A Thesis

entitled

Development and Validation of the Expectancies for Body-Focused Coping Questionnaire

by

Courtney N. Forbes

Submitted to the Graduate Faculty as partial fulfillment of the requirements for the Master of Arts Degree in Psychology

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Dr. Matthew T. Tull, Committee Chair

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Dr. Kim L. Gratz, Committee Member

_____

Dr. Jason Levine, Committee Member

_____

Dr. Cyndee Gruden, Dean
College of Graduate Studies

The University of Toledo

August 2019

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An Abstract of

Development and Validation of the Expectancies for Body-Focused Coping Questionnaire

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Direct and indirect self-damaging behaviors are highly prevalent and associated with negative clinical and public health outcomes. Despite progress in understanding the expected consequences (expectancies) that motivate individuals to engage in these behaviors, less is known about the co-occurrence of, and expectancies for, a broader range of self-damaging behaviors that may occur in combination. The goal of this study was to develop a self-report measure to assess the frequency of, and individuals' expectancies for, nonsuicidal self-injury, eating disordered behavior, body-focused repetitive behaviors, and problematic exercise. An initial draft of the Expectancies for Body-Focused Coping Questionnaire (EBCQ) was developed and refined through expert feedback and pilot testing in a student sample (n = 11). The factor structure of the EBCQ was examined through exploratory factor analysis in a student sample (n = 353) and confirmatory factor analysis in a community sample (n = 443). The measure demonstrated good internal consistency and convergent and divergent validity. The EBCQ offers a flexible tool for assessment and treatment planning for researchers and clinicians working with individuals with a variety of self-damaging behaviors.

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This work is dedicated in loving memory to my stepbrother, Luke Kristopher Eskew (1979-2018).

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Acknowledgements

I would like to express gratitude to the University of Toledo Department of Psychology for the provision of a Departmental Research Support Grant that made possible a large portion of data collection for this study. I am also indebted to Dr. Katherine Dixon-Gordon and Wil Schwartz at the University of Massachusetts-Amherst for their assistance with data collection, and to PERT Lab research assistants James Betts, Chase Riling, and Lauren Chismer for their many contributions to this project.

I'm most aware of the limits of language when I search for words to express gratitude to my mentors, Dr. Matthew Tull and Dr. Kim Gratz. This work would not have been possible without your guidance, encouragement, and absolute belief in my abilities as a researcher and clinician. Thank you for giving me the freedom to pursue big ideas and sharing my joy in the process. I am also grateful to Dr. Jason Levine and Dr. Jason Lavender for their assistance in making this project better than I could have expected.

I am incredibly thankful for my former mentor Dr. Ayelet Ruscio, who taught me in equal parts about intellectual excellence and genuine compassion; and for Dr. Anthony Ahrens, who first inspired my love of research and has been a true friend over the years. I am also grateful every day for Julia Richmond, Margaret Baer, Tara Spitzen, Ariana Vidaña, Keith Edmonds, and Gabriela Khazanov; who are not only wonderful colleagues but also some of my dearest friends. You bring so much happiness into my life.

Finally, I would like to thank my dog Romeo, who was a lifelong companion until his death in 2018. He would sit by my living room chair as I was working on the early stages of this project and try to push my hands away from the keyboard to encourage me to take a break and play with him. I will always remember his loving presence.

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Table of Contents

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List of Abbreviations

ACSS.....Acquired Capability for Suicide Scale
APA.....American Psychiatric Association

BAS.....Body Attitudes Scale
BEST.....Borderline Evaluation of Severity over Time
BPD.....Borderline Personality Disorder
BREQ.....Behavioral Regulation in Exercise Questionnaire
BVS.....Body Vigilance Scale

C.....Control (subscale of EBCQ)
CEP .....Coping with Emotional Pain (subscale of EBCQ)

DERS .....Difficulties in Emotion Regulation Scale
DERS-P.....Difficulties in Emotion Regulation Scale-Positive
DSM-5.....Diagnostic and Statistical Manual for Mental Disorders-5th Edition

EAI.....Exercise Addiction Inventory
EBCQ.....Expectancies for Body-Focused Coping Questionnaire

II.....Interpersonal Influence (subscale of EBCQ)
IIP.....Inventory of Interpersonal Problems
INQ .....Interpersonal Needs Questionnaire

MASQ.....Mood and Anxiety Symptom Questionnaire
MCSDS.....Marlowe-Crowne Social Desirability Scale
MDD .....Major Depressive Disorder
MGH-HS.....Massachusetts General Hospital Hairpulling Scale

NSSI.....Nonsuicidal self-injury

PCL .....Posttraumatic Stress Disorder Checklist
PE-D.....Positive Emotion Down-regulation (subscale of EBCQ)
PI.....Perfectionism Inventory
PTSD.....Posttraumatic Stress Disorder

QNSSI.....Questionnaire for Nonsuicidal Self-Injury

S-I.....Self-Improvement (subscale of EBCQ)
SPS-R.....Skin Picking Scale-Revised

UPPS-P .....UPPS-P Impulsive Behavior Scale
UMASS.....University of Massachusetts-Amherst
UT .....University of Toledo

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Chapter One

Introduction

Over the past several decades, researchers have examined a variety of self-damaging behaviors that have a direct or indirect physical effect on the body, including nonsuicidal self-injury (NSSI), eating disordered behavior (e.g., food restriction, binging, purging), body-focused repetitive behaviors (BRFBs; e.g., trichotillomania, skin-picking, severe nail-biting), substance use, and risky sexual behavior (e.g., Cooper, 2002; Grant & Stein, 2014; Klonsky, Muehlenkamp, Lewis, & Walsh, 2011; Lundahl, Wahlstrom, Christ, & Stoltenberg, 2015; Pattison & Kahan, 1989; Whiteford, Ferrari, Degenhardt, Feigin, & Vos, 2010). Recent research has advanced understanding of the factors motivating these behaviors, as well as their correlates and consequences (Garner, Olmstead, & Polivy, 1983; Kleindeinst et al., 2008; Roberts, O'Connor, & Bélanger, 2013; Wilson, Rogers, & Fraser, 2002).

While some studies have examined rates of co-occurrence between specific behaviors (e.g., NSSI and eating disordered behavior [Favazza, DeRosear & Conterio, 1989; MacLaren & Best, 2010; Muehlenkamp, Claes, Smits, Peat, & Vandereycken, 2011]; NSSI and physical exercise [Boone & Brausch, 2016; Jarvi, Hearon, Batejan, Gironde, & Bjorgvinsson, 2017]), there is a lack of empirical data on the extent to which a broader range of direct and indirect self-damaging behaviors co-occur in the same individuals. Moreover, despite growing evidence that many of these behaviors may be driven by common factors (e.g., expectation of relief from negative affective states; Garner et al., 1983; Roberts et al., 2013; Terry, Szabo, & Griffiths, 2004; Turner, Chapman, & Layden, 2012), few studies have examined similarities and differences in

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individuals' expectancies for these behaviors, as well as assessed a wide variety of expectancies that may be shared across these behaviors.

Direct and indirect self-damaging behaviors are highly prevalent. Estimates range from 5.9%-56.4% for NSSI (Fliege, Lee, Grimm, & Klapp, 2009; Hilt, Cha, & Nolen-Hoeksma, 2008; Morales, Buser, & Farag, 2018; Whitlock et al., 2011), 15.5%-29.3% for eating disordered behavior (al Sabbah & Muhsineh, 2017; Eneva et al., 2017; Maguen et al., 2018; Santana, Barros, da Costa, & da Veiga, 2017), and 0.6%-15.0% for BFRBs (Roberts, O'Connor, & Bélanger; 2013). No studies to our knowledge have examined problematic exercise in the general population; however, prevalence rates for exercise addiction range from 3.4% to 13.4% among university students (Hausenblas & Downs, 2002) and 3.2% to 52.0% among populations of athletes including distance runners, triathletes, and ultramarathoners (Allegre, Therme, & Griffiths, 2007; Blaydon & Linder, 2002; Slay, Hayaki, Napolitano, & Brownell, 1998).

These behaviors are associated with negative clinical and public health outcomes, including increased health care utilization (Briere & Gil, 1998; Possemato, Wade, Andersen, & Ouimette, 2010; Zlotnick, Mattia, & Zimmerman, 1999), higher levels of psychiatric comorbidity (Roberts et al., 2013), and increased risk for suicidal ideation and behavior (Duberstein et al., 1993; Knorr et al., 2016; Smith et al., 2013). Given this, there is practical utility in understanding the extent to which these behaviors co-occur in the same individuals, as well as whether different behaviors are driven by the same expectancies. Taking a functional analytic approach to psychopathology (e.g., Ferster, 1973; Hayes, Wilson, Gifford, Follette, & Strosahl, 1996; Haynes & O'Brien, 1990), focusing on shared expectancies across these behaviors (rather than their varied forms)

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would aid in the development of targeted, transdiagnostic interventions that would better equip clinicians to treat clients presenting with a variety of different self-damaging behaviors. Thus, the overarching goal of this study is to assess the frequency of and expectancies for direct and indirect self-damaging behaviors, with a specific focus on behaviors that have an immediate or longer-term impact on the body and low-to-medium potential for lethality.

Self-Damaging Behaviors

Pattison and Kahan (1983) classified self-damaging behaviors along three orthogonal dimensions: (1) direct vs. indirect, (2) lethality, and (3) repetition. Direct self-damaging behavior occurs when there is conscious intent to inflict harm on oneself and awareness of the effects of the behavior, whereas indirect self-damaging behavior occurs when intent to harm oneself and/or awareness of the harmful effects of the behavior are absent. Lethality refers to the likelihood that the behavior will be fatal. Self-damaging behaviors occur on a continuum of lethality, from behaviors such as alcoholism and severe obesity (low lethality) to suicidal behavior (high lethality). Repetition refers to the presence of single versus multiple episodes of the behavior.

Guided by Pattison and Kahan (1983)'s classification system, we are interested in self-damaging behaviors that are repetitive, both direct and indirect, and have low to medium potential for lethality. Specifically, we are interested in NSSI, eating disordered behavior, BFRBs, and problematic exercise. These specific behaviors were selected as they result in more direct, more observable, and quicker modification (e.g., tissue damage, hair loss, weight loss) to the body relative to behaviors such as substance use and risky sexual behavior, where modification to the body may be less immediate or

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observable. Below, we will describe each of these behaviors, review research on their prevalence in general and specific populations, and discuss physical and psychiatric problems that commonly co-occur with each behavior. Next, we will review existing literature on expected consequences (i.e., "expectancies") associated with each behavior. Finally, we will discuss preliminary findings related to expectancies that may be shared across multiple self-damaging behaviors, as well as the ways in which further examination of shared expectancies can advance research and treatment.

NSSI. NSSI is defined as deliberate, direct, self-inflicted destruction of body tissue without suicidal intent and for purposes not socially sanctioned (also referred to as deliberate self-harm; Chapman, Gratz, & Brown, 2006; Gratz, 2001; International Society for the Study of Self-Injury, 2007). Estimates for the lifetime prevalence of NSSI tend to be lower among adults (1.7%-16.3%) than college students (15.3%-35.0%) and adolescents (13.0%-56.4%; Claes, Houben, Vandereycken, Bijttebier, & Muehlenkamp, 2010; Gratz, 2001; Hilt, Cha, & Nolen-Hoeksma, 2008; Jacobson & Gould, 2007; Klonsky, 2011; Swannell, Martin, Page, Hasking, & St. John, 2014; Whitlock et al., 2011). Common forms of NSSI include cutting/carving, burning, biting, scraping/scratching skin, hitting, interfering with wound healing, and skin-picking; and a large proportion of individuals who engage in NSSI report multiple methods (Anestis, Khazem, & Law, 2014; Klonsky, 2011; Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006; Swannel et al., 2014). NSSI methods may vary by gender, with men more likely to engage in self-hitting and burning and women more likely to engage in cutting and scratching (Andover, Primack, Gibb, & Pepper, 2010; Claes, Vandereycken, & Vertommen, 2007).

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NSSI is a serious health concern in both non-clinical and clinical populations and has been associated with a number of psychiatric problems, such as borderline personality disorder (BPD), major depressive disorder (MDD), and posttraumatic stress disorder (PTSD; Andover, Pepper, Ryabchenko, Orrico, & Gibb, 2005; Arsanow et al., 2011; Nock & Prinstein, 2005; Zlotnick, Mattia, & Zimmerman, 1999). NSSI has also been associated with higher levels of other risky and/or self-damaging behaviors, including disordered eating, drug and alcohol use, risky sexual behavior, and impulsive spending (Favazza, 1998; Hamza, Willoughby, & Good, 2012; MacLaren & Best, 2010; Muehlenkamp, Claes, Smits, Peat, & Vandereycken, 2011; Muehelenkamp, Peat, Claes, & Smits, 2012; Selby, Nock, & Kranzler, 2014).

Eating Disordered Behavior. Eating disordered behavior includes restriction of food intake, binge eating, and compensatory behaviors (e.g., self-induced vomiting, laxative misuse, diuretic misuse, and excessive exercise; Luce, Crowther, & Pole, 2008). Lifetime prevalence rates for bulimia nervosa (1.5%-2.9%) and anorexia nervosa (0.9%-2.2%) are low; however, clinically significant eating disorder symptoms occur much more commonly than threshold disorders in the general population (Fairburn et al., 2007; Hudson, Hiripi, Pope, & Kessler, 2007; Lavender, Gratz, & Tull, 2011; Wade, Bergin, Tiggemann, Bulik, & Fairburn, 2006). Community-dwelling adolescents and young women have been found to exhibit high rates of binge eating (21.3%), self-induced vomiting (8.8%), laxative misuse (8.3%), diuretic misuse (6.6%), and excessive exercise (30.8%; Ackard, Fulkerson, & Neumark-Sztainer, 2007; Luce et al., 2008). In addition to associations with NSSI (as mentioned above), eating disordered behavior has been associated with a variety of negative psychological outcomes including co-occurring

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mood, anxiety, and substance use disorders; co-occurring personality disorders; suicidal ideation and behavior; and impairment in social and family relationships (Cassin & von Ranson, 2005; Lee & Lee, 1996; Swanson, Crow, Le Grange, Swendsen, & Merikangas, 2011).

Body-Focused Repetitive Behaviors. The term body-focused repetitive behaviors (BFRBs) refers to a group of problematic behaviors including hair-pulling, excessive skin-picking, and severe nail-biting that are experienced as recurrent, undesired, and difficult to control and cause clinically significant distress and/or impairment (Diefenbach, Tolin, Meunier, & Worhunsky, 2008; Hansen, Tishelman, Hawkins, & Doepke, 1990; Schreiber, Odlaug, & Grant, 2011; Snorrason, Belleau, & Woods, 2012). These behaviors are often overlearned and, thus, may occur outside conscious awareness, sometimes to the extent that an individual is not aware of engaging in the behavior until s/he notices its physical consequences (e.g., hair loss; Woods & Houghton, 2014). Clinically significant hair-pulling and skin-picking are recognized in the *Diagnostic and Statistical Manual for Mental Disorders-Fifth Edition* (DSM-5) as obsessive-compulsive spectrum disorders (American Psychiatric Association, 2013). Trichotillomania (Hair-Pulling Disorder) is characterized by chronic hair-pulling, commonly leading to hair loss or baldness (APA, 2013). The prevalence of trichotillomania in community samples is approximately 0.6% (Duke, Bozdin, Tavares, Geffken, & Storch, 2009; Stanley, Borden, Bell, & Wagner, 1994), though a greater proportion of individuals endorse hair-pulling unrelated to grooming at subclinical levels (Roberts, O'Connor, & Bélanger, 2013), and studies of BFRBs in nonclinical populations show that subclinical levels of these behaviors are associated with depression and anxiety

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symptoms, as well as impulsive and obsessive-compulsive personality traits (Croyle & Walts, 2007; Teng, Woods, Marcks, & Twohig, 2004).

Severe nail-biting refers to biting of nails past the nail bed and cuticles, to the point of drawing blood and/or resulting in scarring or infection (Wells, Haines, & Williams, 1998). Although nail-biting is a commonly endorsed anxiety-driven habit, the behavior is considered clinically significant when it results in functional impairment and/or significant tissue or nail damage (Snyder & Friman, 2012). Although prevalence data are scarce, one survey of college students found that 14.8% of students endorsed the behavior at severe levels (Hansen, Tishelman, Hawkins, & Doepke, 1990).

Excoriation disorder (skin-picking/dermatillomania) is characterized by repetitive picking of skin or scabs leading to tissue damage and clinically significant distress and/or impairment, in the absence of a dermatological condition (APA, 2013). Prevalence rates ranging from 1.4% to 5.4% for problematic skin-picking have been reported in various populations, including community samples, college students, dermatology clinic patients, and a U.S. population sample (Bohne, Wilhelm, Keuthen, Baer, & Jenike, 2002; Hayes, Storch, & Berlanga, 2009; Keuthen et al., 2000; Keuthen, Koran, et al., 2010).

BRFBs commonly co-occur within the same individuals (Arnold et al., 1998; Christenson & Mansueto, 1999; Odlaug & Grant, 2008; Simeon et al., 1997). For example, in one study of individuals reporting subclinical or clinical levels of hair-pulling, 70% of the sample endorsed a second BFRB (Stein et al., 2008). Similarly, in a large online sample of individuals reporting skin-picking, 83.4% reported a lifetime history of at least one additional BFRB (Snorrason et al., 2012). In addition to physical problems such as tissue damage, scarring, and infection, BFRBs can also give rise to

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significant psychological consequences, including feelings of guilt, shame, and unattractiveness; impairment in academic and/or work functioning and social relationships; and avoidance of doctor and/or dentist visits, which may result in exacerbation of medical problems (Roberts, O'Connor, & Bélanger, 2013). BRFBs are also commonly associated with symptoms of psychiatric disorders such as depression, generalized anxiety disorder, social phobia, specific phobia, body dysmorphic disorder, and obsessive-compulsive disorder (Arnold et al., 1998; Christenson, MacKenzie, & Mitchell, 1991; Diefenbach, Tolin, Hannah, Crocetto, & Worhunsky, 2006; Woods, Wetterneck, & Flessner, 2006).

Problematic Exercise. Although regular physical exercise is regarded as a behavior with important physical and social benefits, research suggests that exercise behavior can be associated with negative consequences when it takes on an extreme and/or compulsive form (Chalmers et al., 1985; Cockerill & Riddington, 1996; Davis, 2000; Griffiths, 1997; Lyons & Cromey, 1989; Pasman & Thompson, 1988). While there is no clear operational definition for problematic exercise behavior, over-exercise has been defined as "hard exercise as a means of controlling shape or weight" (Smith et al., 2013). A related concept, exercise addiction, has been conceptualized as a behavioral addiction that involves: (a) exercise dominating an individual's thinking; (b) positive mood changes as a result of exercise; (c) symptoms of tolerance and withdrawal when exercise is decreased; (d) physical, medical, financial, and/or social problems resulting from exercise behavior; and (e) repeated reversions to earlier patterns of exercise despite efforts to control or cut down the behavior (Terry, Szabo, & Griffiths, 2004).

