2)	Caucasian (0) vs. Asian (1)	.790	.779	1.031	1	.310	2.204
		SBQ-R	6.678	6.618	.959	1	.327	794.535
		Clarity	-.136	.173	.621	1	.431	.873
		Goals	.378	.299	1.595	1	.207	1.459
		Strategies	.003	.123	.001	1	.982	1.003
		SBQ-R*Clarity	.279	.185	2.279	1	.131	1.322
		SBQ-R*Goals	-.460	.308	2.233	1	.135	.631
		SBQ-R*Strategies	.004	.132	.001	1	.978	1.004
	Comorbid (3)	Asian(1) vs. Caucasian (0)	.792	.656	1.459	1	.227	2.208
		SBQ-R	2.343	2.257	1.077	1	.299	10.413
		Clarity	-.030	.080	.144	1	.705	.970
		Goals	-.097	.115	.709	1	.400	.907
		Strategies	.190	.076	6.243	1	.012*	1.209
		SBQ-R*Clarity	-.074	.110	.450	1	.502	.929
		SBQ-R*Goals	.124	.136	.835	1	.361	1.132
		SBQ-R*Strategies	-.141	.088	2.537	1	.111	.869
	Control (4)	Asian(1) vs. Caucasian (0)	.459	.199	5.327	1	.021*	1.583
		SBQ-R	1.410	.850	2.747	1	.097	4.095
		Clarity	.021	.050	.171	1	.679	1.021
		Goals	-.031	.051	.352	1	.553	.970
		Strategies	-.037	.036	1.035	1	.309	.964
		SBQ-R*Clarity	-.064	.055	1.392	1	.238	.938
		SBQ-R*Goals	.028	.056	.257	1	.612	1.029
		SBQ-R*Strategies	.020	.039	.260	1	.610	1.020
DE-only (1)								
	Comorbid (3)	Asian(1) vs. Caucasian (0)	.002	1.001	.000	1	.998	1.002
		SBQ-R	-4.335	7.134	.369	1	.543	.013
		Clarity	.106	.186	.324	1	.569	1.112

		Goals	-.475	.318	2.226	1	.136	.622
		Strategies	.187	.143	1.717	1	.190	1.205
		SBQ-R*Clarity	-.353	.210	2.832	1	.092	.702
		SBQ-R*Goals	.584	.334	3.069	1	.080	1.794
		SBQ-R*Strategies	-.144	.156	.856	1	.355	.866
	Control (4)	Asian(1) vs. Caucasian (0)	-.331	.778	.181	1	.670	.718
		SBQ-R	-5.268	6.836	.594	1	.441	.005
		Clarity	.157	.177	.786	1	.375	1.170
		Goals	-.409	.302	1.837	1	.175	.665
		Strategies	-.040	.126	.099	1	.754	.961
		SBQ-R*Clarity	-.344	.188	3.327	1	.068	.709
		SBQ-R*Goals	.488	.310	2.484	1	.115	1.630
		SBQ-R*Strategies	.016	.134	.014	1	.904	1.016
Comorbid (1)								
	Control (4)	Asian(1) vs. Caucasian (0)	-.333	.662	.253	1	.615	.717
		SBQ-R	-.933	2.307	.164	1	.686	.393
		Clarity	.051	.088	.335	1	.563	1.052
		Goals	.067	.121	.305	1	.581	1.069
		Strategies	-.226	.080	7.940	1	.005*	.797
		SBQ-R*Clarity	.010	.115	.007	1	.933	1.010
		SBQ-R*Goals	-.096	.140	.472	1	.492	.908
		SBQ-R*Strategies	.160	.092	3.059	1	.080	1.174
Model Fitting		**AIC**	**BIC**	**-2 Log Liklihood**	***x²***	***df***	***p***	***Pseudo R²(Nagelkerke)***
	Intercept Only	1528.535	1543.028	1522.535				
	Final	1433.999	1564.433	1379.999	142.536	*24*	*.000*	*.175*

Note. Asian(1)vs. Caucasian: dummy coded comparison between Caucasian and Asian participants; Clarity: Lack of Emotional Clarity; Goals: Difficulty with Goal Directed Behaviour; SBQ-R: Suicide Behaviour Questionnaire-Revised (Current Suicide Risk; categorical); ASI: Appearance Schemas Inventory

*Note. *p* < .05, ***p* < .01, ****p* < .001

Table 17

Multinomial Logistic Regression Final Model with Significant CERQ Total Score Interactions Predicting Group Membership

Reference Category		Predictor	*β*	*SEβ*	Wald	*df*	*p*	e^{β}(odds ratio)
NSSI-only (1)	DE-only (2)	Caucasian (0) vs. Asian (1)	.790	.765	1.067	1	.302	2.203
		CESD	.045	.080	.308	1	.579	1.046
		ASI-R	.567	1.584	.128	1	.720	1.763
		CERQ Maladaptive	-.016	.051	.096	1	.756	.984
		CERQ Adaptive	.030	.088	.118	1	.731	1.031
		ASI*CERQ Adaptive	-.006	.025	.051	1	.821	.994
		CESD*CERQ Maladaptive	-.001	.002	.368	1	.544	.999
	Comorbid (3)	Asian(1) vs. Caucasian (0)	1.050	.653	2.589	1	.108	2.859
		CESD	-.027	.063	.184	1	.668	.973
		ASI-R	4.048	1.348	9.017	1	.003**	57.255
		CERQ Maladaptive	.001	.039	.001	1	.981	1.00
		CERQ Adaptive	.190	.078	5.898	1	.015*	1.210
		ASI*CERQ Adaptive	-.051	.020	6.570	1	.010*	.950
		CESD*CERQ Maladaptive	.001	.001	.275	1	.600	1.00
	Control (4)	Asian(1) vs. Caucasian (0)	.543	.185	8.626	1	.003**	1.722
		CESD	-.093	.024	14.744	1	.000***	.911
		ASI-R	-.242	.477	.257	1	.612	.785
		CERQ Maladaptive	-.039	.014	7.941	1	.005*	.961
		CERQ Adaptive	.000	.026	.000	1	.988	1.00
		ASI*CERQ Adaptive	.001	.007	.011	1	.915	1.001
		CESD*CERQ Maladaptive	.001	.001	6.683	1	.010*	1.001

DE-only (1)								
	Comorbid (3)	Asian(1) vs. Caucasian (0)	.261	.990	.069	1	.792	1.298
		CESD	-.072	.100	.519	1	.471	.931
		ASI-R	3.481	2.021	2.965	1	.085	32.478
		CERQ Maladaptive	.017	.063	.072	1	.789	1.017
		CERQ Adaptive	.160	.115	1.940	1	.164	1.174
		ASI*CERQ Adaptive	-.046	.031	2.183	1	.140	.955
		CESD*CERQ Maladaptive	.002	.002	.661	1	.416	1.002
	Control (4)	Asian(1) vs. Caucasian (0)	-.246	.765	.104	1	.747	.782
		CESD	-.138	.080	2.939	1	.086	.871
		ASI-R	-.809	1.576	.264	1	.608	.445
		CERQ Maladaptive	-.023	.051	.212	1	.645	.977
		CERQ Adaptive	-.030	.088	.117	1	.732	.970
		ASI*CERQ Adaptive	.006	.025	.068	1	.794	1.006
		CESD*CERQ Maladaptive	.003	.002	1.689	1	.194	1.003
Comorbid (1)								
	Control (4)	Asian(1) vs. Caucasian (0)	-.507	.657	.596	1	.440	.602
		CESD	-.066	.064	1.072	1	.300	.936
		ASI-R	-4.290	1.350	10.103	1	.001**	.014
		CERQ Maladaptive	-.040	.039	1.065	1	.302	.960
		CERQ Adaptive	-.190	.078	5.930	1	.015*	.827
		ASI*CERQ Adaptive	.052	.020	6.805	1	.009*	1.053
		CESD*CERQ Maladaptive	.001	.001	.284	1	.594	1.001

Model Fitting		**AIC**	**BIC**	**-2 Log Liklihood**	***x²***	***df***	***p***	***Pseudo R^2(Nagelkerke)***
	Intercept Only	1602.575	1617.045	1596.575				
	Final	1544.195	1659.954	1496.195	100.379	21	.000	.126