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In the absence of prevalence rates for over-exercise, research on exercise addiction will be reviewed here. Prevalence rates for exercise addiction vary widely depending on the population being assessed. Among university students, 3.4% to 13.4% have been found to be at high risk for exercise addiction (Hausenblas & Downs, 2002). In another series of studies, 3.6% of individuals who reported engaging in regular recreational exercise and 6.7% of exercise science students met criteria for exercise addiction (Szabo & Griffiths, 2007). Some researchers have found high prevalence rates among specific groups of athletes (e.g., 52% among triathletes [Blaydon & Linder, 2002]; 26% among male runners and 25% among female runners [Slay, Hayaki, Napolitano, & Brownell, 1998]), while others have found considerably lower rates (e.g., 3.2% among ultramarathoners [Allegre, Therme, & Griffiths, 2007]).

Research examining physical and psychological correlates of over-exercise and exercise addiction is sparse. One series of studies conducted in undergraduate samples demonstrated associations between over-exercise and lifetime suicide attempts (Smith et al., 2013). This association was mediated by the acquired capability for suicide (i.e., the capabability to inflict potentially lethal self-harm, which is hypothesized to develop over time through repeated exposure to painful and provocative experiences; Joiner, 2002), suggesting that over-exercise may increase individuals' ability to carry out self-destructive behaviors, perhaps by increasing tolerance for physical pain and discomfort. Exercise addiction has also been associated with symptoms of disordered eating, including excessive concern about body image/weight and restriction of food intake.

There is considerable overlap between problematic exercise and eating disorders, given that exercise is commonly used as a weight control strategy in anorexia nervosa

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and bulimia (Berczik et al., 2012; Blaydon & Linder, 2002; Klein et al., 2004; Lyons & Cromey, 1989). Individuals with exercise addiction also report higher levels of perfectionism, excitement-seeking, achievement-striving, and body pain and injuries compared to non-addicted regular exercisers (Lichtenstein, Christiansen, Elklit, Bilenberg, & Stoving, 2013). Moreover, symptoms of exercise addiction have been associated with facets of impulsivity, including sensation-seeking, deficits in planning, and a tendency to engage in ill-considered behavior when experiencing strong positive and/or negative emotions, suggesting that over-exercise may function as a short-term coping strategy to regulate affective states perceived to be aversive (Kotbagi, Morvan, Romo, & Kern, 2017).

Expectancies for Direct and Indirect Self-Damaging Behaviors

Although functional approaches to understanding psychopathology recognize that different behaviors may share underlying expectancies and/or motivating factors (e.g., experiential avoidance; Hayes et al., 1996), limited studies to date have examined shared expectancies across direct and indirect self-damaging behaviors. Given this, we will review the existing literature on expectancies for each behavior separately.

Of note, the terms "expectancy," "motive," and "function" are commonly used in the theoretical and empirical literature on determinants of behavior. It is important to operationalize these terms, as doing so has relevance for understanding the nature of the relationship between a particular factor (e.g., cognition, emotion) and behavior. "Expectancy" refers to a conscious expectation about the consequences of engaging in a particular behavior (e.g., Hasking, Whitlock, Voon, & Rose, 2017). For example, a person might engage in NSSI based on a cognition or belief that the behavior will result

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in a short-term reduction in negative affect. The term "motive" is interchangeable with "expectancy," in that it refers to a factor motivating an individual's engagement in a behavior (presumably a cognition or belief about expected consequences of the behavior, e.g., Turner et al., 2012).

The term "function," however, is distinguishable from "expectancy" and "motive" in that it refers to what a behavior *does* for an individual, taking into account the behavior's environmental antecedents and consequences (e.g., Ferster, 1973). Unlike motives and expectancies, the function of a behavior may take into account consequences that are unrelated to expected outcomes. For example, a person might engage in NSSI with the expectancy that it will reduce negative affect; however, if the person's friends notice physical evidence of NSSI, the behavior may result in an unintended consequence of eliciting concern from others. In this example, NSSI was motivated by the expectancy that it would reduce negative affect, yet the behavior functioned to elicit concern (as well as possibly to reduce negative affect). The function of a behavior is largely influenced by the context in which it occurs; therefore, determining the functions of self-damaging behaviors is best accomplished through idiographic functional assessment instead of self-report. Given these considerations, the term "expectancy" was used in the present study, with the goal of assessing the expected consequences motivating individuals' engagement in self-damaging behaviors.

NSSI. Klonsky (2007) reviewed studies examining individuals' self-reported reasons for engaging in NSSI, as well as affective and environmental antecedents and correlates of the behavior. This review identified seven expectancies for NSSI: (1) affect regulation, or alleviating acute negative affect or aversive affective arousal; (2) anti-

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dissociation, or ending the experience of depersonalization or dissociation; (3) anti-suicide, or replacing, compromising with, or avoiding the impulse to attempt suicide; (4) interpersonal boundaries, or asserting one's autonomy or a distinction between self and other; (5) interpersonal influence, or seeking help from or influencing the behavior of others; (6) self-punishment, or derogating or expressing anger towards oneself; and (7) sensation-seeking, or generating exhilaration or excitement.

Another series of studies on individuals' expectancies for engaging in NSSI classified motivational factors along two orthogonal dimensions: automatic (intrapersonal) vs. social, and positive reinforcement vs. negative reinforcement (e.g., Nock & Prinstein, 2004; Nock et al., 2006; Selby, Nock, & Kranzler, 2014). This taxonomic system yielded four categories: (1) automatic negative reinforcement (e.g., "to stop bad feelings"), (2) automatic positive reinforcement (e.g., "to feel something, even if it was pain"), (3) social negative reinforcement (e.g., "to avoid doing something unpleasant you don't want to do"), and (4) social positive reinforcement (e.g., "to get help," "to get other people to act differently or change"). There is some evidence to suggest that these expectancies are differentially related to psychiatric symptoms; for example, in a sample of adolescent inpatients, reports of engaging in NSSI with the expectation of automatic negative reinforcement (i.e., reduction in undesired affective states) were uniquely associated with MDD-relevant symptoms such as recent suicide attempts and hopelessness, whereas reports of engaging in NSSI with the expectation of automatic positive reinforcement (i.e., feeling generation) were associated with symptoms of both MDD and PTSD (Nock & Prinstein, 2005).

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Recent factor analytic work (Turner, Chapman, & Layden, 2012) examined individuals' self-reported expectancies for NSSI using items from an English translation of the Questionnaire for Non-Suicidal Self-Injury (QNSSI; Kleindeinst et al., 2008) and the Suicide Attempt Self-Injury Interview (SASII; Linehan, Comtois, Brown, Heard, & Wagner, 2006). Five primary motivating factors were identified: (1) emotion relief (e.g., "to relieve feelings of aloneness, emptiness, or isolation"); (2) feeling generation (e.g., "to stop feeling numb or dead"); (3) interpersonal communication (e.g., "to communicate or let others know how desperate I am"); (4) interpersonal influence (e.g., "to get back at or hurt someone"); and (5) self-punishment (e.g., "to punish myself"). Turner and colleagues (2012) found associations between each motive and relevant individual differences; for example, emotion relief and self-punishment motives were associated with heightened negative affect and emotional suppression; feeling generation motives were associated with a lack of emotional clarity; and interpersonal communication and interpersonal influence were associated with higher levels of emotional expressiveness.

While different lines of research have yielded somewhat varied taxonomies of NSSI motives, there seems to be a growing consensus that NSSI behavior is motivated by a number of expectancies that may vary across individuals. Several common expectancies have emerged, such as obtaining relief from negative emotions, generating positive emotions, communicating a need for help, and influencing the behavior of others. Notably, the diagnostic criteria for Nonsuicidal Self-Injury Disorder (included as a "condition for further study" in the DSM-5) requires that an individual engages in self-injurious behavior with one or more of the following expectancies in order to meet diagnostic criteria for the disorder: (1) to obtain relief from a negative feeling or

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cognitive state; (2) to resolve an interpersonal difficulty; or (3) to induce a positive feeling state (APA, 2013).

Eating Disordered Behavior. Although motivational factors contributing to eating disordered behavior have not been examined as directly as motives for NSSI, several lines of research on vulnerability factors and correlates of eating disordered behavior provide information about expectancies that may drive the behavior. In the process of developing and validating the *Eating Disorder Inventory*, Garner, Olmstead, and Polivy (1983) surveyed clinicians who were familiar with the research literature on anorexia nervosa and had experience treating patients with the disorder. Seven of the measure's eight subscales assess psychological constructs that may inform expectancies for eating disordered behavior (the exception, Bulimia, assesses symptoms related to binging and purging behavior): (1) desire for thinness (e.g., "I am preoccupied with the desire to be thinner"); (2) interoceptive awareness (e.g., "I don't know what's going on inside me"); (3) body dissatisfaction (e.g., "I think that my stomach is too big"); (4) ineffectiveness (e.g., "I feel ineffective as a person"); (5) maturity fears (e.g., "I wish that I could return to the security of childhood"); (6) perfectionism (e.g., "I feel that I must do things perfectly or not do them at all"); and (7) interpersonal distrust (e.g., "I have trouble expressing my emotions to others").

Avoidant coping motivations have also been associated with eating disorder symptoms (Anderson et al., 2006), suggesting that eating disordered behavior may be motivated by the expectation of obtaining relief from internal states perceived to be aversive. Other studies have found associations between disordered eating and hypercompetitiveness, or a desire to "be successful at all costs," which may lead women

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to incorporate cultural messages about the desirability of thinness and compare themselves to other women in order to assess their progress toward this cultural ideal (Burckle, Ryckman, Gold, Thornton, & Audesse, 1999). Eating disordered behavior has also been associated with competitive attitudes specific to physical appearance (i.e., a need to feel attractive in comparison to other women); low self-esteem; and exercising for the purposes of improving mood and increasing attractiveness (Burckle et al., 1999; Petrie, Greenleaf, Reel, & Carter, 2009). These findings suggest that expectancies related to emotion regulation, competitiveness, and self-concept may be particularly relevant to eating disordered behavior. Although there is no comprehensive measure of expectancies for eating disordered behavior, the extant literature suggests that the behavior is likely driven by a number of different factors, and that expectancies may vary from individual to individual.

Body-Focused Repetitive Behaviors. Several etiological models have been proposed to account for the development and maintenance of BFRBs. Psychoanalytic approaches conceptualize BFRBs as symbolic representations of unconscious conflicts (Tattersall, 1992), the result of disrupted psychosexual development (Friman, Finney, & Christopherson, 1984), or an effort to cope with real or threatened object loss (Krishan, Davidson, & Guajardo, 1985). There is little empirical data to support these models (Roberts, O'Connor, & Bélanger, 2013).

More recent research has examined the role of emotion regulation in BFRBs. Snorrason et al. (2010) proposed that BFRBs may be motivated by the expectation of obtaining relief from negative emotions, and that emotional relief in turn may reinforce and perpetuate the behavior. In a sample of university students with and without

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problematic skin-picking, negative affective states such as anxiety, tension, or boredom often preceded skin-picking, and these affective states were reduced following the behavior, providing preliminary evidence for an emotional relief expectancy model (Snorrason et al., 2010). In the same sample, emotional reactivity and emotion regulation difficulties were positively associated with clinically significant levels of skin-picking (Snorrason et al., 2010). Similarly, difficulties in affective regulation were positively associated with hair-pulling severity in a large-scale Internet study of individuals with subclinical and clinical levels of hair-pulling, and self-reported difficulties in the regulation of specific emotions predicted the degree to which those emotions triggered hair-pulling episodes (Shusterman, Feld, Baer, & Keuthen, 2009).

Problematic Exercise. To our knowledge, no studies have inquired specifically into individuals' expectancies related to over-exercise and exercise addiction. Mood modification (i.e., expectation of a positive mood change as a result of engaging in exercise behavior) is included as a component of Terry, Szabo, and Griffiths' (2004) model of exercise addiction, so it is possible that problematic exercise may at times be motivated by the expectation that exercise will reduce negative emotions and/or bring about a positive emotional state. Research on exercise in general (i.e., not necessarily problematic exercise) has identified a number of factors motivating exercise behavior, including (1) external regulation (exercising to appease external demands, e.g., "I exercise because my friends and family say I should"); (2) introjected regulation (exercising to avoid negative emotions or support conditional self-worth, e.g., "I feel guilty when I don't exercise"); (3) identified regulation (exercising because one values the benefits associated with physical activity but finds the behavior itself unpleasant, e.g.,

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"I value the benefits of exercise"); and (4) intrinsic regulation (exercising for enjoyment and satisfaction associated with the behavior itself, e.g., "I exercise because it is fun"; Wilson, Rodgers, & Fraser, 2002). Given that mood modification is considered to be a key component of exercise addiction, it is likely that introjected regulation (i.e., exercising to avoid negative emotions and/or bolster conditional self-worth) would be more strongly associated with problematic exercise than other expectancies.

Common Expectancies for Direct and Indirect Self-Damaging Behaviors

Despite limited research on the extent to which direct and indirect self-damaging behaviors may be motivated by common factors, there is considerable overlap in the expectancies thought to motivate these behaviors in isolation. For example, emotion regulation (e.g., obtaining relief from negative affective states, generating positive affective states) has been identified as an expectancy for NSSI (Klonsky, 2007; Nock & Prinstein, 2004; Turner et al., 2012), disordered eating (Anderson et al., 2006), BFRBs (Shusterman, Feld, Baer, & Keuthen, 2009; Snorrason et al., 2010), and problematic exercise (Terry et al., 2004; Wilson et al., 2002). A number of interpersonal expectancies have also been identified for NSSI and disordered eating, such as a desire to assert interpersonal boundaries, communicate to others, and/or influence others' behavior (Garner, Olmstead, & Polivy, 1983; Klonsky, 2007; Nock & Prinstein, 2004; Turner et al., 2012). To our knowledge, the extent to which BFRBs and problematic exercise may be motivated by interpersonal expectancies has not been examined. However, it is plausible that some of these behaviors may be motivated by interpersonal expectancies; for example, problematic exercise could be motivated by the desire to affirm the

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boundaries of one's self and body in relation to others, given the intense physical sensations involved in the behavior.

One study of common motives for self-damaging behaviors (Hamza, Willoughby, & Good, 2013) assessed expectancies for NSSI, binge eating, food restriction, exercise, nail-biting, smoking, alcohol and marijuana use, physical aggression, and problematic shopping in a large sample of university students ($N = 1107$) with and without NSSI. Researchers asked participants to report the extent to which their engagement in each self-damaging behavior was motivated by six commonly endorsed expectancies for NSSI: affect regulation, anti-dissociation, self-punishment, interpersonal boundaries, interpersonal influence, and peer bonding (Klonsky & Glenn, 2009).

While both groups (with vs. without NSSI) reported engagement in a number of self-damaging behaviors in effort to regulate emotional and social experiences, individuals with NSSI were more likely than those without NSSI to report engagement in alcohol use, smoking, binge eating, and food restriction with expectancies related to affect regulation, anti-dissociation, self-punishment, interpersonal boundaries, interpersonal influence, and peer bonding. Individuals with NSSI were also more likely than those without NSSI to report exercising with the goal of anti-dissociation; however, no significant differences emerged between individuals with and without NSSI on any other expectancies for exercise. These preliminary data suggest that direct and indirect self-damaging behaviors may be motivated by common expectancies; however, no comprehensive studies to date have assessed expectancies that may be shared across a broad range of direct and indirect self-damaging behaviors.

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Present Study

The present study builds on existing research by examining the extent to which direct and indirect self-damaging behaviors are motivated by a variety of expectancies drawn from the theoretical and empirical literature on each of these behaviors. Specifically, we sought to develop a self-report measure to assess the frequency of, and individuals' expectancies for, NSSI, disordered eating, BFRBs, and problematic exercise. While existing self-report questionnaires allow for measurement of these behaviors in isolation, no comprehensive measure allows for assessment of the extent to which these behaviors co-occur in the same individuals. Furthermore, while some existing measures assess expectancies related to each of these behaviors, the expectancies assessed vary widely across measures. And, even though the same (or similar) expectancies are included across multiple measures of behaviors in isolation, no current measure allows for the concurrent assessment of expectancies that may be shared across a number of direct and indirect self-damaging behaviors. Such a measure would pave the way for further research investigating direct and indirect self-damaging behaviors in connection to clinical disorders and public health outcomes. This would also enhance connections between basic and applied research on these behaviors, and could inform the development of targeted, transdiagnostic interventions to address common expectancies that are shared across behaviors.

Additionally, knowledge about the expectancies underlying self-damaging behaviors can be used to improve the precision of taxonometric systems used to classify these behaviors. For example, skin-picking is considered a form of NSSI (Klonsky, 2011), and is consistent with current conceptualizations of NSSI, as it is a conscious

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action that results in tissue damage to the body (Gratz, Andover, Lewis, & Washburn, 2019). However, the repetitive and frequent nature of skin-picking and other BRFBs has led researchers to conceptualize them as behaviors that may occur automatically (i.e., without reflective awareness; Snorrason et al., 2012), and researchers have suggested that the expectancies motivating skin-picking may differ from those motivating more severe forms of NSSI (e.g., cutting, burning; Gratz et al., 2019). For example, a person might deliberately choose to engage in a more severe form of NSSI, such as cutting or burning, with the conscious expectation of punishing oneself, ending a state of numbness or dissociation, or coping with urges to attempt suicide. Conversely, factors such as implicit perceptions of low control or a general sense that engaging in a behavior leads to a reduction in feelings such as anxiety or boredom may be more relevant for overlearned behaviors. Thorough examination of the expectancies motivating skin-picking, as well as more severe forms of NSSI, can inform the development and selection of treatments targeted toward the expectancies that are most relevant for each behavior.

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Chapter Two

Methods

The goal of this study was to develop a self-report measure to assess the frequency of, and individuals' expectancies for, direct and indirect self-damaging behaviors, with a specific focus on behaviors that have an immediate or longer-term impact on the body and low to medium potential for lethality. Specifically, the measure was designed to assess the frequency of and expectancies for nonsuicidal self-injury (NSSI), eating disordered behavior (i.e., food restriction, binging, purging,), body-focused repetitive behaviors (BFRBs; i.e., hair-pulling, skin-picking), and problematic exercise. The development of this scale occurred in several phases.

Phase 1: Development of Scale Content

In the first phase of scale development, scale content was generated. First, the specific behaviors to be assessed were determined. Eating disordered behavior was separated into three categories (food restriction, binging, and purging), based on theory-driven predictions that each behavior would be motivated by distinct expectancies. BFRBs were separated into two categories (hair-pulling/severe nail-biting and skin-picking). Given that skin-picking is considered a form of NSSI by many researchers (e.g., Gratz et al., 2019; Klonsky, 2011), this behavior was assessed separately in order to examine its associations with expectancies for NSSI and other BFRBs. As a result, seven behaviors of interest were included in the measure: NSSI, food restriction, binging, purging, problematic exercise, hair-pulling/severe nail-biting, and skin-picking.

Next, items were developed to assess the frequency of each behavior of interest. These items asked respondents to indicate for each behavior that occurred during the past

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year whether the behavior occurred on a daily, weekly, monthly or yearly basis. Respondents were asked to indicate the average number of times the behavior occurred during the time period they selected (i.e., "# times per day/week/month/year).