Note. Asian(1)vs. Caucasian: dummy coded comparison between Caucasian and Asian participants; CES-D: Center for Epidemiologic Studies Depression Scale; ASI-R: Appearance Schemas Inventory-Revised)
Note. *$p < .05$, **$p < .01$, ***$p < .001$

Table 18

Multinomial Logistic Regression Final Model with Significant CERQ subscale Interactions Predicting Group Membership

Reference Category		Predictor	*β*	*SEβ*	Wald	*df*	*p*	e^{β}(odds ratio)
NSSI-only (1)	DE-only (2)	Caucasian (0) vs. Asian (1)	.766	.765	1.001	1	.317	2.150
		CESD	.028	.081	.116	1	.733	1.028
		ASI-R	.197	1.352	.021	1	.884	1.217
		Self-blame	.095	.457	.043	1	.835	1.100
		Planning	-.033	.148	.050	1	.822	.967
		CESD*Self-blame	-.009	.008	1.344	1	.246	.991
		CESD*Planning	.005	.006	.591	1	.442	1.005
		ASI-R*Self-blame	-.003	.128	.000	1	.984	.997
	Comorbid (3)	Asian(1) vs. Caucasian (0)	.948	.634	2.233	1	.135	2.580
		CESD	-.032	.063	.262	1	.609	.968
		ASI-R	2.874	1.170	6.036	1	.014*	17.711
		Self-blame	.606	.353	2.955	1	.086	1.834
		Planning	-.076	.123	.385	1	.535	.926
		CESD*Self-blame	.002	.004	.335	1	.562	1.002
		CESD*Planning	.001	.004	.077	1	.782	1.001
		ASI-R*Self-blame	-.164	.091	3.220	1	.073	.849
	Control (4)	Asian(1) vs. Caucasian (0)	.529	.186	8.084	1	.004**	1.697
		CESD	-.080	.026	9.385	1	.002**	.923
		ASI-R	-.176	.388	.206	1	.650	.839
		Self-blame	-.180	.118	2.335	1	.127	.836
		Planning	.052	.039	1.723	1	.189	1.053
		CESD*Self-blame	.005	.002	8.854	1	.003**	1.005
		CESD*Planning	-.001	.002	.181	1	.670	.999
		ASI-R*Self-blame	-.001	.034	.000	1	.985	.999
DE-only (1)								
	Comorbid (3)	Asian(1) vs. Caucasian (0)	.182	.979	.035	1	.853	1.200
		CESD	-.060	.098	.366	1	.545	.942
		ASI-R	2.678	1.741	2.365	1	.124	14.551

		Self-blame	.512	.565	.820	1	.365	1.668
		Planning	-.043	.188	.053	1	.818	.958
		CESD*Self-blame	.011	.009	1.746	1	.186	1.012
		CESD*Planning	-.004	.007	.268	1	.605	.996
		ASI-R*Self-blame	-.161	.153	1.105	1	.293	.851
	Control (4)	Asian(1) vs. Caucasian (0)	-.237	.766	.096	1	.757	.789
		CESD	-.107	.081	1.765	1	.184	.898
		ASI-R	-.372	1.344	.077	1	.782	.689
		Self-blame	-.275	.455	.365	1	.546	.760
		Planning	.085	.146	.337	1	.562	1.089
		CESD*Self-blame	.014	.008	3.361	1	.067	1.014
		CESD*Planning	-.006	.006	.772	1	.380	.994
		ASI-R*Self-blame	.002	.127	.000	1	.988	1.002
Comorbid (1)								
	Control (4)	Asian(1) vs. Caucasian (0)	-.419	.639	.430	1	.512	.658
		CESD	-.048	.063	.581	1	.446	.953
		ASI-R	-3.050	1.165	6.859	1	.009*	.047
		Self-blame	-.786	.354	4.946	1	.026*	.456
		Planning	.128	.123	1.094	1	.296	1.137
		CESD*Self-blame	.003	.004	.403	1	.482	1.003
		CESD*Planning	-.002	.004	.200	1	.655	.998
		ASI-R*Self-blame	.163	.091	3.196	1	.074	1.177
Model Fitting		**AIC**	**BIC**	**-2 Log Liklihood**	***x²***	***df***	***p***	***Pseudo R^2(Nagelkerke)***
	Intercept Only	1603.432	1617.909	1597.432				
	Final	1543.542	1673.829	1489.542	107.891	24	.000	.134

Note. Asian(1)vs. Caucasian: dummy coded comparison between Caucasian and Asian participants; CES-D: Center for Epidemiologic Studies Depression Scale; ASI-R: Appearance Schemas Inventory-Revised; Planning: Refocus on Planning
Note. *$p < .05$, **$p < .01$, ***$p < .001$

Table 19
Hierarchical Regression of Total DERS Scores on EAT-26

	B	*SE B*	β	*t*
Step 1				
(Constant)	2.31	.15		15.70***
Hispanic vs. Caucasian	2.30	.92	.08	2.51*
Step 2				
(Constant)	.75	.58		1.29
Hispanic vs. Caucasian	2.27	.92	.08	2.48*
DERS Total Score	.02	.01	.09	2.78*

Note. $R^2 = .006$ for step 1; $\Delta R^2 = .008$ for Step 2 ($p = .01$).
Note. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.
Note. DERS: Difficulties in Emotion Regulation Scale

Table 20
Hierarchical Regression of DERS Subscales on EAT-26

	B	*SE B*	β	*t*
Step 1				
(Constant)	2.31	.15		15.44***
Hispanic vs. Caucasian	2.30	.93	.08	2.49*
Step 2				
(Constant)	1.07	.77		1.38
Hispanic vs. Caucasian	2.29	.92	.08	2.50*
Non-Accept	-.02	.04	-.03	-.64
Goals	-.07	.04	-.07	-1.64
Impulse	-.05	.04	-.06	-1.12
Aware	.08	.04	.08	2.25*
Strategies	.15	.04	.25	4.14***
Clarity	-.07	.05	-.06	-1.53

Note. $R^2 = .006$ for step 1; $\Delta R^2 = .027$ for Step 2 ($p < .001$).
Note. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.
Note. Non-accept: Non-Acceptance of Emotional Responses subscale; Goals: Difficulties Engaging in Goal Directed Behaviour subscale; Impulse: Impulse Control Difficulties subscale; Aware: Lack of Emotional Awareness subscale; Strategies: Limited Access to Emotion Regulation Strategies subscale; Clarity: Lack of Emotional Clarity subscale.

Table 21
Hierarchical Regression of CERQ Total Scores on EAT-26

	B	*SE B*	β	*t*
Step 1				
(Constant)	2.30	.16		14.81***
Hispanic vs. Caucasian	2.66	.96	.09	2.76*
Step 2				
(Constant)	3.30	.71		4.64***
Hispanic vs. Caucasian	2.54	.97	.09	2.63*
CERQ Maladaptive	.01	.02	.02	.45
CERQ Adaptive	-.02	.01	-.07	-1.99

Note. $R^2 = .008$ for step 1; $\Delta R^2 = .004$ for Step 2 ($p = .13$).
Note. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.
Note. CERQ Maladaptive: Cognitive Emotion Regulation Questionnaire Maladaptive Composite; CERQ Adaptive: Cognitive Emotion Regulation Questionnaire Adaptive Composite.

Table 22
Hierarchical Regression of CERQ Subscales on EAT-26

	B	*SE B*	β	*t*
Step 1				
(Constant)	232	.16		14.67***
Hispanic vs. Caucasian	2.64	.97	.09	2.71*
Step 2				
(Constant)	3.47	.74		4.70***
Hispanic vs. Caucasian	2.57	.98	.09	2.61*
Self-blame	-.02	.07	-.02	-.33
Rumination	.02	.07	.02	.36
Catastrophizing	.001	.06	.001	.02
Other blame	-.02	.06	-.02	-.38
Acceptance	.02	.06	.02	.36
Refocusing	.01	.06	.01	.23
Planning	.01	.08	.01	.13
Reappraisal	-.13	.07	-.11	-1.70
Perspective	.004	.06	.004	.07

Note. $R^2 = .008$ for step 1; $\Delta R^2 = .008$ for Step 2 ($p = .66$).
Note. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.
Note. Refocusing: Positive Refocusing; Planning: Refocus on Planning; Reappraisal: Positive Reappraisal; Perspective: Putting into Perspective.

Table 23
Hierarchical Regression of Psychological Predictors on EAT-26

	B	*SE B*	β	*t*
Step 1				
(Constant)	2.20	.14		15.80***
Hispanic vs. Caucasian	.92	.87	.04	1.06
Step 2				
(Constant)	1.00	.79		1.26
Hispanic vs. Caucasian	.77	.87	.03	.88
CES-D	-.001	.01	-.003	-.09
ASI-R	.34	.24	.05	1.43
SBQ-R	.002	.43	.000	.004
SA	2.38	.87	.10	2.75*

Note. R^2 = .001 for step 1; ΔR^2 = .013 for Step 2 (p = .02).
Note. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.
Note. CES-D: Center for Epidemiologic Studies Depression Scale; ASI-R: Appearance Schemas Inventory-Revised; SBQ-R: Suicide Behaviour Questionnaire-Revised (Current Suicide Risk; categorical); SA: History of Suicide Attempt (Categorical predictor).

Table 24
Hierarchical Regression of Total DERS Scores on NSSI Frequency

	B	*SE B*	β	*t*
Step 1				
(Constant)	77.95	12.96		6.01***
South Asians vs. Caucasian	-47.79	26.29	-.06	-1.82
Step 2				
(Constant)	-91.00	45.21		-2.01*
South Asians vs. Caucasian	-56.81	26.20	-.07	-2.17*
DERS Total Score	1.84	.47	.12	3.90***

Note. $R^2 = .003$ for step 1; $\Delta R^2 = .015$ for Step 2 ($p < .001$).
Note. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.
Note. DERS: Difficulties in Emotion Regulation Scale
F (2, 988) = 9.28, $p < .001$.

Table 25
Hierarchical Regression of DERS Subscales on NSSI Frequency

	B	*SE B*	β	*t*
Step 1				
(Constant)	77.28	13.12		5.89***
South Asian vs. Caucasian	-47.43	26.76	-.06	-1.77
Step 2				
(Constant)	-3610	60.42		-.60
South Asian vs. Caucasian	-58.31	26.80	-.07	-2.18*
Non-Accept	-2.70	2.76	-.05	-.98
Goals	.46	3.12	.01	.15
Impulse	.28	3.24	.01	.09
Aware	-1.41	2.70	-.02	-.52
Strategies	6.79	2.84	.15	2.39*
Clarity	2.49	3.53	.03	.71

Note. $R^2 = .003$ for step 1; $\Delta R^2 = .020$ for Step 2 ($p = .004$).
Note. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.
Note. Non-accept: Non-Acceptance of Emotional Responses subscale; Goals: Difficulties Engaging in Goal Directed Behaviour subscale; Impulse: Impulse Control Difficulties subscale; Aware: Lack of Emotional Awareness subscale; Strategies: Limited Access to Emotion Regulation Strategies subscale; Clarity: Lack of Emotional Clarity subscale.

Table 26
Hierarchical Regression of CERQ Total Scores on NSSI Frequency

	B	*SE B*	β	*t*
Step 1				
(Constant)	84.63	14.07		6.02***
South Asian vs. Caucasian	-55.52	28.85	-.06	-1.93
Step 2				
(Constant)	38.84	57.06		.68
South Asian vs. Caucasian	-58.81	28.80	-.07	-2.04*
CERQ Maladaptive	2.96	1.18	.09	2.52*
CERQ Adaptive	-1.15	.83	-.05	-1.39

Note. $R^2 = .004$ for step 1; $\Delta R^2 = .007$ for Step 2 ($p = .04$).
Note. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.
Note. CERQ Maladaptive: Cognitive Emotion Regulation Questionnaire Maladaptive Composite; CERQ Adaptive: Cognitive Emotion Regulation Questionnaire Adaptive Composite.

Table 27
Hierarchical Regression of CERQ Subscale on NSSI Frequency

	B	*SE B*	β	*t*
Step 1				
(Constant)	85.00	14.33		5.93***
South Asian vs. Caucasian	-55.76	29.19	-.06	-1.91
Step 2				
(Constant)	39.69	59.34		.67
South Asian vs. Caucasian	-58.37	29.49	-.07	-1.98
Self-blame	5.65	5.24	.05	1.08
Rumination	1.50	5.44	.03	.28
Catastrophizing	4.82	4.91	.05	.98
Other blame	-.44	5.07	-.004	-.09
Acceptance	-3.13	5.05	-.03	-.62
Refocusing	-.11	4.53	-.001	-.03
Planning	-1.01	6.24	-.01	-.16
Reappraisal	-4.36	5.89	-.05	-.74
Perspective	2.92	5.00	.03	.58

Note. $R^2 = .004$ for step 1; $\Delta R^2 = .009$ for Step 2 ($p = .56$).
Note. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.
Note. Refocusing: Positive Refocusing; Planning: Refocus on Planning; Reappraisal: Positive Reappraisal; Perspective: Putting into Perspective.

Table 28
Hierarchical Regression of Psychological Predictors on NSSI Frequency

	B	*SE B*	β	*t*
Step 1				
(Constant)	68.68	13.45		5.11***
South Asians vs. Caucasian	-43.25	27.29	-.05	-1.59
Step 2				
(Constant)	-82.01	67.28		-1.23
South Asians vs. Caucasian	-41.75	26.97	-.05	-1.55
CES-D	1.49	1.12	.05	1.33
ASI-R	30.12	19.85	.05	1.52
SBQ-R	132.86	36.07	.13	3.68***
SA	-12.97	72.56	-.01	-.18

Note. $R^2 = .003$ for step 1; $\Delta R^2 = .031$ for Step 2 ($p < .001$).
Note. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.
Note. CES-D: Center for Epidemiologic Studies Depression Scale; ASI-R: Appearance Schemas Inventory-Revised; SBQ-R: Suicide Behaviour Questionnaire-Revised (Current Suicide Risk; categorical); SA: History of Suicide Attempt (Categorical predictor).

Table 29

Summary of Categorical and Continuous Findings

	NSSI-only vs. Control	DE-only vs. Control	Comorbid Vs. Control	NSSI-only vs. DE-only	NSSI-only vs. Comorbid	DE-only Vs. Comorbid	EAT-26	NSSI Frequency
Total Emotion Dysregulation	↑ Emotion Dysregulation = NSSI-only	↑ Emotion Dysregulation = DE-only	↑ Emotion Dysregulation = Comorbid	n.s.	↑ Emotion Dysregulation = Comorbid	n.s.	↑ Emotion Dysregulation associated with ↑EAT-26	↑ Emotion Dysregulation associated with ↑NSSI Frequency
Emotion Regulation Deficits	↑Lack of Emotional Awareness = NSSI-only ↑Limited Access to Strategies = NSSI-only	n.s.	↑Limited Access to Strategies = Comorbid	n.s.	↑Limited Access to Strategies = Comorbid	↑Limited Access to Strategies = Comorbid	↑Lack of Emotional Awareness + ↑Limited Access to Strategies associated with ↑EAT-26	↑Limited Access to Strategies ↑NSSI Frequency
Total Maladaptive and Adaptive Cognitive ER	↑Total Maladaptive Strategies = NSSI-only ↑Total Adaptive = Control	n.s.	↑Total Maladaptive Strategies = Comorbid ↑Total Adaptive = Control	n.s.	↑Total Maladaptive Strategies = Comorbid	↑Total Maladaptive Strategies = Comorbid	n.s.	↑Total Maladaptive Strategies associated with ↑NSSI Frequency
Cognitive ER Strategies	↑Refocus on Planning = Control ↑Positive Refocusing = Control	n.s.	↑Acceptance = Comorbid ↑Refocus on Planning = Control	n.s.	n.s.	↑Refocus on Planning = DE-only	n.s.	n.s.
Psychological Predictors	↑depression, suicide risk, and history of suicide attempts = NSSI-only	n.s.	↑depression, investment in appearance, suicide risk = Comorbid	n.s.	↑investment in appearance =Comorbid	↑Suicide Risk = Comorbid	Suicide Attempt History associated with associated with ↑EAT-26	↑Suicide Risk associated with ↑NSSI Frequency
Interactions	depression*Total maladaptive depression*self-blame	n.s.	Investment in Appearance*Total Adaptive	n.s	Investment in Appearance*Total Adaptive	n.s.		