Items were then generated to assess expectancies for the behaviors of interest. These items asked respondents to indicate the extent to which each behavior was driven by a variety of expectancies on a 7-point Likert-type scale (1=Never [0%], 2=Almost never [1-10%], 3=Sometimes [11-35%], 4=About half the time [36-35%], 5=Most of the time [66-90%], 6=Almost always [91-99%], 7=Always [100%]). Respondents were asked to complete the items assessing expectancies for all behaviors that occurred within the past year. Items assessing expectancies were informed by the theoretical and empirical literature on each of the behaviors of interest, as well as existing measures of expectancies for these behaviors, when such measures existed (e.g., the Questionnaire for Nonsuicidal Self-Injury [Kleindeinst et al., 2008]; the Clinician-Administered Nonsuicidal Self-Injury Disorder Index [Gratz, Dixon-Gordon, Chapman, & Tull, 2015]; the Eating Disorder Inventory [Garner, Olmstead, & Polivy, 1983]; and the Behavioral Regulation in Exercise Questionnaire [Mullen, Markland, & Ingledew, 1997]).

Items assessing the following expectancies were included in the initial draft of the measure: (1) to decrease or distract from negative emotions; (2) to decrease or distract from positive emotions; (3) to counteract feelings of numbness; (4) to experience emotions more fully (e.g., to "feel alive"); (5) to generate positive emotions (e.g., to get a "rush" or "high"); (6) to decrease/distract from unpleasant physical sensations; (7) to punish oneself; (8) to establish a sense of control/order; (9) to establish a sense of mastery over the body; (10) to avoid or distract from urges to engage in a behavior that

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might be more damaging (e.g., a suicide attempt or other impulsive behavior); (11) to reaffirm interpersonal boundaries or a coherent sense of self; (12) to influence others' thoughts, behaviors, or emotions in some way; (13) to communicate to others; (14) to feel close to others; (15) to gain approval from others; (16) to have a physical representation of psychological pain; and (17) to "purify" oneself or make oneself "better" in some way. Five to ten items related to each expectancy were generated, resulting in an initial draft of the measure containing 175 expectancy items.

After preparing an initial draft of instructions, items, and response scales, we sought feedback on the measure from four established researchers with expert knowledge on one or more of the behaviors of interest. Expert reviewers were asked to comment on the scale overall, suggest any additional behaviors or expectancies to be included, and note any behaviors or expectancies that were problematic or redundant. Experts were also asked to review each item and rate its clarity and relevance to the overall measure on 5-point Likert-type scales (1=Not at all clear/Not at all relevant; 3=Somewhat clear/Somewhat relevant; 5=Completely clear/Completely relevant). Finally, experts were asked to indicate whether each item should be included in the measure (Yes/No). Items that one or more expert reviewers indicated should not be included in the measure, as well as items rated 3 or lower on clarity and/or relevance, were considered for revision or removal from the scale. These revisions resulted in a preliminary version of the measure for pilot testing that contained 167 expectancy items.

Phase 2: Pilot Testing

This preliminary version of the *Expectancies for Body-Focused Coping Questionnaire* (EBCQ) was administered to a small sample of undergraduate students (*n*

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= 11), with extensive in-person debriefings to ensure the clarity of instructions, items, and response scales (see Peterson, Peterson, & Powell, 2017). A Cognitive Interviewing procedure (Peterson et al., 2017) was used in this phase. Cognitive Interviewing is a procedure commonly used in scale development to identify sources of confusion in scale items and assess construct validity based on the response process. The primary goal of using Cognitive Interviewing in this phase was to identify items where there was a discrepancy between the scale developers' intentions and respondents' interpretations.

In the "think-aloud" phase of the Cognitive Interviewing procedure, respondents were asked to describe their thoughts out loud as they answered each item. Given that verbalizing one's thoughts may feel unfamiliar, participants completed a training prompt prior to the think-aloud procedure in which they were asked to describe their thoughts while visualizing and counting the number of windows in their home (Peterson et al., 2017). Then, after the participant verbalized their thoughts in response to each EBCQ item, the interviewer followed up as needed with verbal probes designed to elicit additional information regarding potential areas of confusion.

Pilot participants were also asked to rate the clarity of each item on a 5-point Likert-type scale (1=Not at all clear; 3=Somewhat clear; 5=Completely clear). Participants were also asked two open-ended questions: "Were you able to maintain your focus as you were completing this questionnaire?" and "Do you have any additional comments on the questionnaire overall?". Items rated 3 or lower on clarity were considered for revision or removal from the scale. These modifications resulted in a revised measure containing 165 expectancy items. A majority of pilot participants (91%) reported that they were able to maintain focus while completing the questionnaire.

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Phase 3: Factor Structure and Establishment of Psychometric Properties

Participants.

Sample 1. Using the scale development procedures and sample size guidelines recommended by Clark and Watson (1995), the EBCQ was administered to a large sample of undergraduates recruited from psychology undergraduate participant pools at the University of Toledo (n = 221) and University of Massachusetts-Amherst (n = 277). Given widespread use of undergraduate samples in personality and clinical studies, this strategy allowed for the evaluation of characteristics of the measure in a context in which it is likely to be used. Undergraduate students enrolled in introductory psychology classes completed a brief screening questionnaire regarding past-year engagement in each of the behaviors of interest to the study. Students were asked to indicate whether they engaged in the behavior "Never," "One time," "2-5 times," or "More than 5 times" in the past year. Those who endorsed NSSI, food restriction, binging, purging, problematic exercise, hair-pulling, or skin-picking at least one time in the past year were invited through the university's SONA system to complete the EBCQ and a battery of measures intended to assess convergent and divergent validity. Interested students signed up to participate in the study and received course credit through the university's SONA system. A subset of participants (n = 194) completed the EBCQ again two weeks later to examine the test-retest reliability of the measure. All participants were compensated with course credit.

After removing participants with invalid data (see below), the final sample of participants (n = 349) ranged in age from 18 to 44 years (M = 19.8, SD = 2.51). A majority of participants were female (75.4%) and White (75.4%), though a range of racial/ethnic backgrounds were represented (8.9% Native American; 2.6% Black; 13.2%

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Asian; 4.3% Latinx; 5.4% Middle Eastern; 2.6% Other). Most participants (71.6%) were single, and a majority (61.1%) reported completing at least some college/university education. Additional demographic information is presented in Table 2. There was a significant difference in age between sites: participants at the University of Toledo site were significantly younger than participants at the University of Massachusetts-Amherst site, $t(346) = -3.45$, $p = .001$. There were also significant differences in the racial/ethnic composition of samples, with a greater proportion of participants at the University of Toledo site identifying as White, $\chi^2(1) = 7.60$, $p = .006$, and a greater proportion of participants at the University of Massachusetts-Amherst site identifying as Latinx, $\chi^2(1) = 10.65$, $p = .001$ and Middle Eastern, $\chi^2(1) = 8.28$, $p = .004$. There were no between-site differences in gender, $\chi^2(3) = 2.13$, $p = .546$.

Sample 2. In order to evaluate the psychometric properties of the measure in a more demographically and clinically diverse sample, the EBCQ was administered to a large and heterogeneous community sample ($n = 584$) of individuals recruited through Amazon Mechanical Turk (MTurk). Previous research has demonstrated that the prevalence of depression, anxiety, and trauma exposure among MTurk workers matches or exceeds the general population prevalence of these conditions, allowing researchers to access individuals with a range of symptom severity comparable to that of the general population (Shapiro, Chandler, & Mueller, 2013). To enhance data quality and ensure English-language fluency in our sample, we restricted participation to experienced MTurk workers (those who have completed over 5,000 assignments) with high reputations (over 95% approval ratings) living in the U.S. Research has shown that MTurk workers who have high reputations (i.e., over 95% approval ratings) and are more

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experienced (i.e., at least 500 assignments completed) produce higher quality data compared to MTurk workers with lower reputations and who are less experienced (Peer, Vosgerau, & Acquisti, 2014). A more conservative criterion for experience (i.e., over 5,000 assignments) was used for this study, given that the increasing number of MTurk workers over the past several years has resulted in a greater number of individuals who have completed a large number of assignments being available for recruitment.

Participants completed a brief screening questionnaire regarding past-year engagement in behaviors of interest to the study. Participants who endorsed NSSI, food restriction, binging, purging, problematic exercise, hair-pulling, or skin-picking at least once in the past year were asked to complete the EBCQ and a battery of measures intended to assess convergent and divergent validity. The final sample of participants ranged in age from 18 to 87 years (M = 38.9, SD = 12.07). A majority of participants were female (61.6%) and White (79.7%), though a range of racial/ethnic backgrounds were represented (10.4% Native American; 1.8% Black; 5.4% Asian; 4.0% Latinx; 2.7% Middle Eastern; 0.2% Other). Most participants were married (43.8%) or single (28.2%), and a majority (68.4%) had completed at least some college education. Additional demographic information is presented in Table 2. Participants were compensated $3 for the approximately 90-minute survey.

Quality Assurance. Given that data collection was conducted online for Phase 3, we instituted several precautions to ensure the quality of our data: (a) excluding participants who failed to respond accurately to objectively verifiable questions; (b) excluding participants whose responses to open-ended "attention check" questions (e.g., "Please briefly describe what you see in front of you" were nonsensical; (c) excluding

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participants who completed the surveys at a pace faster than one-third of the median response time; and (d) instructing respondents that response patterns would be monitored in order to detect random responding (Cheung, Burns, Sinclair, & Sliter, 2017; Goodman, Cryder, & Cheema, 2013; Huang, Curran, Keeny, Poposki, & DeShon, 2012; Meade & Craig, 2012). In Sample 1, the proportion of missing values for expectancy items (i.e., instances in which a participant endorsed a behavior and then did not complete all expectancy items for that behavior) were as follows: 23.6% for NSSI, 31.1% for food restriction, 26.0% for binging, 25.0% for purging, 24.2% for problematic exercise, 30.1% for hair-pulling/severe nail-biting, and 30.0% for skin-picking. In Sample 2, the proportion of missing values for expectancy items were as follows: 6.4% for NSSI, 7.0% for food restriction, 8.3% for binging, 8.5% for purging, 6.4% for problematic exercise, 8.2% for hair-pulling/severe nail-biting, and 8.2% for skin-picking.

Convergent Measures. Convergent validity of the measure was assessed by examining its associations with the following theoretically related constructs.

Expectancies for nonsuicidal self-injury. Expectancies related to NSSI were assessed with an English translation (Turner et al., 2012) of *the Questionnaire for Non-Suicidal Self-Injury* (QNSSI; Kleindienst et al., 2008), supplemented with 12 items from the *Suicide Attempt Self-Injury Interview* (SASII; Linehan, Comtois, Brown, Heard, & Wagner, 2006). Past factor analytic work using these items has found that the 22 QNSSI and SASII items assessing expectancies for NSSI yield five reliable subscales: emotion relief, feeling generation, interpersonal communication, interpersonal influence, and self-punishment (Turner et al., 2012). Subscales assessing specific motives for NSSI have been associated with theoretically related constructs; for example, self-reported emotional

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relief motives have been associated with intense affectivity and lack of access to emotion regulation strategies, and self-reported feeling generation motives have been associated with a lack of emotional clarity (Turner et al., 2012). Internal consistency for the five subscales was adequate in Sample 1 (αs = .80-.96) and Sample 2 (αs = .70-.92).

Expectancies for exercise. The *Behavioral Regulation in Exercise Questionnaire* (BREQ; Mullen, Markland, & Ingledew, 1997) was used to assess expectancies for exercise through four subscales: (1) external regulation (exercising to appease external demands, e.g., "I exercise because my friends and family say I should"); (2) introjected regulation (exercising to avoid negative emotions or support conditional self-worth, e.g., "I feel guilty when I don't exercise"); (3) identified regulation (exercising because one values the benefits associated with physical activity but finds the behavior itself unpleasant, e.g., "I value the benefits of exercise"); and (4) intrinsic regulation (exercising for enjoyment and satisfaction associated with the behavior itself, e.g., "I exercise because it is fun"; Wilson, Rodgers, & Fraser, 2002). Subscales assessing self-determined motives for exercise (i.e., identified regulation, intrinsic regulation) have been associated with greater perceived behavioral control over exercise habits (Wilson et al., 2002), and identified regulation has been shown to predict the frequency of exercise behavior more strongly than the measure's other subscales (Wilson, Sabiston, Mack, & Blanchard, 2012). Internal consistency for the four subscales was adequate in Sample 1 (αs = .83-.94) and Sample 2 (αs = .83-.92).

Body regard. Four scales from the *Body Attitudes Scale* (BAS; Walsh, 1999) were used to measure the multidimensional construct of body regard: body integrity, attractiveness, health, and effectiveness. The four subscales have demonstrated

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acceptable internal consistency in previous research (all αs > .80, with the exception of the health subscale [α = 0.69]; Muehlenkamp et al., 2013). These subscales have been used in prior research examining body attitudes among adolescents who engage in NSSI (Walsh, 2006). Furthermore, overall body regard has been shown to moderate the relationship between emotion dysregulation and NSSI in a large sample of undergraduates, such that emotion regulation was associated with NSSI only when body regard was low (Muehlenkamp et al., 2013). Internal consistency for the four subscales was adequate in Sample 1 (αs = .75-.88) and Sample 2 (αs = .70-.85).

Emotion dysregulation. The *Difficulties in Emotion Regulation Scale* (DERS; Gratz & Roemer, 2004) was used to assess putatively maladaptive responses to emotions. The measure consists of six factor-analytically derived subscales: non-acceptance of negative emotions, inability to engage in goal-directed behaviors when experiencing negative emotions, difficulties controlling impulsive behavior when experiencing negative emotions, limited access to emotion regulation strategies perceived to be effective, lack of emotional awareness, and lack of emotional clarity. Higher scores indicate higher levels of emotion dysregulation. The DERS demonstrates good test-retest reliability and construct and predictive validity, and is significantly associated with objective measures of emotion regulation (Gratz, Bornovalova, Delany-Brumsey, Nick, & Lejuez, 2007; Gratz & Roemer, 2004; Gratz, Rosenthal, Tull, Lejuez, & Gunderson, 2006; Gratz & Tull, 2010; Vasilev, Crowell, Beauchaine, Mead, & Gatzke-Kopp, 2009). Overall DERS scores have also demonstrated associations with NSSI (Armey & Crowther, 2008) and eating disordered behavior (Whiteside et al., 2007). Internal consistency was adequate in Sample 1 (α = .95) and Sample 2 (α = .96).

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Positive emotion dysregulation. Putatively maladaptive responses to positive emotions were assessed using the *Difficulties in Emotion Regulation Scale—Positive* (DERS-P; Gratz, 2002; Weiss, Gratz, & Lavender, 2015). This measure was modeled after the original DERS, with items modified to assess difficulties stemming from the experience of positive emotions (vs. negative emotions). The measure assesses putatively maladaptive responses to positive emotions in three domains: (a) nonacceptance of positive emotions, (b) inability to engage in goal-directed behaviors when experiencing positive emotions, and (c) difficulties controlling impulsive behaviors when experiencing positive emotions. Higher scores indicate higher levels of positive emotion dysregulation. The DERS-P demonstrates good internal consistency for the full measure and its three subscales (αs = .83 - .90), and factor analyses have supported a three-factor structure, with the three subscales assessing distinct yet related constructs (Weiss et al., 2015). Positive emotion dysregulation has been associated with negative emotion dysregulation, higher intensity/reactivity of positive emotions, greater use of maladaptive coping strategies such as experiential avoidance and dissociation, and low emotional expressivity (Weiss et al., 2015). Internal consistency was adequate in Sample 1 (α = .89) and Sample 2 (α = .97).

Impulsivity. Trait impulsivity was assessed using the *UPPS-P Impulsive Behavior Scale* (UPPS-P; Lynam, Smith, Whiteside, & Cyders, 2006). This measure is a combination of the UPPS-R (Whiteside & Lynam, 2001) and the PUM (Cyders et al., 2007), and assesses five personality pathways contributing to impulsive behavior: negative urgency, lack of perseverance, lack of premeditation, sensation-seeking, and positive urgency. Initial estimates of internal consistency for the UPPS-R and PUM

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found αs > .80 for all subscales (Cyders & Coskunpinar, 2011). Factor analyses have supported the presence of five separate, yet related first-order factors, with three higher-order factors reflecting deficits in conscientiousness (including lack of premeditation and lack of perseverance), sensation-seeking, and urgency (including positive and negative urgency; Cyders & Coskunpinar, 2011). Higher scores indicate higher levels of impulsivity. The UPPS-P has been associated with NSSI (Lynam, Miller, Miller, Bornovalova, & Lejuez, 2011), eating disordered behavior (Dir, Karyadi, & Cyders, 2013), and over-exercise (Kotbagi, Morvan, Romo, & Kern, 2017). Internal consistency for the five subscales was adequate in Sample 1 (αs = .82-.93) and Sample 2 (α = .88-.95).

Perfectionism. Perfectionism was assessed using the *Perfectionism Inventory* (PI; Hill et al., 2004). The measure assesses eight components of perfectionism: concern over mistakes, high standards for others, need for approval, organization, parental pressure, planfulness, rumination, and striving for excellence. The measure's eight subscales demonstrate good internal consistency (*α*s = .83-.91) and test-retest reliability (*r*s = .71-.91) over a three- to six-week interval, and factor analyses have supported a model with eight first-order factors representing each of the eight subscales, as well as two higher-order factors representing conscientious perfectionism and self-evaluative perfectionism (Hill et al., 2004). Higher scores indicate higher levels of perfectionism. The measure's subscales demonstrate convergent validity with other measures of perfectionism; for example, the Striving for Excellence subscale has demonstrated strong correlations with other measures of high standards for self and others (Hill et al., 2004). Internal consistency was adequate in Sample 1 (α = .95) and Sample 2 (α = .96).

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Anxiety sensitivity. The *Body Vigilance Scale* (BVS; Schmidt, Lerew, & Trakowski, 1997) was used to measure the tendency to consciously attend to internal anxiety-related cues (e.g., increased heart rate, shortness of breath, nausea). Respondents are asked to answer three questions related to their sensitivity to internal bodily sensations in general, and then to rate their typical level of attention to 15 specific bodily sensations. The measure demonstrates good psychometric properties, including adequate test-retest reliability (*r*s = .58 - .69) and internal consistency (αs = .74 - .84), in samples of individuals with anxiety disorders as well as nonclinical controls. Higher scores on the measure have been associated with heightened anxiety sensitivity and anxiety disorder symptoms (Schmidt et al., 1997). The BVS demonstrates stronger associations with panic disorder, relative to other anxiety disorders; and is associated with healthcare utilization and health-related safety-seeking behaviors in nonclinical and anxiety disorder samples (Olatunji, Deacon, Abramowitz, & Valentiner, 2007). Internal consistency was adequate in Sample 1 (α = .94) and Sample 2 (α = .96).

Interpersonal difficulties. The *Inventory of Interpersonal Problems* (IIP; Horowitz et al., 1988) was used to assess interpersonal problems related to personality pathology. Each item focuses on an interpersonally relevant behavioral deficit (e.g., "It is hard for me to trust other people") or behavioral excess (e.g., "I am too sensitive to criticism"). The measure assesses interpersonal difficulties in six domains: (a) difficulties in assertiveness; (b) difficulties with sociability; (c) difficulties with intimacy; (d) hostility; (e) excesses in responsibility; and (f) controlling others. The measure's subscales demonstrate good internal consistency (αs = .80-.94) and test-retest reliability (*r*s = .80-.87 over a 10-week interval; Barkham et al., 1994; Horowitz et al., 1988).