Investment in Physical Appearance Moderating Total Adaptive Cognitive ER Strategies on NSSI-only vs. Comorbid

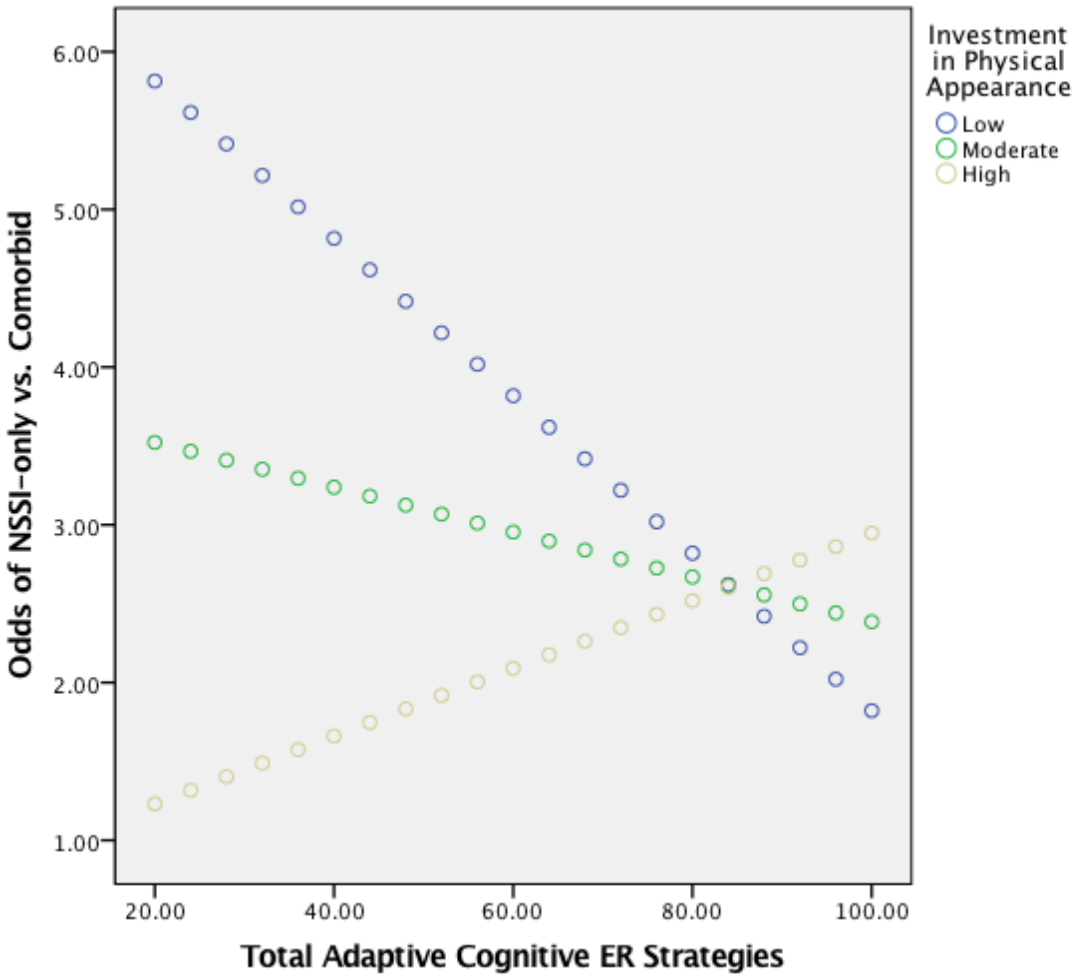

Figure 1. Main effects indicated that greater levels of investment in physical appearance and greater total adaptive cognitive ER strategies resulted in participants being more likely to be in the Comorbid group than the NSSI-only group. At low levels of investment in physical appearance, as total adaptive cognitive ER strategies increased participants were more likely to be in the Comorbid group than the NSSI-only group. At high levels of investment in physical appearance, as total adaptive cognitive ER strategies increased participants were more likely to be in the NSSI-only group than the Comorbid group. There was no significant relationship between adaptive cognitive ER strategies and investment in physical appearance at moderate levels of investment in physical appearance.

Investment in Physical Appearance Moderating Total Adaptive Cognitive ER Strategies on Comorbid vs. Control

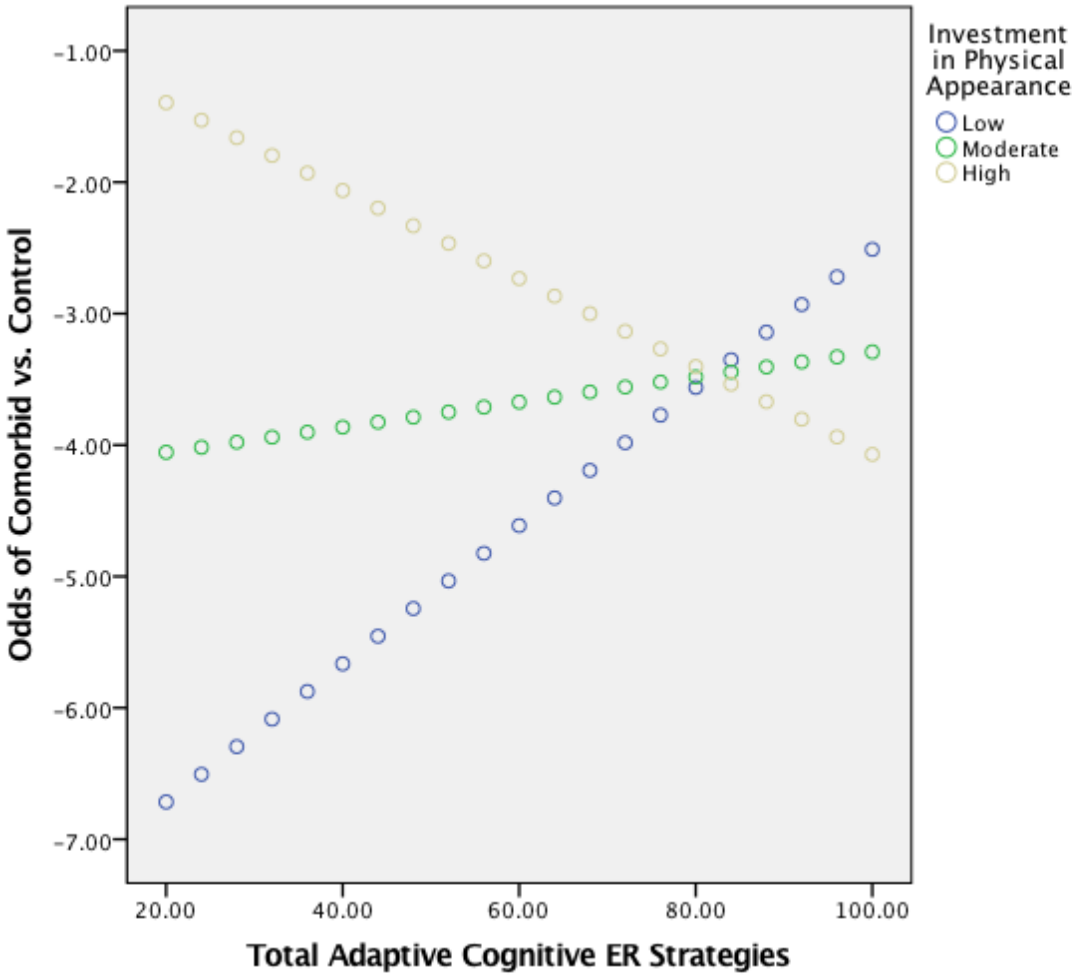

Figure 2. Main effects indicated that greater levels of investment in physical appearance and greater total adaptive cognitive ER strategies results in participants being more likely to be in the Comorbid group than the Control group. At low levels of investment in physical appearance, as total adaptive cognitive ER strategies increased participants were more likely to be in the Comorbid group than the Control group. At high levels of investment in physical appearance, as total adaptive cognitive ER strategies increased participants were more likely to be in the Control group than the Comorbid group. There was no significant relationship between adaptive cognitive ER strategies and investment in physical appearance at moderate levels of investment in physical appearance.