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Higher scores reflect greater interpersonal difficulties. Elevations in interpersonal problems have been associated with symptoms of personality pathology including borderline, narcissistic, avoidant, dependent, and obsessive-compulsive personality disorders (Bateman & Fonagy, 1999; Pilkonis, Kim, Proietti, & Barkham, 1996). Internal consistency was adequate in Sample 1 (α = .89) and Sample 2 (α = .94).

Borderline personality disorder (BPD) symptoms. *The Borderline Evaluation of Severity over Time* (BEST; Pfohl et al., 2009) was used to assess BPD symptoms. The BEST assesses symptom severity or degree of impairment from each of the nine *DSM-IV* BPD symptom criteria over the past month. The measure has adequate internal consistency (*α*s = .86-.92) and test-retest reliability (*r* = .62; Pfohl et al., 2009). The measure has demonstrated associations with clinician-administered assessments of BPD symptoms, as well as sensitivity to clinically relevant changes in symptoms (Gratz & Gunderson, 2006; Gratz & Tull, 2011; Pfohl et al., 2009). Higher scores reflect a greater number of BPD symptoms. Internal consistency was adequate in Sample 1 (α = .86) and Sample 2 (α = .93).

Mood and anxiety symptoms. The *Mood and Anxiety Symptom Questionnaire – Short Form* (MASQ-62; Watson & Clark, 1991) was used to assess depression and anxiety symptoms related to general distress, as well as anxiety-specific symptoms of anxious hyperarousal and depression-specific symptoms of low positive affect and loss of interest. The subscales demonstrate good reliability and construct validity in student, adolescent, adult, and clinical samples, and factor analyses have typically yielded three-factor solutions (with factors representing symptoms of general distress, anxious arousal, and anhedonia) that correspond to the measure's conceptually derived subscales (Buckby,

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Yung, Cosgrave, & Killackey, 2007; Fresco, Heimberg, Mennin, & Turk, 2002; Keogh & Reidy, 2000; Watson et al., 1995a; Watson et al., 1995b). Higher scores reflect greater mood and anxiety symptoms. Internal consistency for the four subscales was adequate in Sample 1 (αs = .88-.95) and Sample 2 (αs = .91-.96).

Posttraumatic stress symptoms. Trauma history was assessed using the *Life Experiences Checklist* (LEC; Gray, Litz, Hsu, & Lombardo, 2004), which assesses lifetime exposure to potentially traumatic events. The measure includes 16 specific events and space to report other events. The *PTSD Checklist-Civilian* (PCL-5; Weathers, Litz, Herman, Huska, & Keane, 1994) was used to assess the severity of DSM-5 PTSD symptoms of re-experiencing, affective/cognitive disturbance, avoidance, and arousal. The measure demonstrates good internal consistency (*α*s = .85-.94) and test-retest reliability (*r*s = .68-.92), as well as associations with other measures of PTSD symptoms (Ruggiero, Del Ben, Scotti, & Rabalais, 2003), and has been updated to reflect DSM-5 PTSD symptoms (Blevins, Weathers, Davis, Witte, & Domino, 2015). Higher scores indicate greater PTSD symptom severity. Internal consistency was adequate in Sample 1 (α = .97) and Sample 2 (α = .97).

Skin-picking. Problematic skin-picking was assessed with the *Skin Picking Scale-Revised* (SPS-R; Snorrason et al., 2012), an 8-item revision of the *Skin Picking Scale* (Keuthen et al., 2001). The scale assesses the frequency and intensity of skin-picking urges, frequency of skin-picking behavior, perceived control over skin-picking, and emotional distress and functional impairment related to skin-picking. Items are rated on a 0 to 4 scale (0 = No urges/minimal or no intensity of urges/no time spent skin-picking per day/complete control over skin-picking/no emotional distress from skin-picking/no

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interference from skin-picking/no skin damage; 4 = constant or almost constant urges/extreme intensity of urges/more than 8 hours per day spent skin-picking/no control over skin-picking/constant emotional distress/extreme interference/extreme skin damage) and summed to generate an overall score, with higher scores indicating greater severity of skin-picking. Exploratory and confirmatory factor analyses on scale items identified two distinct yet related subscales: symptom severity and functional impairment. The overall measure and subscales have demonstrated good internal consistency (αs = .81-.86). Both subscales demonstrate associations with relevant measures of convergent validity, including depression, anxiety, and functional impairment (Snorrason et al., 2012). Internal consistency was adequate in Sample 1 (α = .92) and Sample 2 (α = .96).

Hair-pulling. Problematic hair-pulling was assessed with the *Massachusetts General Hospital Hairpulling Scale* (MGH-HS; Keuthen et al., 1995). The scale assesses urges related to hair-pulling, frequency of hair-pulling behavior, perceived control over hair-pulling, and distress associated with hair-pulling. Items are rated on a 0 to 4 scale (0 = no urges/complete control over urges/no hair-pulling/no distress; 4 = extreme urges/never able to distract from urges/near-constant hair-pulling/intense distress) and summed to generate an overall score, with higher scores indicating greater severity of hair-pulling. The MGH-HS has demonstrated good internal consistency, test-retest reliability, convergent and divergent validity, and sensitivity to change in hair-pulling symptoms (O'Sullivan et al., 1995; Rabiei et al., 2013). Internal consistency was adequate in Sample 1 (α = .84) and Sample 2 (α = .95).

Exercise addiction. *The Exercise Addiction Inventory* (EAI; Terry, Szabo, & Griffiths, 2004) was used to assess facets of exercise addiction, including salience

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(exercise becomes the most important thing in a person's life and dominates their thinking), mood modification (positive mood change as a result of exercise), tolerance, withdrawal, interpersonal/intrapersonal conflict related to exercise behavior, and repeated reversions to earlier patterns of exercise. Items are rated on a 5-point Likert-type scale (1=Strongly disagree; 3=Neither agree nor disagree; 5=Strongly agree), with higher scores indicating more symptoms of exercise addiction. The measure demonstrates good split-half (r = .84) and test-retest reliability (r = .85) and has demonstrated associations with weekly frequency of exercise behavior (Griffiths, Szabo, & Terry, 2005). Internal consistency was adequate in Sample 1 (α = .82) and Sample 2 (α = .89).

Beliefs about interpersonal belongingness and burdensomeness. *The Interpersonal Needs Questionnaire* (INQ; Van Orden, Witte, Gordon, Bender, & Joiner, 2008) was derived from the interpersonal-psychological theory of suicide and measures individuals' beliefs about the extent to which they feel connected to others (i.e., thwarted belongingness) and the extent to which they feel like a burden on people in their lives (i.e., perceived burdensomeness). Both subscales have demonstrated good internal consistency (αs = 85-.89), and factor analytic work has demonstrated that thwarted belongingness and perceived burdensomeness are related yet separable constructs (Van Orden, et al., 2008; Van Orden, Cukrowicz, Witte, & Joiner, 2012). The INQ has demonstrated unique associations with suicidal ideation over and above age, gender, and current depressive symptoms; as well as associations with NSSI and eating disordered behaviors (Assavedo & Anestis, 2016; Dodd, Smith, & Bodell, 2014; Van Orden et al., 2008). Internal consistency for the two subscales was adequate in Sample 1 (α = .91-.97) and Sample 2 (α = .91-.96).

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Acquired capability for suicide. The *Acquired Capability for Suicide Scale* (ACSS; Van Orden, Witte, Gordon, Bender, & Joiner, 2008) was derived from the interpersonal-psychological theory of suicide and measures the degree to which an individual perceives themself to be capable of carrying out and/or exposing themself to potentially dangerous situations, including suicidal behavior. The measure has demonstrated adequate internal consistency across multiple studies (αs = .67-.88; Bryan, Cukrowicz, West, & Morrow, 2010; Smith, Cukrowicz, Poindexter, Hobson, & Cohen, 2010; Van Orden et al., 2008; Witte, Gordon, Smith, & Van Orden, 2012). The ACSS has demonstrated associations with other self-report measures of fearlessness about self-injury and past suicide attempts, as well as associations with NSSI and over-exercise (Smith et al., 2013; Willoughby, Heffer, & Hamza, 2015; Van Orden, Witte, Gordon, Bender, & Joiner, 2008). Internal consistency was adequate in Sample 1 (α = .82) and Sample 2 (α = .85).

Divergent Measures.

Response bias. The *Marlowe-Crowne Social Desirability Scale* (MCSDS; Crowne & Marlowe, 1960), was used to assess whether responses to self-report measures may have been related to participants' desire for positive self-presentation. In the MCSDS, respondents rate descriptions of themselves that are positive yet unlikely to be accurate. Higher scores indicate a greater response bias toward positive self-presentation. The MCSDS has been shown to have adequate reliability and validity (Crowne & Marlowe, 1960). Internal consistency was poor in Sample 1 (α = .56) and adequate in Sample 2 (α = .89).

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Chapter Three

Results

Data Management

Data from both samples were examined for invalid responses. Participants whose responses included incorrect answers to objectively verifiable items or nonsensical responses to open-ended questions, or who completed the surveys faster than one-third of the median response time, were excluded from analyses (n = 149 in Sample 1; n = 141 in Sample 2). This resulted in final sample sizes of n = 349 for Sample 1, n = 120 for test-retest reliability analyses in Sample 1, and n = 443 for Sample 2.

Prevalence and Frequency of Engagement in Self-Damaging Behaviors

In Sample 1, 20.6% of participants endorsed NSSI in the past year; 51.9% endorsed food restriction; 32.4% endorsed binging; 6.5% endorsed purging; 17.2% endorsed problematic exercise; 12.9% endorsed hair-pulling/severe nail-biting; and 34.4% endorsed skin-picking. In the same sample, 24.6% of participants endorsed one self-damaging behavior in the past year; 19.2% endorsed two behaviors; 14.9% endorsed three behaviors; 7.4% endorsed four behaviors; 5.2% endorsed five behaviors; and 1.4% endorsed six behaviors. Endorsement of each self-damaging behavior in the sample was significantly associated with endorsement of at least one other self-damaging behavior, χ^2s(1) > 22.00, ps < .001. In Sample 2, 45.4% of participants endorsed NSSI in the past year; 74.0% endorsed food restriction; 56.9% endorsed binging; 36.3% endorsed purging; 48.8% endorsed problematic exercise; 39.3% endorsed hair-pulling/severe nail-biting; and 67.0% endorsed skin-picking. In the same sample, 15.8% endorsed one self-damaging behavior in the past year; 18.7% endorsed two behaviors; 14.9% endorsed

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three behaviors; 14.2% endorsed four behaviors; 11.7% endorsed five behaviors; 6.1% endorsed six behaviors; and 16.7% endorsed seven behaviors. Endorsement of each self-damaging behavior in the sample was significantly associated with endorsement of at least one other self-damaging behavior, χ^2s(1) > 38.48, *p*s < .001. Additional demographic information for both samples is presented in Table 2.

Participants' frequency of engagement in each of the behaviors of interest over the past year was estimated using two items per behavior from the EBCQ that asked participants how often they typically engaged in a behavior, and over what time frame (day, week, month, or year). For example, if a participant reported engaging in NSSI 2 times per week over the past year, it would be estimated that the participant had approximately 2 * 52 weeks = 104 NSSI episodes in the past year. Because behavior frequencies were not normally distributed, relations among behaviors were assessed using Spearman rank-order correlations.

In the undergraduate sample, NSSI, food restriction, and binging were significantly associated with five or more other behaviors of interest; problematic exercise and hair-pulling/severe nail-biting were associated with four other behaviors of interest; and purging and skin-picking were associated with three other behaviors. In Sample 2, each behavior demonstrated significant associations with all other behaviors, with the exception of the nonsignificant relation between food restriction and skin-picking (see Table 3 and Appendix B).

Factor Analyses

Because the large number of expectancy items in the overall scale (165 items x 7 behaviors = 1,115 items) relative to our sample sizes did not allow for an exploratory

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factor analysis (EFA) of all items and behaviors concurrently, two different approaches were used to examine the factor structure of expectancy items (J. Lavender, personal communication, May 20, 2019; G. Meyer, personal communication, May 26, 2019; see also Clark & Watson, 1995; Rushton, Brainerd, & Pressley, 1983). In the first approach, seven separate EFAs were conducted within each behavior (i.e., only using expectancy items that assessed NSSI, food restriction, binging, purging, problematic exercise, hair-pulling, and skin-picking, respectively). Several of these analyses returned "matrix not positive definite" errors, indicating that the validity of EFA results would be questionable due to the limited sample size and strong linear dependencies among items. Though items with strong linear dependencies (n = 50; 30.3%) could have been removed from the EFAs in order to improve validity, this would not have been ideal because removing these items would have significantly reduced the content coverage of the overall scale. Moreover, because the items with strong linear dependencies differed across behaviors, removing these items would have resulted in a scale that was different for each behavior, while the goal of the study was to develop a scale to assess common expectancies that are shared across a range of self-damaging behaviors.

In the second approach, the mean rating of each expectancy item was taken across the 7 behaviors, so that each item rating reflected a tendency to engage in all behaviors of interest when motivated by that particular expectancy. Within Sample 1, an EFA of these items was conducted using IBM SPSS Statistics 25.0 (IBM SPSS Statistics for Windows, 2017). Principal axis factoring was used as the method of extraction because expectancy items were not normally distributed, and oblique rotation (direct oblimin) was used given the expectation that factors would be correlated (Osborne & Costello, 2005). The Kaiser-

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Meyer-Olkin (KMO) measure of sampling adequacy (.92) exceeded the recommended value (0.8; Kaiser, 1960), and Bartlett's Test of Sphericity was significant, χ^2 (12203) = 116207.04, $p < .001$), indicating the adequacy of this sample for factor analysis.

Following the initial EFA, Horn's Parallel Analysis (Horn, 1965) was conducted using the 'paran' function in RStudio (Dinno, 2018; RStudio Team, 2015) in order to determine the optimal number of factors to retain. Parallel analyses are considered more accurate than other methods of extraction (e.g., scree plots, eigenvalues greater than 1) for determining the optimal number of factors (Wood, Tataryn, & Gorsuch, 1996), and Horn's Parallel Analysis is one of the most strongly recommended techniques for determining the number of factors to retain in an EFA (Fabringar, 1999; Garrido, Abad, & Ponsoda, 2013; Hayton, Allen, & Scarpello, 2004; Ruscio & Roche, 2012). This procedure generates a large number of random data matrices parallel to the real data, and recommends the retention of factors in the real data with eigenvalues greater than the mean eigenvalue generated from the random data matrices. Using 4,890 generated data matrices, the parallel analysis indicated that nine factors should be retained. A follow-up EFA was conducted in SPSS, specifying a nine-factor model. Eigenvalues for each factor are presented in Table 4.

To enhance the validity of the resulting scale, items with loadings < .55 on any factor were eliminated, based on Comrey and Lee's (1992) guidelines. One hundred and one items were dropped because they did not have loadings ≥ .55 on any factor. These items are presented in Appendix C. Two of the initial factors dropped out after removing items with loadings < .55, resulting in a 58-item, seven-factor scale.

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The first factor included items related to establishing control (e.g., "To feel in control," "To prove to yourself that you are in control of your body"). This factor was labeled "Control" and contained 7 items. The second factor included items related to improving oneself and one's body (e.g., "To correct parts of your body that you are unhappy with," "To get closer to the person you want to be"). This factor was labeled "Self-Improvement" and contained 26 items. The third factor included items related to coping with emotional pain (e.g., "To distract yourself from unpleasant emotions," "To replace emotional pain with physical pain"). This factor was labeled "Coping with Emotional Pain" and contained 6 items. The fourth factor included items related to the down-regulation of positive emotions (e.g., "To stop yourself from feeling too good," "To reduce feelings of happiness or joy"), as well as a few items related to interpersonal concerns (e.g., "To feel closer to other people," "To influence others"). This factor was labeled "Positive Emotion Down-regulation/Interpersonal" and contained 12 items. The fifth factor included two items: "To stop feeling numb" and "To reduce the intensity of unpleasant emotions." This factor was labeled "Numbness/Negative Emotion Down-regulation." The sixth factor was similar in content to the fifth and included items such as "To avoid dissociation" and "To cope so you don't attempt suicide." This factor was labeled "Dissociation/Suicide" and contained four items. The seventh factor included items related to interpersonal concerns, such as "To stop feeling so disconnected from others" and "To get someone to do something." This factor was labeled "Interpersonal Concerns" and contained three items. Factor loadings for each item are presented in Table 5.

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A follow-up confirmatory factor analysis (CFA) using maximum likelihood estimation (Tucker & Lewis, 1973) was performed in Sample 2 using the 'lavaan' package in RStudio (Rossell, 2012; RStudio Team, 2015). Following current conventions (Hooper, Coughlan, & Mullen, 2008; Hu & Bentler, 1999), the following cutoffs were used to indicate good fit: root mean square error of approximation (RMSEA) less than .10, standard root mean square residual (SRMR) less than .08, and comparative fit index (CFI) greater than .90. The initial model fit using scale items retained from the EFA was suboptimal, $\chi^2(1631) = 11387.06$, $p < .001$, CFI = .79, RMSEA = 0.117 (0.115–0.119), SRMR = 0.065).

To improve model fit, items that were identified as theoretically redundant, items with low factor loadings and/or high loadings on more than one factor, and items identified by modification indices as suboptimal for model fit were removed. The decision to remove a particular item took into consideration all of the factors described above, such that decisions to remove items were informed by empirical indicators (i.e., factor loadings and modification indices) in combination with theoretical expectations regarding probable groupings among the expectancies being assessed. Additionally, smaller factors (i.e., factors with 2-4 items) identified in the EFA were combined with larger factors that assessed similar theoretical constructs (Hooper, Coughlan, & Mullen, 2008; Lewis, 2017).

Three items were removed from the Control factor: "To regain your sense of self," "To establish a sense of order," and "To feel in control." Twenty-three items were removed from the Self-Improvement factor: "To gain mastery over your body," "To feel better about your body," "To make parts of your body look right," "To try to obtain the

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ideal body," "To lessen discomfort in your body," "To make yourself closer to perfect," "To correct parts of your body that you are unhappy with," "To match up with others' expectations of how you should look," "To make parts of your body look more even," "To change the shape of your body," "To get closer to the person you want to be," "To feel healthier," "To feel better about how you look," "To improve yourself," "To make yourself better," "To get rid of imperfections," "To try to get rid of the parts of yourself you don't like," "To become more fit," "To maintain your current weight," "To avoid gaining weight," "To live up to your standards," "To get into better shape," and "To lose weight."

Four items were removed from the Coping with Emotional Pain factor: "To express anger toward yourself," "To express something you can't put into words," "To replace emotional pain with physical pain," and "To distract yourself from unpleasant emotions." Eight items were removed from the Positive Emotion Down-regulation/Interpersonal subscale: "To distract yourself from positive emotions," "To feel closer to other people," "To make your emotional pain more visible," "To reduce the intensity of positive emotions," "To influence others," "To stop yourself from getting too excited," "To share a part of your life with other people," and "To share something with others." One item was removed from the Numbness/Negative Emotion Down-regulation factor: "To reduce the intensity of unpleasant emotions." Three items were removed from the Dissociation/Suicide factor: "To reduce suicidal feelings," "To avoid dissociation," and "To avoid attempting suicide." Two items were removed from the Interpersonal Concerns factor: "To bring yourself back down from feeling really excited" and "To stop feeling so disconnected from others."

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One item from the Numbness/Negative Emotion Down-regulation factor ("To stop feeling numb") and one item from the Dissociation/Suicide factor ("To cope so you don't attempt suicide") were moved to the Coping with Emotional Pain factor, as these items were conceptualized as being related to the broader construct of coping with painful emotional experiences. Additionally, one item from the Positive Emotion Down-regulation/Interpersonal factor ("To get your needs met in a relationship") was combined with two items from the Interpersonal Concerns factor ("To get someone to act differently" and "To get someone to do something") to create an Interpersonal Influence factor whose items reflected expectancies related to influencing the behavior of others. After this change and the removal of items with loadings < .55, the Positive Emotion Down-regulation/Interpersonal factor only contained items related to the down-regulation of positive emotions. Thus, this factor was re-labeled Positive Emotion Down-regulation.

This resulted in a five-factor scale with 17 items and strong model fit, $\chi^2(109) = 543.48$, $p < .001$, CFI = .95, RMSEA = 0.095 (0.087–0.103), SRMR = 0.031. The following factors emerged: Control (3 items), Self-Improvement (4 items), Coping with Emotional Pain (4 items), Positive Emotion Down-regulation (3 items), and Interpersonal Influence (3 items). Factor loadings for EBCQ items and internal consistency statistics for EBCQ subscales are presented for both samples in Table 6. Factor loadings of items on subscales ranged from .75 to .95 in both samples, exceeding the recommended benchmark of .70 (Comrey & Lee, 1992). The five subscales demonstrated adequate internal consistency in both samples (αs = .89-.96; Chronbach, 1960).

A CFA with maximum likelihood estimation using the same model was conducted in Sample 1 to examine the fit of the model in the undergraduate sample.

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Model fit was below conventional standards, $\chi^2(109) = 1164.72$, $p < .001$, CFI = .82, RMSEA = 0.167 (0.158–0.175), SRMR = 0.118.

Associations of Behavior Frequencies and Expectancies

Given that frequencies of engagement in the behaviors of interest were not normally distributed, Spearman rank-order correlations were used to assess relations between the EBCQ subscales and participants' frequency of engagement in each behavior over the past year. In Sample 1, there were significant, small-to-moderate associations between the EBCQ subscale scores and each of the seven behaviors assessed. The only exceptions were the nonsignificant relations between Positive Emotion Down-regulation and skin-picking; Interpersonal Influence and skin-picking; and Interpersonal Influence and purging (see Table 7). Tests for dependent correlations indicated that, in general, correlations between behavior frequencies and the Control, Self-Improvement, and Coping with Emotional Pain subscales tended to be significantly larger than correlations between behavior frequencies and the Positive Emotion Down-regulation and Interpersonal Influence subscales (see Appendix D).

In the Sample 2, all EBCQ subscale scores were significantly associated with frequency of engagement in each of the behaviors assessed (see Table 7). Tests for dependent correlations indicated that, in general, correlations between behavior frequencies and the Coping with Emotional Pain subscale tended to be significantly larger than correlations between behavior frequencies and other EBCQ subscales (see Appendix D). Results presented in Table 7 are separated by gender in Appendix F.

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Test-Retest Reliability

Pearson product-moment correlations were used to assess the reliability of the EBCQ subscale scores over approximately two weeks. Test-retest reliability was high for the Self-Improvement, Coping with Emotional Pain, and Interpersonal Influence subscales (rs = .78-.90, ps < .001). The Control and Positive Emotion Down-regulation subscales demonstrated weaker test-retest reliability, compared to other subscales (rs = .61-.66, ps < .001).

Convergent and Divergent Validity

Pearson product-moment correlations were used to assess the relations between the EBCQ subscale scores and measures of convergent and divergent validity.

Sample 1.

Control subscale. The Control subscale was significantly and positively associated with external (i.e., to meet external demands) and introjected (i.e., to avoid negative emotions or support conditional self-worth) expectancies for exercise; as well as positive perceptions of physical attractiveness and body integrity (i.e., a sense of ownership and comfort in one's body). The Control subscale was also significantly and positively associated with greater difficulties in the regulation of negative and positive emotions, as well as negative and positive urgency. Control was also significantly associated with higher levels of perfectionism, interpersonal difficulties, symptoms of borderline personality disorder, depression (general and anhedonic), anxiety (general and anxious arousal), posttraumatic stress disorder, problematic skin-picking, and perceptions of burdensomeness and thwarted belongingness (see Table 8). Control was not significantly associated with response bias, as expected (see Table 8).

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Self-Improvement subscale. The Self-Improvement subscale was significantly and positively associated with external and introjected expectancies for exercise, as well as positive perceptions about physical attractiveness and body integrity. Self-Improvement was significantly and negatively associated with perceptions of body effectiveness (i.e., one's physical and athletic capabilities). Self-Improvement was significantly and positively associated with difficulties in the regulation of negative and positive emotions, as well as negative and positive urgency. Self-Improvement was also significantly and positively associated with perfectionism and interpersonal difficulties; symptoms of borderline personality disorder, depression (general and anhedonic), anxiety (general and anxious arousal), posttraumatic stress disorder, problematic skin-picking, and exercise addiction; and perceptions of burdensomeness and thwarted belongingness (see Table 8). Self-Improvement was not significantly associated with response bias, as expected (see Table 8).

Coping with Emotional Pain subscale. The Coping with Emotional Pain subscale was significantly and positively associated with emotion relief, self-punishment, and feeling generation expectancies for NSSI. Coping with Emotional Pain was significantly and positively associated with greater external and introjected expectancies for exercise, and negatively associated with intrinsic expectancies (i.e., exercising for enjoyment and satisfaction associated with exercise behavior). Coping with Emotional Pain was significantly and positively associated with greater perceptions of physical attractiveness and body integrity, and significantly and negatively associated with perceptions of body effectiveness. Coping with Emotional Pain was significantly and positively associated with difficulties in the regulation of negative and positive emotions; as well as negative

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urgency, positive urgency, and lack of perseverance. Coping with Emotional Pain was also significantly and positively associated with perfectionism and interpersonal difficulties; symptoms of borderline personality disorder, depression (general and anhedonic), anxiety (general and anxious arousal), posttraumatic stress disorder, problematic skin-picking and problematic hair-pulling/severe nail-biting; and perceptions of burdensomeness and thwarted belongingness (see Table 8). Coping with Emotional Pain was not significantly associated with response bias, as expected (see Table 8).

Positive Emotion Down-regulation subscale. The Positive Emotion Down-regulation subscale was significantly and positively associated with external expectancies for exercise and greater perceptions of body integrity. Positive Emotion Down-regulation was significantly and negatively associated with intrinsic expectancies for exercise and perceptions of body effectiveness. Positive Emotion Down-regulation was significantly and positively associated with interpersonal difficulties, as well as symptoms of general (but not anhedonic) depression and anxiety (general and anxious arousal), and perceptions of burdensomeness (see Table 8). Positive Emotion Down-regulation was not significantly associated with response bias, as expected (see Table 8).

Interpersonal Influence subscale. The Interpersonal Influence subscale was significantly and positively associated with external and introjected expectancies for exercise and greater perceptions of body integrity. Interpersonal Influence was associated with greater difficulties in the regulation of negative emotions, negative and positive urgency, and interpersonal difficulties; as well as symptoms of borderline personality disorder, general (but not anhedonic) depression, anxiety (general and anxious arousal), and exercise addiction (see Table 8). Interpersonal Influence was not significantly

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associated with response bias, as expected (see Table 8). Differences in corelations across expectancies and behaviors are presented in Appendix E. Correlations between expectancies and measures of convergent and divergent validity in Sample 1 are separated by gender in Appendix G.

Sample 2.

Control subscale. The Control subscale was significantly and positively associated with emotion relief, self-punishment, feeling generation, interpersonal communication, and interpersonal influence expectancies for NSSI; external, introjected, identified, and intrinsic expectancies for exercise; and positive perceptions of physical attractiveness, health, body integrity, and body effectiveness. Control was significantly and positively associated with difficulties in the regulation of negative and positive emotions, as well as negative urgency, lack of perseverance, lack of premeditation, and positive urgency. Control was also significantly and positively associated with perfectionism and interpersonal difficulties; symptoms of borderline personality disorder, depression (general and anhedonic), anxiety (general and anxious arousal), posttraumatic stress disorder, problematic skin-picking, problematic hair-pulling/severe nail-biting, and exercise addiction; and perceptions of burdensomeness and thwarted belongingness (see Table 9).

Self-Improvement subscale. The Self-Improvement subscale was significantly and positively associated with emotion relief, self-punishment, feeling generation, interpersonal communication, and interpersonal influence expectancies for NSSI; external, introjected, identified, and intrinsic expectancies for exercise; and positive perceptions of physical attractiveness, health, body integrity, and body effectiveness.

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Self-Improvement was significantly and positively associated with difficulties in the regulation of negative and positive emotions, as well as negative urgency, lack of perseverance, lack of premeditation, and positive urgency. Self-Improvement was also significantly and positively associated with perfectionism and interpersonal difficulties; symptoms of borderline personality disorder, general (but not anhedonic) depression, anxiety (general and anxious arousal), posttraumatic stress disorder, problematic skin-picking, problematic hair-pulling/severe nail-biting, and exercise addiction; and perceptions of burdensomeness and thwarted belongingness (see Table 9). Self-Improvement was not significantly associated with response bias, as expected (see Table 9).

Coping with Emotional Pain subscale. The Coping with Emotional Pain subscale was significantly and positively associated with emotion relief, self-punishment, feeling generation, interpersonal communication, and interpersonal influence expectancies for NSSI; external, introjected, and intrinsic expectancies for exercise; and positive perceptions of physical attractiveness, health, body integrity, and body effectiveness. Coping with Emotional Pain was significantly and positively associated with difficulties in the regulation of negative and positive emotions, as well as negative urgency, lack of perseverance, lack of premeditation, and positive urgency. Coping with emotional pain was also significantly and positively associated with perfectionism, anxiety sensitivity, and interpersonal difficulties; symptoms of borderline personality disorder, anxiety (general and anxious arousal), posttraumatic stress disorder, problematic skin-picking, problematic hair-pulling/severe nail-biting, and exercise addiction; and perceptions of

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burdensomeness and thwarted belongingness (see Table 9). Coping with Emotional Pain was not significantly associated with response bias, as expected (see Table 9).

Positive Emotion Down-regulation subscale. The Positive Emotion Down-regulation subscale was significantly and positively associated with emotion relief, self-punishment, feeling generation, interpersonal communication, and interpersonal influence expectancies for NSSI; external, introjected, identified, and intrinsic expectancies for exercise; and positive perceptions of physical attractiveness, health, body integrity, and body effectiveness. Positive Emotion Down-regulation was significantly and positively associated with difficulties in the regulation of negative and positive emotions, as well as negative urgency, lack of perseverance, lack of premeditation, and positive urgency. Positive Emotion Down-regulation was also significantly and positively associated with perfectionism, anxiety sensitivity, and interpersonal difficulties; symptoms of borderline personality disorder, general (but not anhedonic) depression, anxiety (general and anxious arousal), posttraumatic stress disorder, problematic skin-picking, problematic hair-pulling/severe nail-biting, and exercise addiction; and perceptions of thwarted belongingness (see Table 9). Positive Emotion Down-regulation was not significantly associated with response bias, as expected (see Table 9).

Interpersonal Influence subscale. The Interpersonal Influence subscale was significantly and positively associated with emotion relief, self-punishment, feeling generation, interpersonal communication, and interpersonal influence expectancies for NSSI; external, introjected, and intrinsic expectancies for exercise; and positive perceptions of physical attractiveness, health, body integrity, and body effectiveness. Interpersonal Influence was significantly and positively associated with difficulties in the

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regulation of negative and positive emotions, as well as negative urgency, lack of perseverance, lack of premeditation, and positive urgency. Interpersonal Influence was also significantly and positively associated with perfectionism, anxiety sensitivity, and interpersonal difficulties; symptoms of borderline personality disorder, general (but not anhedonic) depression, anxiety (general and anxious arousal), posttraumatic stress disorder, problematic skin-picking, problematic hair-pulling/severe nail-biting, and exercise addiction; and perceptions of burdensomeness and thwarted belongingness (see Table 9). Interpersonal Influence was not significantly associated with response bias, as expected (see Table 9). Differences in associations between behaviors and specific expectancies are presented in Appendix E. Correlations between expectancies and measures of convergent and divergent validity in Sample 2 are separated by gender in Appendix H.

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Chapter Four

Discussion

The EBCQ was developed to provide a comprehensive self-report measure of the frequency of, and expectancies for, a variety of direct and indirect self-damaging behaviors that are repetitive and low to medium in lethality (NSSI, food restriction, binging, purging, problematic exercise, hair-pulling/severe nail-biting, and skin-picking). This measure addresses limitations of existing self-report measures by allowing for the examination of the extent to which direct and indirect self-damaging behaviors co-occur in the same individuals, as well as the assessment of expectancies that may be shared across multiple behaviors. Given that self-damaging behaviors and the expectancies motivating these behaviors have primarily been studied in isolation, the EBCQ addresses a gap in the existing literature by assessing expectancies that are shared across multiple self-damaging behaviors. Initial versions of the measure used for pilot testing were comprehensive in their coverage of expectancies drawn from the theoretical and empirical literature on self-damaging behaviors, both alone and in combination. The measure was refined through feedback from experts on self-damaging behaviors, as well as pilot testing among undergraduate students. The initial factor structure of the measure was examined in a large sample of undergraduate students, and its psychometric properties were confirmed in a large and heterogeneous community sample, resulting in a 17-item scale assessing expectancies related to control, self-improvement, coping with emotional pain, down-regulation of positive emotions, and interpersonal influence.

EBCQ items assessing the frequency of engagement in self-damaging behaviors over the past year allowed for the examination of associations between frequencies of

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engagement in different self-damaging behaviors. Significant associations between frequencies of engagement in different self-damaging behaviors add to a growing base of evidence supporting the co-occurrence of these behaviors in the same individuals (Boone & Brausch, 2016; Hamza et al., 2013). In both student and community samples, the frequency of engagement in each self-damaging behavior was associated with the frequency of engagement in other self-damaging behaviors, with a few exceptions (e.g., skin-picking was not significantly associated with food restriction, purging, or problematic exercise in Sample 1), and a large proportion of participants in both samples reported engaging in more than one self-damaging behavior in the past year (48.1% in Sample 1 and 70.6% in Sample 2).

Although these data are preliminary and should be further explored using statistical techniques such as latent class analysis, results suggest the possible presence of distinct clusters of behavior co-occurrence within the broader category of self-damaging behaviors. For example, food restriction and binging demonstrated a particularly strong association in Sample 1 (r = .41; see Table 2). In Sample 2, strong associations were observed between NSSI and purging (r = .41); NSSI and hair-pulling/severe nail-biting (r = .44); problematic exercise and food restriction (r = .39); problematic exercise and purging (r = .42); binging and purging (r = .46); and hair-pulling/severe nail-biting and skin-picking (r = .44; see Table 2). Regarding the clinical implications of these findings, associations between frequencies of engagement in different self-damaging behaviors suggest that clinicians should assess for the presence of multiple self-damaging behaviors when clients present for concerns related to one type of self-damaging behavior.

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Exploratory and confirmatory factor analyses of items assessing expectancies for self-damaging behaviors ultimately supported a five-factor structure, with sub-factors reflecting a desire for control, a desire for self-improvement, a desire to cope with emotional pain by expressing or down-regulating negative emotions, a desire to down-regulate positive emotions, and a desire to influence others. These factors are consistent with theory and research on expectancies associated with direct and indirect self-damaging behaviors that have been studied in isolation.

Specifically, the desire to establish a sense of control has been linked to NSSI (Gratz et al., 2015), eating disordered behavior (Fairburn, Cooper, & O'Connor, 1993), and problematic exercise (Yates, Leehey, & Shisslak, 1983). The desire to improve oneself and/or one's physical appearance has been associated with eating disordered behavior (Garner et al., 1983) and problematic exercise (Smith et al., 2013). The desire to cope with emotional pain (i.e., by down-regulating and/or expressing negative emotions) has been linked to NSSI (Klonsky, 2007; Nock & Prinstein, 2004; Turner et al., 2012), disordered eating (Anderson et al., 2006), BFRBs (Snorrason et al., 2010; Shusterman et al., 2009), and problematic exercise (Terry et al., 2004; Wilson et al., 2002). The desire to down-regulate positive emotions specifically has not been examined in response to the self-damaging behaviors assessed by the EBCQ; however, this expectancy is consistent with previous findings that self-damaging behaviors often serve an emotional regulatory function (e.g., Klonsky et al., 2007; Snorrason et al., 2010), as well as findings that engagement in self-damaging behaviors is sometimes precipitated by the experience of intense positive emotions (Cyders et al., 2007; Weiss et al., 2015). Finally, the desire to influence others' behavior has been linked to both NSSI (Klonsky, 2007; Nock &

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Prinstein, 2004; Turner et al., 2012) and eating disordered behavior (Garner, Olmstead, & Polivy, 1983). Findings from the present study extend this literature by demonstrating that each of these expectancies is relevant to a broader range of direct and indirect self-damaging behaviors. These findings suggest that past research on expectancies motivating self-damaging behaviors that have been studied isolation may be applicable to a broader range of populations (i.e., individuals engaging in other self-damaging behaviors) than was originally thought.

The EBCQ's five subscales demonstrated strong internal consistency and convergent and divergent validity in both samples. Test-retest reliability was adequate for the Self-Improvement, Coping with Emotional Pain, and Interpersonal Influence subscales, though it was not as strong for the Control and Positive Emotion Down-regulation subscales. The lower test-retest validity for these subscales may have been related to range restriction on EBCQ items in Sample 1, which overall demonstrated lower rates of engagement in self-damaging behaviors compared to Sample 2. The EBCQ also demonstrated fewer significant associations with convergent measures in Sample 1 compared to Sample 2, perhaps due to a larger sample size or greater range of engagement in self-damaging behaviors and clinical symptoms in Sample 2, consistent with findings that the prevalence of psychopathology among MTurk workers matches or exceeds that of the general population (Shapiro et al., 2013).

Although the EBCQ demonstrated associations with a majority of measures of related clinical and personality constructs in the expected directions, some notable exceptions emerged. For example, in Sample 1, none of the EBCQ subscales were significantly associated with the premeditation and sensation-seeking facets of

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impulsivity, and only one EBCQ subscale (Coping with Emotional Pain) was associated with the lack of perseverance facet of impulsivity. By contrast, all EBCQ subscales were significantly associated with the negative urgency facet of impulsivity, and all but one of the subscales were significantly associated with positive urgency (see Table 8). These findings suggest that, in the undergraduate sample, the expectancies assessed by the EBCQ may be more strongly related to emotionally-driven domains of impulsivity (i.e., positive and negative urgency) that are more likely to map onto the constructs of emotion dysregulation and neuroticism (Cyders & Smith, 2008; Scott, DiLillo, Maldonado, & Watkins, 2015; Whiteside & Lynam, 2001), in contrast to domains related to low conscientiousness and high boredom susceptibility (Whiteside & Lynam, 2001).