Depressive Symptoms Moderating Total Maladaptive Cognitive ER Strategies on NSSI-only vs. Control

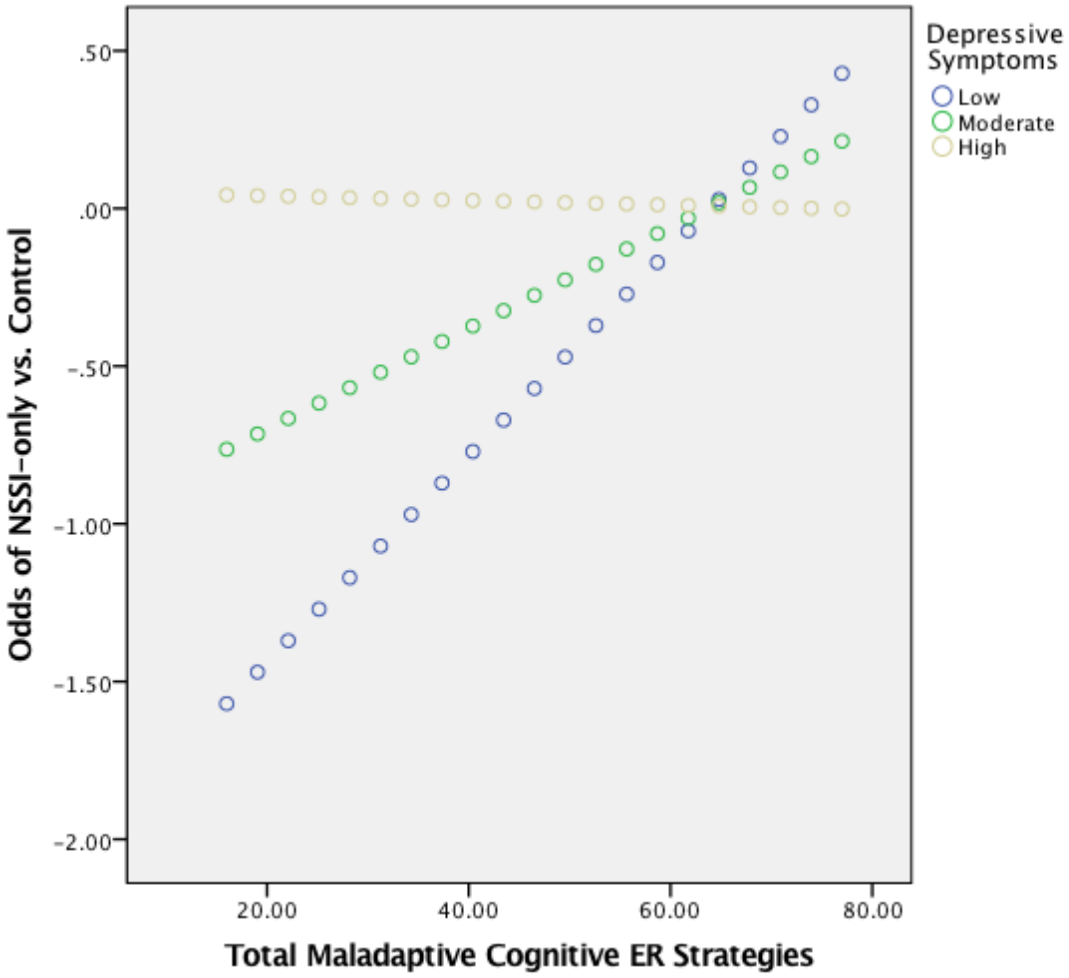

Figure 3. At high levels of depressive symptoms, participants were more likely to be in the NSSI-only group than the Control group regardless of the level of total maladaptive cognitive ER strategies. At low and moderate levels of depressive symptoms, as total maladaptive cognitive ER strategies increased participants were more likely to be in the NSSI-only group than the Control group.

Depressive Symptoms Moderating the effect of Self-blame on NSSI-only vs. Control

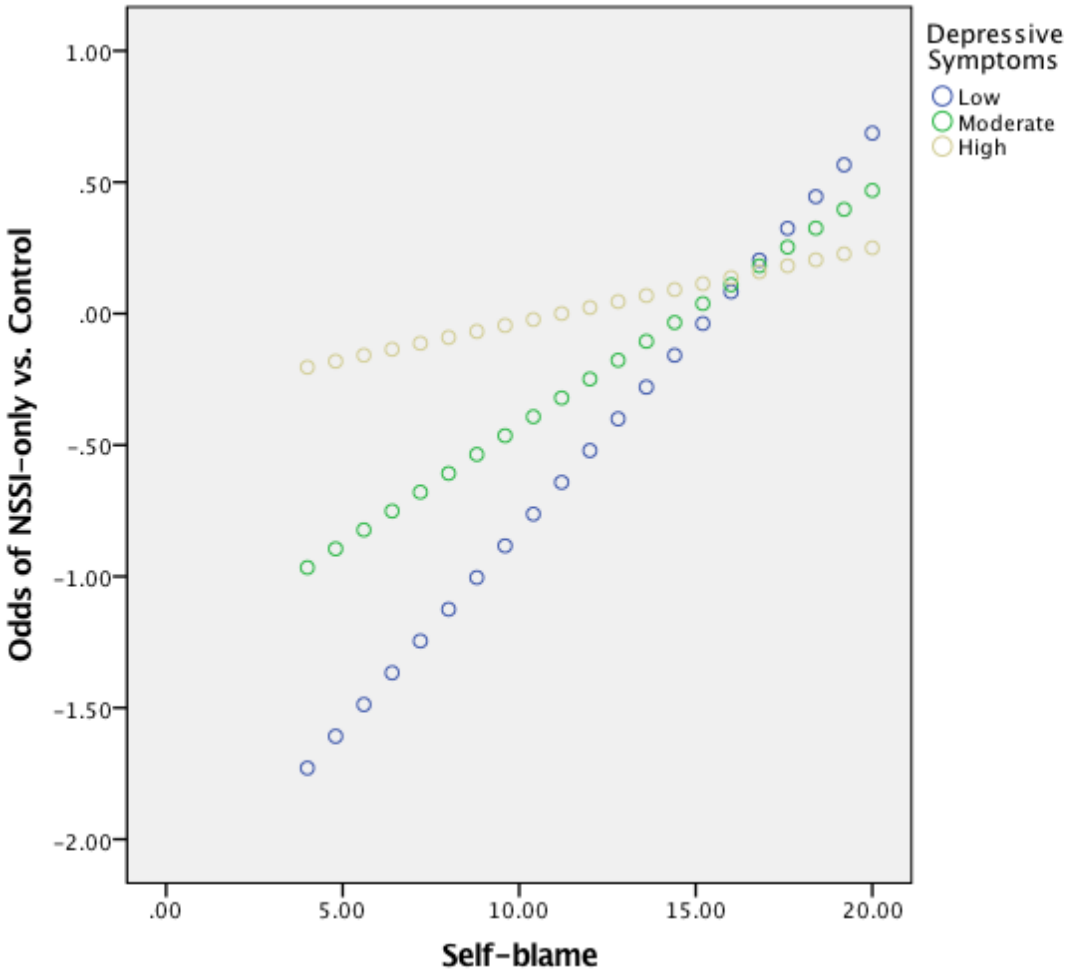

Figure 4. Regarding main effects, as depressive symptoms and self-blame increased, participants were more likely to belong to the NSSI-only group than the Control group. Regarding interaction effects, at high levels of depressive symptoms, participants were more likely to be categorized in the NSSI-only group than the Control group regardless of levels of self-blame. At low and moderate levels of depressive symptoms, as levels of self-blame increased, participants were more likely to be categorized into the NSSI-only group than the Control group.

Appendix A.

Consent Form

A. This study is an online survey. You will complete an online survey about a broad range of behaviours and emotions encountered in university and pertaining to eating patterns. For example, the survey will ask questions about your relationships with others, any feelings of low mood, cultural identification, and patterns of eating. We will also be asking questions about suicide and non-suicidal self-harming. However, you can choose to not answer any question that makes you uncomfortable and you will not be penalized. Some demographic information is also collected. It will take about 30 minutes to complete the survey.