Additionally, in Sample 1, no significant associations emerged between anxiety sensitivity and any EBCQ subscale. These findings were unexpected, given evidence that all EBCQ subscales were significantly associated with measures of anxiety and anxious arousal severity. These findings may suggest that, although some of the EBCQ subscales may be theoretically related to a desire to reduce anxiety and related physiological sensations (i.e., Control, Coping with Emotional Pain, Positive Emotion Down-regulation), they may not capture expectancies related to the modulation of beliefs regarding the harmfulness of anxiety-related sensations that can produce such anxiety (see Table 8).

Additionally, in Sample 2, none of the EBCQ subscales were significantly associated with anhedonic symptoms of depression. Anhedonia is thought to be driven by alterations in reward responsiveness, or individuals' typical levels of interest and enjoyment in rewarding events (Treadway & Zald, 2011; Der-Avakian & Markou, 2012).

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Given that the consequences of self-damaging behaviors are typically reinforcing in the short-term (i.e., when expectancies are fulfilled), higher levels of anhedonia (i.e., low reward responsiveness) may render individuals less sensitive to the rewarding consequences of self-damaging behaviors, resulting in a lower likelihood of seeking out and responding to reinforcing contingencies associated with self-damaging behaviors (see Table 9). It is also possible that anhedonia may drive expectancies not captured by this measure, such as positive emotion up-regulation. Although this was an expectancy category originally proposed, it did not emerge in factor analyses. Future studies may benefit from examining the factor structure of the originally proposed EBCQ categories in specific clinical populations, such as patients with anhedonia and/or symptoms of emotional numbing.

Regarding the associations of behavior frequencies with EBCQ subscales (see Table 7), comparison of the strength of associations between behavior frequencies and subscales can provide additional information about the extent to which each behavior may be motivated by particular expectancies (see Appendix D). For example, across the majority of subscales in both samples (i.e., Control, Self-Improvement, and Coping with Emotional Pain in Sample 1 and all subscales in Sample 2), associations of skin-picking and hair-pulling/severe nail-biting to expectancies tended to be significantly weaker than the associations of other behaviors (i.e., NSSI, food restriction, binging, purging, and problematic exercise) to the same expectancies. This suggests that skin-picking, hair-pulling, and severe nail-biting may group together, and that these behaviors may be less strongly motivated by the expectancies assessed by the EBCQ compared to other self-damaging behaviors. This also supports the grouping of skin-picking with other BFRBs,

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rather than NSSI, based on the strength of their associations with relevant expectancies (see below for further discussion of the classification of skin-picking in relation to BFRBs and NSSI).

Additionally, significant differences emerged between the relations of food restriction relative to other closely related behaviors (i.e., binging, purging, and problematic exercise) to a number of expectancies (i.e., Self-Improvement and Coping with Emotional Pain in Sample 1 and all subscales in Sample 2). Food restriction demonstrated particularly strong associations with Control and Self-Improvement in Sample 1 (see Table 7), and its association with Self-Improvement was significantly stronger than the association of Self-Improvement to any other behavior in the same sample (see Appendix D). These findings suggest that expectancies related to control and self-improvement may be stronger motivators for food restriction than for other self-damaging behaviors.

Finally, in Sample 1, the association of NSSI to Coping with Emotional Pain was significantly stronger than the association of any other behavior with Coping with Emotional Pain. This finding is consistent with research demonstrating the robust and central role of relief from emotional distress in NSSI (Briere & Gil, 1998; Gratz et al., 2016; Kleindeinst et al., 2008), and suggests that the expectancy of coping with emotional pain may be more strongly associated with NSSI in comparison to other expectancies and self-damaging behaviors (see Appendix D).

Another notable finding was that, of the 17 categories of expectancies included in the initial draft of the measure, only 9 of these were reflected in the final measure: (1) to establish a sense of control/order (Control subscale); (2) to establish a sense of mastery

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over the body (Control subsale), (3) to "purify" oneself or make oneself "better" in some way (Self-Improvement subscale); (4) to decrease or distract from negative emotions (Coping with Emotional Pain subscale): (5) to counteract feelings of numbness (Coping with Emotional Pain subscale); (6) to communicate with others (Coping with Emotional Pain subscale); (7) to avoid or distract from urges to engage in a behavior that might be more damaging (Coping with Emotional Pain subscale); (8) to decrease/distract from positive emotions (Positive Emotion Down-regulation subscale); and (9) to influence others' thoughts, behaviors, or emotions in some way (Interpersonal Influence subscale). Eight of the original proposed expectancies were not reflected in the final measure: (1) to experience emotions more fully (e.g., to "feel alive"); (2) to generate positive emotions (e.g., to get a "rush" or "high); (3) to decrease/distract from unpleasant physical sensations; (4) to punish oneself; (5) to reaffirm interpersonal boundaries or a coherent sense of self; (6) to feel close to others; (7) to gain approval from others; and (8) to have a physical representation of psychological pain.

Given that the initial expectancy items were informed by theoretical and empirical literature on each self-damaging behavior in isolation (or only two behaviors in combination), it is likely that the factors retained in the EBCQ reflect expectancies that are shared across a broader set of direct and indirect self-damaging behaviors, while the expectancies that were not retained may be more relevant to a smaller subset of self-damaging behaviors. Indeed, the five expectancy factors that were retained (Control, Self-improvement, Coping with Emotional Pain, Down-regulation of Positive Emotions, and Interpersonal Influence) are consistent with research on the relevance of each of these expectancies to varied self-damaging behaviors in isolation (Hamza et al., 2013,

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Lynam et al., 2006; Smith et al., 2013; Snorrason et al., 2010; Turner et al., 2012), so it is not surprising that they demonstrated significant associations with a broader set of direct and indirect self-damaging behaviors as well.

However, it was unexpected that expectancies related to self-punishment were not retained, given a number of studies demonstrating the relevance of shame to the onset and maintenance of NSSI, eating disordered behavior, and BFRBs (Sanftner, Barlow, Marschall, & Tangney, 1995; Schoenleber, Berenbaum, & Motl, 2014; Weingarden & Renshaw, 2015). It was also surprising that expectancies related to the up-regulation of positive emotions (i.e., to experience emotions more fully/"feel alive" and to generate positive emotions/to get a "rush" or "high) were not retained. Expectancies related to the up-regulation of positive emotions have been examined in the context of NSSI (Gratz et al., 2015; Nock & Prinstein, 2004), and are likely to be related to problematic exercise as well, given well-established associations between exercise and mood improvement (Szabo, Griffiths, & Demetrovics, 2019). As stated previously, these expectancies may be more likely to emerge in clinical samples characterized by elevated levels of anhedonia (e.g., patients with MDD) and/or shame (e.g.,patients with BPD). It will be important for future studies on self-damaging behaviors to assess expectancies related to self-punishment and positive emotion up-regulation, given theoretical and empirical research on the relevance of thse expectancies to these behaviors.

Relatedly, a key limitation of this study was the low rate of endorsement for some of the behaviors assessed (e.g., only 6.5% of participants endorsed purging and 13.0% of participants endorsed hair-pulling/severe nail-biting in Sample 1). With a larger sample of individuals who endorsed certain types of behaviors, it might have been possible to

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find evidence for other expectancies associated with those specific behaviors. Although the approach taken in this study allowed for the identification of expectancies that are shared across direct and indirect self-damaging behaviors in general, further research is needed to explore expectancies that may be uniquely associated with behaviors that had lower prevalence rates in our samples.

As noted previously, research on expectancies for self-damaging behaviors can inform the development of more precise classification systems for these behaviors. This is particularly relevant to skin-picking, which is considered both a form of NSSI and a BFRB (Klonsky et al., 2011; Snorrason et al., 2012). In the present study, the relations of NSSI to the Coping with Emotional Pain subscale were stronger than the relations of skin-picking to the same subscale (see Table 7), and the difference between these relations was statistically significant in Sample 1 (see Appendix E).

Moreover, in Sample 2, the relation of skin-picking to the Self-Improvement subsale was stronger than the relation of NSSI to the same subscale (see Table 7), and this difference was stastically significant (see Appendix E). Although preliminary, these findings suggest that NSSI and skin-picking may be motivated by somewhat different expectancies; for example, NSSI may be more strongly related to a desire to cope with emotional pain, whereas skin-picking may be more strongly related to a desire to improve the body or the self in some way. However, a limitation of this study was that severe nail-biting was grouped into the same category of behavior as hair-pulling. Severe nail-biting would be considered a form of NSSI, given that it is a conscious action that results in tissue damage (Gratz et al., 2019), while hair-pulling would not be considered a form of NSSI unless it resulted in severe damage to the scalp or other areas of the body (e.g.,

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bleeding, scabbing). Future studies of NSSI and BFRBs would benefit from the separation of severe nail-biting from other BFRBs in order to better understand the expectancies motivating each behavior.

In interpreting the results of this study, we also considered whether findings might differ as a function of gender. Given previous research on gender differences in NSSI (Andover et al., 2015), eating disordered behavior (Striegl-Moore et al., 2009), BFRBs (Keuthen et al., 2000), and problematic exercise (Costa et al., 2013), we examined gender differences in associations between EBCQ subscales and behavior frequencies, as well as relations of EBCQ subscales to measures of convergent and divergent validity. Several notable findings emerged. In both samples, Control was more strongly related to binging for men than for women, while Interpersonal Influence was more strongly related to binging for women compared to men. Additionally, in both samples, Coping with Emotional Pain was more strongly related to NSSI for women compared to men, while Coping with Emotional Pain was more strongly related to problematic exercise for men compared to women (see Appendix F).

Regarding gender differences in relations between EBCQ subscales and relevant personality and clinical characteristics (assessed via measures of convergent and divergent validity), positive urgency was significantly associated with Control, Self-Improvement, Coping with Emotional Pain, and Interpersonal Influence for men, but not for women, in Sample 1. In the same sample, perfectionism was significantly associated with Control, Coping with Emotional Pain, and Positive Emotion Down-regulation for women, but not for men; and Control, Self-Improvent, and Coping with Emotional Pain were significantly associated with perceptions of interpersonal burdensomeness and

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thwarted belongingess for women, but not for men (see Appendix G) These patterns of results, however, were not consistent with findings in Sample 2 (see Appendix H).

Although preliminary and in need of replication, these results suggest that certain expectancies may be associated with different self-damaging behaviors in men versus women; for example, the expectancy of coping with emotional pain may be more strongly associated with NSSI among women, and with problematic exercise among men. Associations between expectancies for self-damaging behaviors and relevant clinical and personality characteristics may also differ across genders. Specifically, expectancies related to control, self-improvement, coping with emotional pain, and influencing others may be more strongly associated with a tendency to engage in impulsive behavior while experiencing strong positive emotions among men (vs. women). Moreover, expectancies related to control, coping with emotion emotional pain, and down-regulating positive emotions may be more strongly associated with tendencies toward perfectionism among women (vs. men), and expectancies related to control, self-improvement, and coping with emotional pain may be more strongly associated with a tendency to perceive oneself as a burden to others or a sense of thwarted belongingness among women (vs. men).

Given previous research on gender differences in self-damaging behaviors (Andover et al., 2015; Costa et al., 2013; Keuthen et al., 2000; Striegl-Moore et al., 2009), these findings can contribute to a broader picture of how the expectancies for these behaviors may differ across genders, as well as gender differences in clinical and personality characteristics associated with these expectancies. These findings highlight the importance of examining gender differences in expectancies for different self-damaging behaviors. Future research in this area could also explore socio-cultural factors

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(e.g., social norms) that may contribute to the development of different expectancies for the same self-damaging behaviors among men versus women. This knowledge could be used to inform the development of personalized treatments that target specific expectancies for self-damaging behaviors in men and women.

This study has a number of strengths, including the inclusion of a comprehensive list of expectancies for self-damaging behaviors in the initial and pilot drafts of the measure; the use of two unique samples for exploratory and confirmatory factor analyses; and the assessment of the psychometric properties of the EBCQ in both student and community samples. And yet, the study has limitations that should be considered when evaluating its results. As previously stated, a primary limitation was that our sample sizes were not large enough to allow for an EFA across all expectancies and behaviors. While the method we used (i.e., conducting an EFA on mean item ratings across the seven behaviors) is likely to represent individuals' tendencies to engage in self-damaging behaviors with these expectancies in mind, it is possible that mean item ratings were weighted toward behaviors that were endorsed more frequently in Sample 1 (e.g., food restriction, skin-picking). Relatedly, the suboptimal fit of the CFA conducted in Sample 1 following validation in Sample 2 may have resulted from low rates of endorsement of some of the behaviors of interest in that sample, compared to the sample in which the CFA was conducted (Sample 2). This speaks to the need to evaluate the EBCQ's psychometric properties in multiple samples and with varied populations. Moreover, future research in this area would benefit from the analysis of expectancies for a variety of self-damaging behaviors using larger samples that would allow for more fine-grained factor analyses. Statistical techniques such as latent class analysis may also be useful, as

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they would allow for the identification of sub-classes of individuals based on their frequency of engagement in self-damaging behaviors and expectancies for specific behaviors.

Additionally, although participants from both the undergraduate and community samples represented a wide range of past-year frequencies of engagement in behaviors of interest, the extent to which these results would generalize to more severe clinical populations and/or individuals with more extensive functional impairment as a result of these behaviors (e.g., psychiatric inpatients) is not clear. Relatedly, because the EFA was conducted in an undergraduate sample, limited response ranges may have influenced the results of the analysis. Although the measure was validated in a large community sample, the EFA may have yielded a different factor structure if initial data had been collected from a population with higher levels of engagement in self-damaging behaviors and a broader range of clinical symptoms.

Relatedly, although the EBCQ questions that inquired about participants' past-year engagement in self-damaging behaviors were framed dichotomously ("Yes/No"), there is likely a range of maladaptiveness for each of the behaviors of interest. For example, food restriction was defined as "restricting food intake with the goal of controlling body shape or weight, excluding fasting for religious or cultural reasons." Based on this definition, an individual who went on a brief diet without any negative health consequences and an individual who met diagnostic criteria for anorexia nervosa within the past year could have both reasonably endorsed food restriction. Similarly, problematic exercise was defined as "exercising in a 'compulsive' or 'driven' manner AND/OR exercising so hard that it caused or worsened a physical illness or injury."

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Because the terms “compulsive” and “driven” are somewhat subjective, the individuals who endorsed problematic exercise in both samples likely represented a range of severity in the extent and consequences of the behavior. The degree of subjectivity in the definitions of these behaviors may have influenced their relatively high prevalence rates in Sample 1 (51.9% for food restriction; 17.2% for problematic exercise) and Sample 2 (74.0% for food restriction; 48.8% for problematic exercise). Future research on these behaviors would benefit from thoughtful consideration of the thresholds for behaviors to be considered problematic, as particular thresholds and definitions of self-damaging behaviors will likely impact the observed prevalence rates for each behavior. Furthermore, future iterations of this measure may benefit from assessing the severity of each self-damaging behavior in addition to its frequency, as well as establishing specific thresholds at which certain behaviors would be considered clinically relevant.

An additional limitation is that our analyses relied entirely on self-report assessments of expectancies for self-damaging behaviors. Self-report measures were also used to assess convergent and divergent validity of the EBCQ. Self-report measures are vulnerable to retrospective recall biases, impression management, and limits in individuals’ understanding of what maintains or motivates their behavior (Barrick & Mount, 1996; Gratz, Chapman, Dixon-Gordon, & Tull, 2016; Solhan, Trull, Jahng, & Wood, 2009), with may limit the validity of the responses provided. One promising approach for future research is the use of implicit association tests to assess the strength of learned associations of self-damaging behaviors with different expectancies/consequences (e.g., NSSI and relief; Gratz et al., 2016).

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Related to these limitations, it may be beneficial when administering the EBCQ clinically to provide brief psychoeducation and examples of each of the expectancies assessed, as participants may not be familiar with the terminology used to describe expectancies. Functional analysis and clinical judgment should also be used as additional sources of expectancy-relevant information, particularly when expectancies may be operating in part outside of conscious awareness, or when the patient has incomplete insight into factors motivating their behavior.

Finally, this study only examined a specific set of self-damaging behaviors – those that are repetitive, both direct and indirect, and have a low to medium potential for lethality (Pattison & Kahan, 1983). Given theory and research suggesting that certain expectancies assessed in this study (particularly coping with emotional pain) may also be relevant to other self-damaging behaviors, such as suicidal behavior (Bryan & Rudd, 2012; May & Klonsky, 2013), risky sexual behavior (Cooper, Shapiro, & Powers, 1998; Messman-Moore, Walsh, & DiLillo, 2010), and substance use (Cooper et al., 1994), a direction for future research will be to examine the extent to which other self-damaging behaviors may also be associated with the expectancies assessed by the EBCQ.

Despite these limitations, the EBCQ is the first comprehensive measure to assess the frequency of, and expectancies for, a variety of direct and indirect self-damaging behaviors, with evidence of reliability and validity across undergraduate and community samples. Because the measure's empirically-derived subscales assess several expectancies that are not typically assessed by other measures of expectancies/ motives/functions for self-damaging behaviors (particularly self-improvement and positive emotion down-regulation), this measure provides content coverage over and

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above existing measures, in addition to its advantage of assessing expectancies that are relevant to a variety of self-damaging behaviors that may occur either in isolation or alongside other self-damaging behaviors.

Although results are preliminary and in need of replication, findings from this study speak to the co-occurrence of a range of self-damaging behaviors, as well as the presence of shared expectancies across across these behaviors. Moreover, findings that certain behaviors are more strongly related to particular expectancies than others (e.g., NSSI was more strongly related than skin-picking to the expectancy of coping with emotional pain in Sample 1) suggest the possibility of groupings among self-damaging behaviors based on shared expectancies. Specifically, these findings may provide clarification regarding the classification of behaviors such as skin-picking that are currently considered to be both forms of NSSI and BFRBs. Results also speak to the possibility of gender differences in expectancies for self-damaging behaviors; for example, in the present study, coping with emotional pain was more strongly related to NSSI in women (vs. men) and more strongly related to problematic exercise in men (vs. women). These preliminary findings may pave the way for more comprehensive research on the classification of self-damaging behaviors based on shared expectancies, as well as possible gender differences in expectancies for self-damaging behaviors.

The EBCQ can be used flexibly by researchers and clinicians for the assessment and treatment of individuals who present with one or more self-damaging behaviors, given that the expectancies assessed are relevant to each of the self-damaging behaviors included in the measure. This is consistent with movement in the field toward the conceptualization of psychopathology based on functional domains of behavior (i.e.,

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NIMH's Research Domain Criteria; Cuthbert, 2015; Insel et al., 2010), as well as growing interest in the development of interventions focused on empirically-supported principles that are relevant across diagnoses (e.g., Process-Based CBT; Hofmann & Hayes, 2019). The EFCQ could be used to inform treatment planning by helping clinicians and clients to identify expectancies that may be motivating multiple self-damaging behaviors, rather than focusing on the behaviors' varied forms, and formulating plans to address those expectancies (e.g., through strategies such as functional analysis, behavioral experiments, or thought challenging). This measure offers a powerful new tool for understanding expectancies that are shared across different self-damaging behaviors, and improving clinical assessment and treatment for clients who present with self-damaging behaviors and related clinical problems.

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Appendix A.

Tables

Table 1. Hypothesized Associations between Expectancies and Measures of Convergent Validity

Measure	Expectancies Hypothesized to Correlate
Questionnaire for Non-Suicidal Self-Injury (QNSSI)	Decrease/distract from negative emotions Counteract numbness Generate positive emotions
Behavioral Regulation in Exercise Questionnaire (BREQ)	Establish a sense of mastery over the body Physical representation of psychological pain
Body Attitudes Scale (BAS)	Establish a sense of mastery over the body Feel in control
Difficulties in Emotion Regulation Scale (DERS)	Avoid/distract from urges to engage in a behavior that might be more damaging Decrease/distract from negative emotions
Difficulties in Emotion Regulation Scale—Positive (DERS-P)	Avoid/distract from urges to engage in a behavior that might be more damaging Decrease/distract from positive emotions
UPPS-P Impulsive Behavior Scale (UPPS-P)	Avoid/distract from urges to engage in a behavior that might be more damaging Decrease/distract from negative emotions Decrease/distract from positive emotions
Perfectionism Inventory (PI)	Feel in control Punish oneself Purify oneself/make oneself "better" in some way

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Measure	Expectancies Hypothesized to Correlate
Body Vigilance Scale (BVS)	Decrease/distract from negative emotions Decrease/distract from unpleasant physical sensations Establish a sense of mastery over the body Feel in control
Inventory of Interpersonal Problems (IIP)	Influence others' thoughts, behavior, or emotions Feel close to others Gain approval from others Reaffirm interpersonal boundaries Reaffirm a coherent sense of self
Mood and Anxiety Symptom Questionnaire (MASQ) Anhedonic Depression Subscale	Counteract numbness Experience emotions more fully/"feel alive" Generate positive emotions
PTSD Checklist-Civilian (PCL-5)	Avoid/distract from urges to engage in a behavior that might be more damaging Counteract feelings of numbness Decrease/distract from negative emotions Establish a sense of mastery over the body Establish a sense of order Experience emotions more fully/"feel alive" Generate positive emotions Physical representation of psychological pain Punish oneself Reaffirm interpersonal boundaries
Borderline Evaluation of Severity over Time (BEST)	Avoid/distract from urges to engage in behavior that might be more damaging Communicate to others

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Measure	Expectancies Hypothesized to Correlate
	Decrease/distract from negative emotions Decrease/distract from positive emotions Feel in control Influence others' thoughts, behavior, or emotions Physical representation of psychological pain Punish oneself Reaffirm a coherent sense of self Reaffirm interpersonal boundaries
Skin Picking Scale-Revised (SPS-R)	Decrease/distract from negative emotions Establish a sense of mastery over the body Feel in control
Massachusetts General Hospital Hairpulling Scale (MGH-HS)	Decrease/distract from negative emotions Establish a sense of mastery over the body Feel in control
Exercise Addiction Inventory (EDI)	Establish a sense of mastery over the body Physical representation of psychological pain
Interpersonal Needs Questionnaire (INQ)	Avoid/distract from urges to engage in behavior that might be more damaging Communicate to others Gain approval from others Feel close to others Influence others' thoughts, behavior, or emotions
Acquired Capability for Suicide Scale (ACSS)	Avoid/distract from urges to engage in behavior that might be more damaging Counteract feelings of numbness

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Table 2. Demographic Characteristics of Samples

	Sample 1: UT Site (M[SD]/%)	Sample 1: UMASS Site (M[SD]/%)	Sample 2 (M[SD]/%)
Age	19.36[3.11]	20.27[1.69]	38.9[12.07]
Gender			
Female	75.4	75.3	61.6
Male	22.8	23.6	37.5
Transgender/Other	1.8	1.0	0.9
Ethnicity			
White	82.0	61.5	79.7
Native American	8.4	6.0	10.4
Black	3.6	1.6	1.8
Asian	13.2	11.5	5.4
Latinx	.6	6.6	4.0
Middle Eastern	1.8	8.2	2.7
Other	.6	4.4	.2
Highest level of education			
Some high school	1.2	--	.9
High school/GED	49.7	28.0	9.2
Business or technical training beyond high school		--	3.4
Some college	47.3	68.7	27.5
College graduate	1.8	3.3	40.9
Some graduate/professional training beyond college	--	--	3.8
Master's degree	--	--	12.2
Doctoral degree	--	--	1.6
Relationship status			
Single, never married	64.1	78.6	28.2
Widowed	--	--	1.4
Married	1.2	1.1	43.8
Separated	--	--	1.4
Divorced	.6	--	10.2
Living with partner (not legally married)	3.6	--	8.8
Long-term committed relationship	29.9	20.3	6.1
Other	.6	--	.2
Endorsed nonsuicidal self-injury in the past year	23.4	18.1	45.4
Endorsed food restriction in the past year	54.5	49.5	74.0
Endorsed binging in the past year	32.3	32.4	56.9

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	Sample 1: UT Site (M[SD]/%)	Sample 1: UMASS Site (M[SD]/%)	Sample 2 (M[SD]/%)
Endorsed purging in the past year	5.4	7.7	36.3
Endorsed problematic exercise in the past year	17.4	17.0	48.8
Endorsed hair pulling in the past year	16.2	9.9	39.3
Endorsed skin picking in the past year	38.3	30.8	67.0

Note. UT = University of Toledo. UMASS = University of Massachusetts-Amherst.

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Table 3. Spearman Rank-Order Correlations among Frequencies of Self-Damaging Behaviors

	NSSI	FR	Binging	Purging	PE	HP/NB	SP
Sample 1							
NSSI	--						
FR	.15*	--					
Binging	.13*	.41*	--				
Purging	.10	.24*	.22*	--			
PE	.22*	.20*	.26*	.26*	--		
HP/NB	.18*	.19*	.23*	.06	.07	--	
SP	.20*	.06	.16*	-.08	.07	.18*	--
Sample 2							
NSSI	--						
FR	.17*	--					
Binging	.31*	.31*	--				
Purging	.41*	.28*	.46*	--			
PE	.37*	.39*	.29*	.42*	--		
HP/NB	.44*	.12*	.33*	.30*	.26*	--	
SP	.35*	.09	.20*	.26*	.17*	.44*	--

*p < .05

Note. NSSI = Nonsuicidal self-injury. FR = Food restriction. PE = Problematic exercise. HP/NB = Hair-pulling/Severe nail-biting. SP = Skin-picking. Item-by-item results of tests for dependent correlations are presented in Appendix B.

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Table 4. Eigenvalues and Percentage of Variance Accounted for by the Nine Factors in the Exploratory Factor Analysis

	Initial eigenvalues		Extraction sums of squared loadings		Rotation sums of squared loadings
Factor	Total	% Variance	Total	% Variance	Total
1	81.16	49.79	80.91	49.64	43.22
2	15.05	9.23	14.84	9.10	46.94
3	6.15	3.77	5.88	3.61	39.80
4	5.05	3.10	4.79	2.94	36.85
5	3.58	2.20	3.30	2.03	26.57
6	2.98	1.83	2.70	1.66	22.80
7	2.64	1.62	2.36	1.45	21.52
8	2.54	1.56	2.25	1.38	35.62
9	2.33	1.43	2.04	1.25	28.92

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Table 5. Exploratory Factor Analysis Loadings for the Expectancies for Body-Focused Coping Questionnaire (EBCQ)

Item	Factor Loading						
	1	2	3	4	5	6	7
106. To regain your sense of self	.61						
108. To remind yourself that you control your body	.65						
71. To feel like there is at least one thing you can control	.59						
109. To establish a sense of order	.66						
124. To feel in control	.65						
139. To stop feeling out of control	.59						
8. To gain mastery over your body		.55					
19. To feel better about your body		.81					
20. To make parts of your body look right		.87					
22. To try to obtain the ideal body		.84					
28. To lessen discomfort in your body		.62					
49. To make yourself more desirable		.56					
53. To address imperfections in parts of your body		.88					
55. To make yourself closer to perfect		.78					
80. To correct parts of your body that you are unhappy with		.89					
102. To match up with others' expectations of how you should look		.77					
144. To make parts of your body look more even		.78					
115. To change the shape of your body		.92					
116. To get closer to the person you want to be		.61					
135. To feel healthier		.84					
136. To like how you look		.91					
153. To feel better about how you look		.93					
158. To improve yourself		.83					
161. To make yourself better		.71					
23. To get rid of imperfections		.83					
51. To try to get rid of the parts of yourself you don't like		.80					
52. To become more fit		.87					
54. To maintain your current weight		.65					
81. To avoid gaining weight		.83					
134. To live up to your standards		.73					
151. To get into better shape		.91					
157. To lose weight		.84					

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24. To express something too painful to put into words	.60				
27. To express anger toward yourself	.60				
47. To express something you can't put into words	.65				
50. To replace emotional pain with physical pain	.59				
65. To distract yourself from unpleasant emotions	.64				
145. To decrease feelings of sadness	.67				
13. To stop yourself from feeling too good		.75			
14. To distract yourself from positive emotions		.63			
15. To feel closer to other people		.61			
103. To make your emotional pain more visible		.60			
129. To get your needs met in a relationship		.75			
163. To lessen feelings of excitement		.77			
164. To reduce the intensity of positive emotions		.75			
11. To influence others		.68			
33. To reduce feelings of happiness or joy		.67			
67. To stop yourself from getting too excited		.60			
100. To share a part of your life with other people		.63			
104. To share something with others		.71			
1. To reduce the intensity of unpleasant emotions			.63		
2. To stop feeling numb			.60		
107. To reduce suicidal feelings				.61	
160. To avoid dissociation				.56	
73. To avoid attempting suicide				.66	
88. To cope so you don't attempt suicide				.61	
37. To bring yourself back down from feeling really excited					.76
77. To get someone to act differently					.72
84. To stop feeling so disconnected from others					.58
86. To get someone to do something					.83

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Table 6. Confirmatory Factor Analysis Loadings for the Expectancies for Body-Focused Questionnaire (EBCQ)

Item	C (α = .89)	S-I (α = .96)	CEP (α = .90)	PE-D (α = .93)	II (α = .95)
Control					
71. To feel like there is at least one thing you can control	.87				
139. To stop feeling out of control	.83				
108. To remind yourself that you control your body	.88				
Self-Improvement					
49. To make yourself more desirable		.91			
53. To address imperfections in parts of your body		.93			
55. To make yourself closer to perfect		.94			
136. To like how you look		.93			
Coping with Emotional Pain					
24. To express something too painful to put into words			.86		
145. To decrease feelings of sadness			.89		
2. To stop feeling numb			.75		
88. To cope so you don't attempt suicide			.86		
Positive Emotion Down-regulation					
13. To stop yourself from feeling too good				.87	
163. To lessen feelings of excitement				.91	
33. To reduce feelings of happiness or joy				.92	
Interpersonal Influence					
77. To get someone to act differently					.92
86. To get someone to do something					.95
129. To get your needs met in a relationship					.93

Note. C = Control. S-I = Self-Improvement. CEP = Coping with Emotional Pain. PE-D = Positive Emotion Down-regulation. II = Interpersonal Influence.

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Table 7. Spearman Rank-Order Correlations Between EBCQ Total and Subscale Scores and Frequencies of Self-Damaging Behaviors

	NSSI	FR	Binging	Purging	PE	HP/NB	SP
Sample 1							
C	.28*	.45*	.30*	.27*	.37*	.25*	.14*
S-I	.26*	.60*	.50*	.31*	.43*	.25*	.25*
CEP	.54*	.32*	.39*	.14*	.32*	.39*	.23*
PE-D	.12*	.21*	.22	.21*	.17*	.26*	.10
II	.14*	.15*	.14*	.07	.16*	.14*	.10
Sample 2							
C	.29*	.24*	.38*	.30*	.37*	.41*	.27*
S-I	.25*	.23*	.29*	.47*	.35*	.44*	.38*
CEP	.39*	.26*	.52*	.28*	.44*	.43*	.32*
PE-D	.31*	.14*	.38*	.17*	.30*	.39*	.34*
II	.28*	.16*	.38*	.18*	.33*	.37*	.28*

*p < .05

Note. NSSI = Nonsuicidal self-injury. FR = Food restriction. PE = Problematic exercise. HP/NB = Hair-pulling/Severe nail-biting. SP = Skin-picking. C = Control. S-I = Self-improvement. CEP = Coping with Emotional Pain. PE-D = Positive Emotion Down-regulation. II = Interpersonal Influence. Item-by-item results of tests for dependent correlations are presented in Appendix D.

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Table 8. Convergent and Divergent Validity of the Expectancies for Body-Focused Coping Questionnaire (EBCQ) in Sample 1

	C	S-I	CEP	PE-D	II
Convergent Measures					
QNSSI: Emotion relief	.15	.08	.20*	.12	.08
QNSSI: Self-punishment	.08	.11	.19*	.10	.10
QNSSI: Feeling generation	.17	.06	.22*	.14	.08
QNSSI: Interpersonal communication	-.002	-.12	-.06	.01	.04
QNSSI: Interpersonal influence	-.002	-.12	-.06	.01	.04
BREQ: External regulation	.19*	.21*	.19*	.14*	.15*
BREQ: Introjected regulation	.22*	.34*	.11*	.03	.12*
BREQ: Identified regulation	.02	.08	-.07	-.02	.02
BREQ: Intrinsic regulation	-.10	-.05	-.17*	-.11*	-.07
BAS: Attractiveness	.16*	.25*	.11*	.05	.10
BAS: Health	.04	-.05	-.04	-.02	-.05
BAS: Body Integrity	.39*	.34*	.31*	.13*	.16*
BAS: Body Effectiveness	-.07	-.13*	-.12*	-.11*	-.06
DERS	.34*	.33*	.35*	.11*	.22*
DERS-P	.18*	.13*	.16*	.04	.09
UPPS-P: Negative Urgency	.25*	.20*	.20*	.06	.14*
UPPS-P: Lack of Perseverance	.10	.06	.15*	.03	.08
UPPS-P: Positive Urgency	.23*	.18*	.19*	.10	.12*
UPPS-P: Lack of Premeditation	.09	.04	.05	.03	.07
UPPS-P: Sensation Seeking	.04	.03	.03	.05	.08
PI	.14*	.25*	.14*	.04	.05
BVS	.08	.03	.06	-.01	-.02
IIP	.33*	.29*	.27*	.12*	.14*
BEST	.26*	.23*	.29*	.09	.12*
MASQ: Anhedonic Depression	.21*	.25*	.24*	.08	.08
MASQ: General Distress: Depression	.34*	.36*	.39*	.17*	.16*
MASQ: General Distress: Anxiety	.30*	.23*	.33*	.12*	.13*
MASQ: Anxious Arousal	.29*	.25*	.36*	.13*	.15*
PCL-5	.23*	.21*	.30*	.10	.09
SPS-R	.15*	.14*	.19*	.05	.03
MGH-HS	.10	.10	.18*	.06	.06
EAI	.06	.13*	-.02	.01	.01
INQ: Perceived Burdensomeness	.35*	.31*	.35*	.14*	.12*
INQ: Thwarted Belongingness	.23*	.27*	.28*	.08	.07
ACSS	.07	.08	.03	.02	.01
Divergent Measures					
MCSDS	.09	.09	.07	-.002	.03

*p < .05

Note. C = Control. S-I = Self-Improvement. CEP = Coping with Emotional Pain. PE-D = Positive Emotion Down-regulation. II = Interpersonal Influence. QNSSI = Questionnaire for Nonsuicidal Self-Injury. BREQ = Behavioral Regulation in Exercise Questionnaire. BAS = Body Attitudes Scale. DERS = Difficulties in Emotion Regulation Scale.

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DERS-P = Difficulties in Emotion Regulation Scale-Positive. UPPS-P = UPPS-P Impulsive Behavior Scale. PI = Perfectionism Inventory. BVS = Body Vigilance Scale. IIP = Inventory of Interpersonal Problems. BEST = Borderline Evaluation of Severity over Time. MASQ = Mood and Anxiety Symptom Questionnaire. PCL-5 = Posttraumatic Stress Disorder Checklist-Civilian. SPS-R = Skin-Picking Scale-Revised. MGH-HS = Massachusetts General Hospital Hair-Pulling Scale. EAI = Exercise Addition Inventory. INQ = Interpersonal Needs Questionnaire. ACSS = Acquired Capability for Suicide Scale. MCSDS = Marlowe-Crowne Social Desirability Scale.

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Table 9. Convergent and Divergent Validity of the Expectancies for Body-Focused Coping Questionnaire (EBCQ) in Sample 2

	C	S-I	CEP	PE-D	II
Convergent Measures					
QNSSI: Emotion relief	.49*	.40*	.54*	.47*	.44*
QNSSI: Self-punishment	.34*	.34*	.38*	.32*	.29*
QNSSI: Feeling generation	.37*	.31*	.44*	.47*	.44*
QNSSI: Interpersonal communication	.27*	.28*	.41*	.50*	.50*
QNSSI: Interpersonal influence	.27*	.28*	.41*	.50*	.50*
BREQ: External regulation	.29*	.33*	.41*	.38*	.39*
BREQ: Introjected regulation	.27*	.32*	.19*	.18*	.16*
BREQ: Identified regulation	.16*	.21*	.08	.11*	.07
BREQ: Intrinsic regulation	.11*	.14*	.17*	.23*	.20*
BAS: Attractiveness	.30*	.31*	.38*	.42*	.41*
BAS: Health	.18*	.17*	.27*	.33*	.30*
BAS: Body Integrity	.38*	.32*	.44*	.38*	.36*
BAS: Body Effectiveness	.20*	.19*	.28*	.37*	.33*
DERS	.35*	.28*	.39*	.30*	.29*
DERS-P	.47*	.35*	.50*	.56*	.55*
UPPS-P: Negative Urgency	.25*	.21*	.28*	.21*	.22*
UPPS-P: Lack of Perseverance	.15*	.12*	.28*	.25*	.27*
UPPS-P: Lack of Premeditation	.12*	.09*	.23*	.25*	.25*
UPPS-P: Positive Urgency	.26*	.26*	.37*	.38*	.38*
UPPS-P: Sensation Seeking	.03	.07	.13*	.18*	.20*
PI	.28*	.30*	.23*	.17*	.15*
BVS	.06	.08	.13*	.14*	.14*
IIP	.41*	.41*	.45*	.42*	.39*
BEST	.44*	.43*	.55*	.50*	.50*
MASQ: Anhedonic Depression	.11*	.06	.08	-.05	-.04
MASQ: General Distress: Depression	.35*	.31*	.36	.23*	.24*
MASQ: General Distress: Anxiety	.40*	.31*	.42*	.36*	.34*
MASQ: Anxious Arousal	.40*	.34*	.47*	.45*	.44*
PCL-5	.38*	.40*	.48*	.43*	.41*
SPS-R	.38*	.34*	.43*	.38*	.40*
MGH-HP	.34*	.30*	.38*	.39*	.40*
EAI	.35*	.41*	.33*	.38*	.35*
INQ: Perceived Burdensomeness	.35*	.35*	.43*	.38*	.41*
INQ: Thwarted Belongingness	.18*	.17*	.20*	.09	.11*
ACSS	.05	.07	.10*	.18*	.15*
Divergent Measures					
MCSDS	.16*	-.17	-.31	-.003	.03

*** p < .001 ** p < .01 *p < .05

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Note. C = Control. S-I = Self-Improvement. CEP = Coping with Emotional Pain. PE-D = Positive Emotion Down-regulation. II = Interpersonal Influence. QNSSI = Questionnaire for Nonsuicidal Self-Injury. BREQ = Behavioral Regulation in Exercise Questionnaire. BAS = Body Attitudes Scale. DERS = Difficulties in Emotion Regulation Scale. DERS-P = Difficulties in Emotion Regulation Scale-Positive. UPPS-P = UPPS-P Impulsive Behavior Scale. PI = Perfectionism Inventory. BVS = Body Vigilance Scale. IIP = Inventory of Interpersonal Problems. BEST = Borderline Evaluation of Severity over Time. MASQ = Mood and Anxiety Symptom Questionnaire. PCL-5 = Posttraumatic Stress Disorder Checklist-Civilian. SPS-R = Skin-Picking Scale. MGH-HS = Massachusetts General Hospital Hair-Pulling Scale. EAI = Exercise Addition Inventory. INQ = Interpersonal Needs Questionnaire. ACSS = Acquired Capability for Suicide Scale. MCSDS = Marlowe-Crowne Social Desirability Scale.