B. This is a voluntary study. You are free to not answer any questions and to stop participating at any time without any academic penalty in Psyc 1010 (i.e., no impact on your marks). All responses to these questions will be kept anonymous and confidential by the researchers. Confidentiality will be provided to the fullest extent possible by law. Your name will not be linked with your answers. The information you provide will help us understand better our research on young adults attending university.

C. In order to receive full credit, all questions must be completed. If you prefer not to answer a question, please choose the "Not Applicable" option for ALL the questions you prefer not to complete. This will ensure you have a response for each question, therefore you will obtain course credit and you will then be eligible for remaining components of the study for full credit. If you decide to withdraw from the study at anytime without responding to the remaining questions you will not receive any credit and all of your data collected will be immediately destroyed.

D. There are no serious anticipated risks involved with completing the survey. Some people may become uncomfortable or distressed while completing some questions related to feelings of sadness or issues in relationships. If you do become distressed, please contact the Counselling & Development Centre at York University (Ph: 416-736-5297; Location: N110 Bennett Centre for Student Services). At the end of the survey, you will also be given a list of other local counselling resources. Benefits of participating in the study are an added maximum of .66% to your Psyc 1010 grade, experience in psychology research and helping your fellow students who are involved in this research study.

E. If you have any questions about the survey or the study in general, please contact the REACh Lab - URPP Study (rch_urpp@yorku.ca), or Dr. J. Rawana at rawana@yorku.ca or (416)-736-2100 ext 20771.

F. Should you have any questions regarding your rights or the ethics review process please contact the Manager for the Office of Research ethics at York University, 5th Floor, York Research Tower, (416) 736-5914 (ore@yorku.ca)

G. Research has been reviewed and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines.

H. Please select below that you "agree" or "disagree" to participate in this study. By selecting "agree" and continuing to complete this survey online, you are providing your consent to participate in this study and indicating you have read this Consent Form. Thank you.

Response Options: I agree O or disagree O to participate in this study.

The researchers can contact me via email to complete the follow-up online Surveys. Yes O No O

Appendix B

Debriefing Information for Research Participants

We would like to thank you for completing our Survey study on feelings and behaviours experienced while attending university. The questions that you have answered pertaining to relationships, feelings, coping, and stressors will help us identify some common problems and strengths experienced in undergraduates. Some of the questions in this survey may have made you feel uncomfortable or distressed. If you are or anyone you know is feeling depressed or psychologically distressed, there is help available. Below is contact information for some helpful services if you are feeling psychologically depressed or distressed.

Before we end this study, we would like to please not talk about this study with anyone. There are many other people who have not participated in this study yet. If they hear from you or others about what the study is about, it may influence their responses. Our results may not be accurate. We hope that you will cooperate with us in this regard. Questions related to this study can be sent to rch_urpp@yorku.ca. Thank you.

Counselling Services at York University:
If you have any questions or concerns, please contact the Counselling & Development Centre (CDC) at York at 416-736-5297 or go to the centre directly at N110 in the Bennett Centre for Student Services.

Other Counselling Services in the GTA:

1. Toronto Psychological Services 416-531-0727 www.toronto-ps.com
2. Distress Centre of Toronto 416-408-4357 (HELP)
3. Help Line for All Youth HEYY 416-423-4399 (HEYY)
4. The Freedom from Fear Foundation in Toronto is an organization established to help people with anxiety disorders. They have a network of support groups set up throughout Ontario 416-761-6006
5. Drug & Alcohol Registry of Treatment (DART)/Treatment info-line 1-800-565-8603
6. The National Eating Disorder Information Centre has a national register of private therapists, medical programs, and information 416-340-4156
7. Mood Disorders Association of Ontario 416-486-8046 OR call TOLL-FREE at 1-888-486-8236
8. A.C.C.E.S. (Accessible Community Counselling and Employment Services)
   Toronto: 416-921-1800 Scarborough: 416-431-5326 Mississauga: 905-361-2522
9. Family Services Association of Toronto 416-595-9230
10. For a list of more health, social, community, and/or government community resources/services, you can access it via www.211toronto.ca or you can dial 2-1-1 in Toronto 24 hours a day. This phone number is free, confidential, and the trained staff is multilingual.

Appendix C

Centre of Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977)

Below is a list of the ways you might have felt or behaved. Please indicate how often you have felt this way during the ***past week***.

	Rarely or None of the Time (less than 1 day)	Some or a Little of the Time (1-2 days)	Occasionally or a Moderate Amount of Time (3-4 days)	Most of or All of the Time (5-7 days)	Not Applicable
1. I was bothered by things that usually don't bother me.	O	O	O	O	O
2. I did not feel like eating; my appetite was poor.	O	O	O	O	O
3. I felt like I could not shake off the blues even with help from my family or friends.	O	O	O	O	O
4. I felt I was just as good as other people.	O	O	O	O	O
5. I had trouble keeping my mind on what I was doing.	O	O	O	O	O
6. I felt depressed.	O	O	O	O	O
7. I felt that everything I did was an effort.	O	O	O	O	O
8. I felt hopeful about the future.	O	O	O	O	O
9. I thought my life had been a failure.	O	O	O	O	O
10. I felt fearful.	O	O	O	O	O
11. My sleep was restless.	O	O	O	O	O
12. I was happy.	O	O	O	O	O
13. I talked less than usual.	O	O	O	O	O
14. I felt lonely.	O	O	O	O	O
15. People were unfriendly.	O	O	O	O	O
16. I enjoyed life.	O	O	O	O	O
17. I had crying spells.	O	O	O	O	O
18. I felt sad.	O	O	O	O	O
19. I felt that people disliked me.	O	O	O	O	O
20. I could not "get going".	O	O	O	O	O

Appendix D

The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004)

Please indicate how often the following statements apply to you by selecting the most appropriate answer from the scale below. .

	Almost Never (0-10%)	**Sometimes** (11-35%)	**About half the time** (36-65%)	**Most of the time** (66-90%)	**Almost Always** (91-100%)	N/A
1. I am clear about my feelings	O	O	O	O	O	O
2. I pay attention to how I feel	O	O	O	O	O	O
3. I experience my emotions as overwhelming and out of control	O	O	O	O	O	O
4. I have no idea how I am feeling	O	O	O	O	O	O
5. I have difficulty making sense out of my feelings	O	O	O	O	O	O
6. I am attentive to my feelings	O	O	O	O	O	O
7. I know exactly how I am feeling	O	O	O	O	O	O
8. I care about what I am feeling	O	O	O	O	O	O
9. I am confused about how I feel	O	O	O	O	O	O
10. When I'm upset, I acknowledge my emotions	O	O	O	O	O	O
11. When I'm upset, I become angry with myself for feeling that way	O	O	O	O	O	O
12. When I'm upset, I become embarrassed for feeling that way	O	O	O	O	O	O

13. When I'm upset, I have difficulty getting work done	O	O	O	O	O	O
14. When I'm upset, I become out of control	O	O	O	O	O	O
15. When I'm upset, I believe that I will remain that way for a long time	O	O	O	O	O	O
16. When I'm upset, I believe that I'll end up feeling very depressed	O	O	O	O	O	O
17. When I'm upset, I believe that my feelings are valid and important	O	O	O	O	O	O
18. When I'm upset, I have difficulty focusing on other things	O	O	O	O	O	O
19. When I'm upset, I feel out of control	O	O	O	O	O	O
20. When I'm upset, I can still get things done	O	O	O	O	O	O
21. When I'm upset, I feel ashamed with myself for feeling that way	O	O	O	O	O	O
22. When I'm upset, I know that I can find a way to eventually feel better	O	O	O	O	O	O
23. When I'm upset, I feel like I am weak	O	O	O	O	O	O
24. When I'm upset, I feel like I can remain in control of my behaviours	O	O	O	O	O	O
25. When I'm upset, I feel guilty for feeling that way	O	O	O	O	O	O
26. When I'm upset, I have difficulty concentrating	O	O	O	O	O	O
27. When I'm upset, I have difficulty controlling my behaviours	O	O	O	O	O	O
28. When I'm upset, I believe that there is nothing I can do to make myself feel	O	O	O	O	O	O

better						
29. When I'm upset, I become irritated with myself for feeling that way	O	O	O	O	O	O
30. When I'm upset, I start to feel very bad about myself	O	O	O	O	O	O
31. When I'm upset, I believe that wallowing in it is all I can do	O	O	O	O	O	O
32. When I'm upset, I lose control over my behaviours	O	O	O	O	O	O
33. When I'm upset, I have difficulty thinking about anything else	O	O	O	O	O	O
34. When I'm upset, I take time to figure out what I'm really feeling	O	O	O	O	O	O
35. When I'm upset, it takes me a long time to feel better	O	O	O	O	O	O
36. When I'm upset, my emotions feel overwhelming	O	O	O	O	O	O

Appendix E

The Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski, Kraaij, & Spinhoven, 2001)

Everyone gets confronted with **negative or unpleasant experiences** and everyone responds to them in his or her own way. By the following questions, you are asked to indicate what you generally think, when you experience negative or unpleasant events. Please read the sentences below and indicate how often you have the following thoughts by circling the most suitable answer.

	Almost Never	Sometimes	Regularly	Often	Almost Always	Not Applicable
1. I feel that I am the one to blame for it	O	O	O	O	O	O
2. I think that I have to accept that this has happened	O	O	O	O	O	O
3. I often think about how I feel about what I have experienced	O	O	O	O	O	O
4. I think of nicer things than what I have experienced	O	O	O	O	O	O
5. I think of what I can do best	O	O	O	O	O	O
6. I think I can learn something from the situation	O	O	O	O	O	O
7. I think that it all could have been much worse	O	O	O	O	O	O
8. I often think that what I have experienced is much worse than what others have experienced	O	O	O	O	O	O
9. I feel that others are to blame for it	O	O	O	O	O	O
10. I feel that I am the one who is responsible for what has happened	O	O	O	O	O	O
11. I think that I have to accept the situation	O	O	O	O	O	O
12. I am preoccupied with what I think and feel about what I have experienced	O	O	O	O	O	O
13. I think of pleasant things that have nothing to do with it	O	O	O	O	O	O

14. I think about how I can best cope with the situation	O	O	O	O	O	O
15. I think that I can become a stronger person as a result of what has happened	O	O	O	O	O	O
16. I think that other people go through much worse experiences	O	O	O	O	O	O
17. I keep thinking about how terrible it is what I have experienced	O	O	O	O	O	O
18. I feel that others are responsible for what has happened	O	O	O	O	O	O
19. I think about the mistakes I have made in this matter	O	O	O	O	O	O
20. I think that I cannot change anything about it	O	O	O	O	O	O
21. I want to understand why I feel the way I do about what I have experienced	O	O	O	O	O	O
22. I think of something nice instead of what has happened	O	O	O	O	O	O
23. I think about how to change the situation	O	O	O	O	O	O
24. I think that the situation also has its positive sides	O	O	O	O	O	O
25. I think that it hasn't been too bad compared to other things	O	O	O	O	O	O
26. I often think that what I have experienced is the worst that can happen to a person	O	O	O	O	O	O
27. I think about the mistakes others have made in this matter	O	O	O	O	O	O
28. I think that basically the cause must lie within myself	O	O	O	O	O	O
29. I think that I must learn to live with it	O	O	O	O	O	O
30. I dwell upon the feelings the situation has evoked in me	O	O	O	O	O	O

31. I think about pleasant experiences	O	O	O	O	O	O
32. I think about a plan of what I can do best	O	O	O	O	O	O
33. I look for the positive sides to the matter	O	O	O	O	O	O
34. I tell myself that there are worse things in life	O	O	O	O	O	O
35. I continually think how horrible the situation has been	O	O	O	O	O	O
36. I feel that basically the cause lies with others	O	O	O	O	O	O

Appendix F

Inventory of Statements about Self-injury (ISAS; Klonsky & Olino, 2008; Klonsky & Glenn, 2009)

Section 1. Behaviours
This questionnaire asks about a variety of self-harm behaviors. Please only endorse a behavior if you have done it intentionally (i.e., on purpose) and without suicidal intent (i.e., not for suicidal reasons).

1. Please estimate the number of times in your life you have intentionally (i.e., on purpose) performed each type of non-suicidal self-harm (e.g., 0, 10, 100, 500):

	Lifetime Frequency (e.g., 0, 10, 100, 500, etc.)
Cutting	
Biting	
Burning	
Carving	
Pinching	
Pulling Hair	
Severe Scratching (with nails or other objects)	
Banging or Hitting Self	
Rubbing Skin Against Rough Surface	
Sticking Self with Needles or Other Sharp Objects (e.g., pins, staples, safety pins, etc.) (NOTE: NOT including tattoos, ear/body piercings, or needles for drug use purposes)	
Swallowing Dangerous Substances	
Pouring or Rubbing Dangerous Substances Into Skin	
Other_____	
Not applicable – I have never self-harmed	O

NOTE: If you have not self-harmed please select not applicable for the following questions.

2. If you feel that you have a *main* form of self-harm, please select the behaviors that you consider to be your main form of self-harm (you can select more than one).

Not Applicable	O
Cutting	O
Biting	O

Burning	O
Carving	O
Pinching	O
Pulling Hair	O
Severe Scratching (with nails or other objects)	O
Banging or Hitting Self	O
Rubbing Skin Against Rough Surface	O
Sticking Self with Needles or Other Sharp Objects	O
Swallowing Dangerous Substances	O
Pouring or Rubbing Dangerous Substances Into Skin	O
Other:	O

3. At what age did you:

   a) First harm yourself? _____
   b) Most recently harm yourself? _____
   (approximate date – month/day/year)

Check this box if you do NOT self-harm (i.e., did not endorse any of the above behaviours – please select N/A for the following questions)

4. Do you experience physical pain during self-harm?

   YES **SOMETIMES** **NO** N/A

5. When you self-harm, are you alone?

   YES **SOMETIMES** **NO** N/A

6. Typically, how much time elapses from the time you have the urge to self-harm until you act on the urge?

< 1 hour	O
1 – 3 hours	O
3 – 6 hours	O
6 – 12 hours	O
12 – 24 hours	O
> 1 day	O
N/A	O

7. Do/did you want to stop self-harming?

YES **NO** N/A

Section II: Functions (ISAS_B) (15)
This inventory was written to help us better understand the experience of non-suicidal self-harm. Below is a list of statements that may or may not be relevant to your experience of self-harm. Please identify how relevant the statements below are relevant for you.

Select this box if you do NOT, and NEVER have self-harmed: _____
If you selected the above box, then skip the following 39 questions. Continue to section C11.

"When I self-harm, I am …"	Not Relevant	Somewhat Relevant	Very Relevant	**N/A (or don't want to answer)**
1. … calming myself down	O	O	O	O
2. … creating a boundary between myself and others	O	O	O	O
3. …punishing myself	O	O	O	O
4. … giving myself a way to care for myself (by attending to the wound)	O	O	O	O
5. … causing pain so I will stop feeling numb	O	O	O	O
6. … avoiding the impulse to attempt suicide	O	O	O	O
7. … doing something to generate excitement or exhilaration	O	O	O	O
8. … bonding with peers	O	O	O	O
9. …letting others know the extent of my emotional pain	O	O	O	O
10. … seeing if I can stand the pain	O	O	O	O
11. …creating a physical sign that I feel awful	O	O	O	O
12. …getting back at someone	O	O	O	O
13. … ensuring that I am self-sufficient	O	O	O	O
14. …releasing emotional pressure that has built up inside of me	O	O	O	O
15. … demonstrating that I am separate from other people	O	O	O	O
16. … expressing anger towards myself for being worthless or stupid	O	O	O	O
17. … creating a physical injury that is easier to care for than my emotional distress	O	O	O	O
18. … trying to feel something (as opposed to nothing)	O	O	O	O

even if it is physical pain				
19. … responding to suicidal thoughts without actually attempting suicide	O	O	O	O
20. … entertaining myself or others by doing something extreme	O	O	O	O
21. … fitting in with others	O	O	O	O
22. …seeking care or help from others	O	O	O	O
23. … demonstrating I am tough or strong	O	O	O	O
24. … proving to myself that my emotional pain is real	O	O	O	O
25. … getting revenge against others	O	O	O	O
26. …demonstrating that I do not need to rely on others for help	O	O	O	O
27. … reducing anxiety, frustration, anger, or other overwhelming emotions	O	O	O	O
28. …establishing a barrier between myself and others	O	O	O	O
29. … reacting to feeling unhappy with myself or disgusted with myself	O	O	O	O
30. … allowing myself to focus on treating the injury, which can be gratifying or satisfying	O	O	O	O
31. … making sure I am still alive when I don't feel real	O	O	O	O
32. … putting a stop to suicidal thoughts	O	O	O	O
33. …pushing my limits in a manner akin to skydiving or other extreme activities	O	O	O	O
34. …creating a sign of friendship or kinship with friends or loved ones	O	O	O	O
35. …keeping a loved one from leaving or abandoning me	O	O	O	O
36. …proving I can take the physical pain	O	O	O	O
37. … signifying the emotional distress I'm experiencing	O	O	O	O
38. …trying to hurt someone close to me	O	O	O	O
39. … establishing that I am autonomous/independent	O	O	O	O

Appendix G

The Eating Attitudes Test (EAT-26; Garner, Olmstead, Bohr, & Garfinkel, 1982)

	Never	Rarely	Sometimes	Often	Usually	Always	Not Applicable
1. Am terrified about being overweight	O	O	O	O	O	O	O
2. Avoid eating when I am hungry	O	O	O	O	O	O	O
3. Find myself preoccupied with food	O	O	O	O	O	O	O
4. Have gone on eating binges where I feel that I may not be able to stop	O	O	O	O	O	O	O
5. Cut my food into small pieces	O	O	O	O	O	O	O
6. Aware of the calorie content of foods that I eat	O	O	O	O	O	O	O
7. Particularly avoid foods with a high carbohydrate content (i.e. bread, rice, potatoes, etc.)	O	O	O	O	O	O	O
8. Feel that others would prefer if I ate more	O	O	O	O	O	O	O
9. Vomit after I have eaten	O	O	O	O	O	O	O
10. Feel extremely guilty after eating	O	O	O	O	O	O	O
11. Am preoccupied with a desire to be thinner	O	O	O	O	O	O	O
12. Think about burning up calories when I exercise	O	O	O	O	O	O	O
13. Other people think that I am too thin	O	O	O	O	O	O	O
14. Am preoccupied with the thought of having fat on my body	O	O	O	O	O	O	O
15. Take longer than others to eat my meals	O	O	O	O	O	O	O
16. Avoid foods with sugar in them	O	O	O	O	O	O	O
17. Eat diet foods	O	O	O	O	O	O	O
18. Feel that food controls my life	O	O	O	O	O	O	O
19. Display self-control around	O	O	O	O	O	O	O

food							
20. Feel that others pressure me to eat	O	O	O	O	O	O	O
21. Give too much time and thought to food	O	O	O	O	O	O	O
22. Feel uncomfortable after eating sweets	O	O	O	O	O	O	O
23. Engage in dieting behavior	O	O	O	O	O	O	O
24. Like my stomach to be empty	O	O	O	O	O	O	O
25. Enjoy trying new rich foods	O	O	O	O	O	O	O
26. Have the impulse to vomit after meals	O	O	O	O	O	O	O

Please respond to each of the following questions: **(12)**

1) Have you gone on eating binges where you feel that you may not be able to stop? (Eating much more than most people would eat under the same circumstances)

No O Yes O NA O

How many times in the last 6 months? _____

Have you binged at least once per week for the past 3 months?

No O Yes O NAO

2) Have you ever made yourself sick (vomited) to control your weight or shape?

No O Yes O NA O

How many times in the last 6 months? _____

Have your made yourself sick (vomited) to control your weight at least once per week for the past 3 months?

No O Yes O NAO

3) Have you ever used laxatives, diet pills or diuretics (water pills) to control your weight or shape?

No O Yes O NA O

How many times in the last 6 months? _____

Have you used laxatives, diet pills, or diuretics to control your weight at least once per week for the past 3 months?

No O Yes O NAO

Appendix H

The Suicide Behavior Questionnaire-Revised (SBQ-R; Osman, Bagge, Gutierrez, Konick, Kopper, & Barrios, 2001)

Please select the number beside the statement or phrase that best applies to you.

1. Have you ever thought about or attempted to kill yourself? (check one only)
   O Never
   O It was just a brief passing thought
   O I have had a plan at least once to kill myself but did not try to do it
   O I have had a plan at least once to kill myself and really wanted to die
   O I have attempted to kill myself, but did not want to die
   O I have attempted to kill myself, and really hoped to die
   O I would rather not say

2. How many times have you attempted suicide in your life?
   O Never
   O 1 time
   O 2 times
   O 3 times
   O 4 times
   O 5 or more times
   O I would rather not say

3. When was the first time you attempted suicide?
   (check this box if you have never attempted suicide or want to skip this question)
   a) Approximate date: ___/_____/_____(month/day/year)
   b) Age: _____(in years)
   c) Hospital/professional medical attention required?: YES NO

4. When was the last time (most recent time) you attempted suicide?
   (check this box if you have never attempted suicide or want to skip this question)
   a) Approximate date: ___/_____/_____(month/day/year)
   b) Age: _____(in years)
   Hospital/professional medical attention required?: YES NO

5. How often have you thought about killing yourself in the past year? (check one only)
   O Never
   O Rarely (1 time)
   O Sometimes (2 times)
   O Often (3-4 times)
   O Very Often (5 or more times)
   O I would rather not say

6. Have you ever told someone that you were going to commit suicide, or that you might do it? (check one only)
   O No
   O Yes, at one time, but did not really want to die
   O Yes, at one time, and really wanted to die
   O Yes, more than once, but did not want to do it
   O Yes, more than once, and really wanted to do it
   O I would rather not say

7. How likely is it that you will attempt suicide someday? (check one only)

O Never
O No chance at all
O Rather unlikely
O Unlikely
O Likely
O Rather likely
O Very likely
O I would rather not say

8. Do you have a family member who has attempted suicide? YES NO
   Decline
9. Do you have a family member who has completed suicide? YES NO
   Decline
10. Do you have a close friend who has attempted suicide? YES NO
    Decline
11. Do you have a close friend who has completed suicide? YES NO
    Decline

Appendix I

The Appearance Schemas Inventory-Revised (ASI-R; Cash, Melnyk, & Hrabosky, 2004)

The statements below are beliefs that people may or may not have about their physical appearance and its influence on life. Decide on the extent to which you personally **disagree** or **agree** with each statement and select the appropriate response to the right of each item. There are no right or wrong answers. Just be truthful about your personal beliefs.

	Strongly Disagree	**Mostly Disagree**	**Neither Agree or Disagree**	**Mostly Agree**	**Strongly Agree**	Not Applicable
1. I spend little time on my physical appearance	O	O	O	O	O	O
2. When I see good-looking people, I wonder how my own looks measure up	O	O	O	O	O	O
3. I try to be as physically attractive as I can be	O	O	O	O	O	O
4. I have never paid much attention to what I look like	O	O	O	O	O	O
5. I seldom compare my appearance to that of other people I see	O	O	O	O	O	O
6. I often check my appearance in a mirror just to make sure I look okay	O	O	O	O	O	O
7. When something makes me feel good or bad about my looks, I tend to dwell on it	O	O	O	O	O	O
8. If I like how I look on a given day, it is easy to feel happy about other things	O	O	O	O	O	O
9. If somebody had a negative reaction to what I look like, it wouldn't bother me	O	O	O	O	O	O
10. When it comes to my physical appearance, I have high standards	O	O	O	O	O	O
11. My physical appearance has had little influence on my life	O	O	O	O	O	O
12. Dressing well is not a priority for me	O	O	O	O	O	O

13. When I meet people for the first time, I wonder what they think about how I look	O	O	O	O	O	O
14. In my everyday life, lots of things happen that make me think about what I look like	O	O	O	O	O	O
15. If I dislike how I look on a given day, it's hard to feel happy about other things	O	O	O	O	O	O
16. I fantasize about what it would be like to be better looking than I am	O	O	O	O	O	O
17. Before going out, I make sure that I look as good as I possibly can	O	O	O	O	O	O
18. What I look like is an important part of who I am	O	O	O	O	O	O
19. By controlling my appearance, I can control many of the social and emotional events in my life	O	O	O	O	O	O
20. My appearance is responsible for much of what's happened to me in my life	O	O	O	O	O	O