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Appendix B

Expectancies for Body-Focused Coping Questionnaire

Instructions: In this questionnaire, we are interested in learning about people's motivations for engaging in behaviors that impact the body.

Part A: We are interested in learning how often you engaged in each of the following behaviors *in the past year*. Please use the definitions provided in parentheses for each behavior.

Please indicate whether you engaged in the behavior on a daily, weekly, monthly, or yearly basis by selecting "day," "week," "month," or "year" and filling in the blank to indicate the average number of times you engaged in the behavior during that period of time.

For example, if you engaged in a behavior approximately 2 times per week over the past year, you would **write the number "2" in the blank** and **select the word "week":**
_2_ times per (SELECT ONE) day / week / month / year

If you have not engaged in a behavior in the past year, please write "0" in the blank.

1. Nonsuicidal self-injury (intentionally causing harm to your body *without intending to kill yourself*, for example, by cutting or burning your skin or hitting yourself to cause bruising)

   _____ times per (SELECT ONE) day / week / month / year

2. Food restriction (restricting food intake with the goal of controlling body shape or weight, *excluding fasting for religious or cultural reasons*)

   _____ times per (SELECT ONE) day / week / month / year

3. Binge eating (eating an abnormally large quantity of food in a relatively short period of time, and feeling a loss of control over eating, *excluding food consumed during religious or cultural events*)

   _____ times per (SELECT ONE) day / week / month / year

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4. Purging (trying to compensate for consumption of calories through self-induced vomiting, misuse of laxatives or diuretics, and/or over-exercising)

_____ times per (SELECT ONE) day / week / month / year

5. Problematic exercise behavior (exercising in a "compulsive" or "driven" manner AND/OR exercising so hard that it caused or worsened a physical illness or injury)

_____ times per (SELECT ONE) day / week / month / year

6. Hair-pulling (pulling out hair from your scalp, eyebrows, or other areas of the body) AND/OR severe nail-biting (biting one's nails to the extent of drawing blood or causing scarring)

_____ times per (SELECT ONE) day / week / month / year

7. Skin-picking (picking at skin or scabs to the extent of breaking the skin or causing bleeding)

_____ times per (SELECT ONE) day / week / month / year

Part B. We are interested in learning about your expectancies, or reasons for engaging in each of the behaviors you reported above. For each behavior you reported above, please indicate how often you engaged in the behavior *in the past year* for each of the reasons listed below. Please use the following scale to indicate how often you engaged in the behavior for that reason:

1	2	3	4	5	6	7
Never (0%)	Almost never (1-10%)	Sometimes (11-35%)	About half the time (36-65%)	Most of the time (66-90%)	Almost always (91-99%)	Always (100%)

Example: For Item 1 ("To reduce the intensity of unpleasant emotions"), if you engaged in nonsuicidal self-injury to reduce the intensity of unpleasant emotions **about half the time (36-65%)**, you would write the number "4" in the "Nonsuicidal self-injury" column.

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If you have not engaged in a behavior within the past year, please leave the items in that column blank. In other words, please only fill in the columns for behaviors you engaged in within the past year.

Expectancy	Non-suicidal self-injury	Food restrict-ion	Binging	Purging	Problem-atic exercise	Hair-pulling/ nail biting	Skin-picking
1. To feel like there is at least one thing you can control							
2. To make yourself more desirable							
3. To express something too painful to put into words							
4. To stop yourself from feeling too good							
5. To get someone to act differently							
6. To stop feeling out of control							
7. To address imperfections in parts of your body							
8. To decrease feelings of sadness							
9. To lessen feelings of excitement							

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10. To get someone to do something							
11. To remind yourself that you control your body							
12. To make yourself closer to perfect							
13. To stop feeling numb							
14. To reduce feelings of happiness or joy							
15. To get your needs met in a relationship							
16. To like how you look							
17. To cope so you don't attempt suicide							

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Appendix C

Items Removed from the EBCQ Due to Factor Loadings < .55

3. To feel alive
4. To bring about positive emotions
5. To distract yourself from unpleasant physical sensations
6. To punish yourself
7. To gain a sense of control
9. To stop yourself from doing something impulsive or risky
10. To feel like you are a separate person
12. To communicate to others
16. To gain the approval of others
17. To show your emotions on your skin
18. To feel more pure
21. To get relief from overwhelming emotions
25. To let someone know how you feel
26. To distract yourself from thoughts about suicide
29. To get in touch with new experiences in your body
30. To become one with your experience
31. To "snap out" of feeling like things around you are unreal
32. To get in touch with all the physical sensations your body can experience
34. To get out of a bad mood
35. To decrease feelings of anger or frustration
36. To reduce feelings of boredom
38. To stop feeling dead inside
40. To experience new physical sensations
41. To lessen uncomfortable physical sensations
42. To punish yourself for something you did wrong
43. To make the world feel more predictable
44. To show yourself how much pain you can endure
45. To remind yourself of who you are
46. To get support from others
48. To share an experience with others
56. To hold on to your identity
57. To stop yourself from doing something more dangerous or harmful
58. To slow things down when they feel out of control
59. To prove to yourself that you are worthless
60. To distract from uncomfortable physical sensations
61. To feel happiness or joy
62. To obtain a feeling of euphoria (i.e., intense happiness or excitement)

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63. To connect with the here and now
64. To regain a sense of reality
66. To decrease tension or anxiety
68. To connect with your emotions
69. To punish yourself for making a mistake
70. To gain control over your thoughts
72. To know you can hurt your body if you need to
74. To stop yourself from doing something you would regret later
75. To assert your independence
76. To stop feeling so fragmented
78. To feel a deeper connection with others
79. To express your pain on your body
82. To make your emotional pain more understandable
83. To show others how tough you are
85. To show someone how much they hurt you
89. To show that you can control your own body
90. To show how much you hate yourself
91. To lower your heart rate
92. To feel excited or thrilled
93. To lessen physical discomfort
94. To lessen feelings of shame
95. To increase certainty
96. To show how strong your body is
97. To keep yourself alive
98. To get someone to express concern
101. To make others think more highly of you
105. To communicate intense emotions
110. To stop feelings of self-hatred
111. To reduce arousal
112. To feel proud of yourself
113. To experience life fully
117. To make your emotional pain more tangible
118. To make other people like you
119. To avoid your emotions
120. To feel like your body is real
121. To stop feeling "out of it"
123. To produce feelings of excitement
125. To prove your body is your own
126. To hurt yourself before others hurt you
127. To establish a sense of identity

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128. To get help from others
130. To show others how desperate you are
131. To stop feeling so alone
132. To show your feelings on your body
133. To meet the standards of others
137. To get others to admire you
138. To get a reaction from others
140. To reduce hunger
141. To bring about a good mood
142. To experience your emotions more fully
143. To connect to your body
144. To get a rush or high
146. To put an end to emotional distress
147. To feel good
148. To fit in
149. To show others how you are feeling
150. To be a better person
152. To feel less lonely
154. To show others how strong you are
155. To get other people to like you
156. To distract yourself from painful emotions
159. To stop negative feelings
162. To distract yourself from pleasant feelings
165. To prove to yourself that you are in control of your body

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Appendix D

Tests for Dependent Correlations Between Spearman Rank-Order Correlations of Frequencies of Self-Damaging Behaviors

Sample 1	*t*(346)	*p*
$r_{NSSI,\ food\ restriction}$		
vs. $r_{NSSI,\ binging}$	.35	.729
vs. $r_{NSSI,\ purging}$	.76	.446
vs. $r_{NSSI,\ problematic\ exercise}$	-.1.06	.291
vs. $r_{NSSI,\ hair\text{-}pulling/nail\text{-}biting}$	-.60	.548
vs. $r_{NSSI,\ skin\text{-}picking}$	-.69	.488
$r_{NSSI,\ binging}$		
vs. $r_{NSSI,\ purging}$	.31	.760
vs. $r_{NSSI,\ problematic\ exercise}$	-1.57	.116
vs. $r_{NSSI,\ hair\text{-}pulling/nail\text{-}biting}$	-.76	.446
vs. $r_{NSSI,\ skin\text{-}picking}$	-1.03	.306
$r_{NSSI,\ purging}$		
vs. $r_{NSSI,\ problematic\ exercise}$	-1.89	.060
vs. $r_{NSSI,\ hair\text{-}pulling/nail\ biting}$	-1.11	.268
vs. $r_{NSSI,\ skin\text{-}picking}$	-1.29	.197
$r_{NSSI,\ problematic\ exercise}$		
vs. $r_{NSSI,\ hair\text{-}pulling/nail\text{-}biting}$	.57	.572
vs. $r_{NSSI,\ skin\text{-}picking}$	.28	.778
$r_{NSSI,\ hair\text{-}pulling/nail\text{-}biting}$		
vs. $r_{NSSI,\ skin\text{-}picking}$	-.30	.776
$r_{food\ restriction,\ binging}$		
vs. $r_{food\ restriction,\ purging}$	2.79	.006
vs. $r_{food\ restriction,\ problematic\ exercise}$	3.50	.001
vs. $r_{food\ restriction,\ hair\text{-}pulling/nail\text{-}biting}$	3.59	<.001
vs. $r_{food\ restriction,\ skin\text{-}picking}$	5.45	<.001
$r_{food\ restriction,\ purging}$		
vs. $r_{food\ restriction,\ problematic\ exercise}$	.63	.527
vs. $r_{food\ restriction,\ hair\text{-}pulling/nail\text{-}biting}$	.70	.482
vs. $r_{food\ restriction,\ skin\text{-}picking}$	2.35	.019
$r_{food\ restriction,\ problematic\ exercise}$		
vs. $r_{food\ restriction,\ hair\text{-}pulling/nail\text{-}biting}$	.14	.888
vs. $r_{food\ restriction,\ skin\text{-}picking}$	1.94	.053
$r_{food\ restriction,\ hair\text{-}pulling/nail\text{-}biting}$		
vs. $r_{food\ restriction,\ skin\text{-}picking}$	1.92	.056
$r_{binging,\ purging}$		
vs. $r_{binging,\ problematic\ exercise}$	-.64	.522
vs. $r_{binging,\ hair\text{-}pulling/nail\text{-}biting}$	-.14	.888
vs. $r_{binging,\ skin\text{-}picking}$	.78	.435
$r_{binging,\ problematic\ exercise}$		
vs. $r_{binging,\ hair\text{-}pulling/nail\text{-}biting}$	.43	.668

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vs. $r_{\text{binging, skin-picking}}$	1.41	.158
$r_{\text{binging, hair-pulling/nail-biting}}$		
vs. $r_{\text{binging, skin-picking}}$	1.05	.296
$r_{\text{purging, problematic exercise}}$		
vs. $r_{\text{purging, hair-pulling/nail-biting}}$	2.83	.005
vs. $r_{\text{purging, skin-picking}}$	4.85	<.001
$r_{\text{purging, hair-pulling/nail-biting}}$		
vs. $r_{\text{purging, skin-picking}}$	2.06	.040
$r_{\text{problematic exercise, hair-pulling/nail-biting}}$		
vs. $r_{\text{problematic exercise, skin-picking}}$	.00	1.00

Sample 2	$t(440)$	p
$r_{\text{NSSI, food restriction}}$		
vs. $r_{\text{NSSI, binging}}$	-2.62	.009
vs. $r_{\text{NSSI, purging}}$	-4.56	<.001
vs. $r_{\text{NSSI, problematic exercise}}$	-4.07	<.001
vs. $r_{\text{NSSI, hair-pulling/nail-biting}}$	-4.70	<.001
vs. $r_{\text{NSSI, skin-picking}}$	-2.98	.003
$r_{\text{NSSI, binging}}$		
vs. $r_{\text{NSSI, purging}}$	-2.22	.027
vs. $r_{\text{NSSI, problematic exercise}}$	-1.15	.250
vs. $r_{\text{NSSI, hair-pulling/nail-biting}}$	-2.63	.009
vs. $r_{\text{NSSI, skin-picking}}$	-.72	.471
$r_{\text{NSSI, purging}}$		
vs. $r_{\text{NSSI, problematic exercise}}$	.87	.385
vs. $r_{\text{NSSI, hair-pulling/nail-biting}}$	-.61	.541
vs. $r_{\text{NSSI, skin-picking}}$	1.16	.248
$r_{\text{NSSI, problematic exercise}}$		
vs. $r_{\text{NSSI, hair-pulling/nail-biting}}$	-1.37	.170
vs. $r_{\text{NSSI, skin-picking}}$	.36	.719
$r_{\text{NSSI, hair-pulling/nail-biting}}$		
vs. $r_{\text{NSSI, skin-picking}}$	2.00	.046
$R_{\text{food restriction, binging}}$		
vs. $r_{\text{food restriction, purging}}$	.64	.521
vs. $r_{\text{food restriction, problematic exercise}}$	-1.55	.123
vs. rfood restriction, hair-pulling/nail-biting	3.61	<.001
vs. $r_{\text{food restriction, skin-picking}}$	3.82	<.001
$r_{\text{food restriction, purging}}$		
vs. $r_{\text{food restriction, problematic exercise}}$	-2.33	.020
vs. $r_{\text{food restriction, hair-pulling/nail0biting}}$	2.94	.003
vs. $r_{\text{food restriction, skin-picking}}$	3.40	.001
$r_{\text{food restriction, problematic exercise}}$		
vs. $r_{\text{food restriction, hair-pulling/nail-biting}}$	5.02	<.001
vs. $r_{\text{food restriction, skin-picking}}$	5.25	<.001
$r_{\text{food restriction, hair-pulling/nail-biting}}$		
vs. $r_{\text{food restriction, skin-picking}}$	.60	.549

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$r_{binging, purging}$		
VS. $r_{binging, problematic exercise}$	3.72	<.001
VS. $r_{binging, hair-pulling/nail-biting}$	3.11	.002
VS. $r_{binging, skin-picking}$	3.66	<.001
$r_{binging, problematic exercise}$		
VS. $r_{binging, hair-pulling/nail-biting}$	-.74	.459
VS. $r_{binging, skin-picking}$	1.54	.125
$r_{binging, hair-pulling/nail-biting}$		
VS. $r_{binging, skin-picking}$	2.72	.007
$r_{purging, problematic exercise}$		
VS. $r_{purging, hair-pulling/nail-biting}$	2.30	.022
VS. $r_{purging, skin-picking}$	2.88	.004
$r_{purging, hair-pulling/nail-biting}$		
VS. $r_{purging, skin-picking}$	.84	.403
$r_{problematic exercise, hair-pulling/nail-biting}$		
VS. $r_{problematic exercise, skin-picking}$	1.85	.066

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Appendix E

Tests for Dependent Correlations Between Spearman Rank-Order Correlations of EBCQ Subscales and Frequencies of Self-Damaging Behaviors

Sample 1	*t*(346)	*p*
Control subscale		
NSSI vs. Food restriction	-2.72	.007
NSSI vs. Binging	-2.36	.019
NSSI vs. Purging	.15	.883
NSSI vs. Problematic exercise	.16	.874
NSSI vs. Hair-pulling/nail-biting	.46	.646
NSSI vs. Skin-picking	2.14	.033
Food restriction vs. Binging	.40	.693
Food restriction vs. Purging	3.04	.003
Food restriction vs. Problematic exercise	1.35	.178
Food restriction vs. Hair-pulling/nail-biting	3.26	.001
Food restriction vs. Skin-picking	4.64	<.001
Binging vs. Purging	2.64	.009
Binging vs. Problematic exercise	1.04	.299
Binging vs. Hair-pulling/nail-biting	2.80	.005
Binging vs. Skin-picking	4.56	<.001
Purging vs. Problematic exercise	-1.66	.099
Purging vs. Hair-pulling/nail-biting	1.71	.088
Purging vs. Skin-picking	1.84	.066
Problematic exercise vs. Hair-pulling/nail-biting	1.77	.077
Problematic exercise vs. Skin-picking	3.35	.001
Hair-pulling/nail-biting vs. Skin-picking	1.65	.100
Self-Improvement subscale		
NSSI vs. Food restriction	-5.93	<.001
NSSI vs. Binging	-3.91	<.001
NSSI vs. Purging	-.74	.458
NSSI vs. Problematic exercise	-.2.82	.005
NSSI vs. Hair-pulling/nail-biting	.15	.879
NSSI vs. Skin-picking	.15	.877
Food restriction vs. Binging	2.22	.027
Food restriction vs. Purging	5.42	<.001
Food restriction vs. Problematic exercise	3.20	.002
Food restriction vs. Hair-pulling/nail-biting	6.25	<.001
Food restriction vs. Skin-picking	5.81	<.001
Binging vs. Purging	4.11	.001
Binging vs. Problematic exercise	1.29	.199
Binging vs. Hair-pulling/nail-biting	4.29	<.001
Binging vs. Skin-picking	4.11	<.001
Purging vs. Problematic exercise	-2.06	.040
Purging vs. Hair-pulling/nail-biting	.87	.387
Purging vs. Skin-picking	.81	.418

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Problematic exercise vs. Hair-pulling/nail-biting	2.72	.007
Problematic exercise vs. Skin-picking	2.72	.007
Hair-pulling/nail-biting vs. Skin-picking	.00	1.00
Coping with Emotional Pain subscale		
NSSI vs. Food restriction	3.73	<.001
NSSI vs. Binging	2.57	.011
NSSI vs. Purging	6.43	<.001
NSSI vs. Problematic exercise	3.88	<.001
NSSI vs. Hair-pulling/nail-biting	2.64	.009
NSSI vs. Skin-picking	5.33	<.001
Food restriction vs. Binging	-1.32	.187
Food restriction vs. Purging	2.87	.004
Food restriction vs. Problematic exercise	.00	1.000
Food restriction vs. Hair-pulling/nail-biting	-1.13	.259
Food restriction vs. Skin-picking	.00	1.000
Binging vs. Purging	4.03	<.001
Binging vs. Problematic exercise	1.19	.236
Binging vs. Hair-pulling/nail-biting	-.99	.324
Binging vs. Skin-picking	2.49	.013
Purging vs. Problematic exercise	-2.91	.004
Purging vs. Hair-pulling/nail-biting	-3.65	<.001
Purging vs. Skin-picking	-3.28	.001
Problematic exercise vs. Hair-pulling/nail-biting	-1.06	.290
Problematic exercise vs. Skin-picking	1.31	.193
Hair-pulling/nail-biting vs. Skin-picking	2.52	.012
Positive Emotion Down-regulation subscale		
NSSI vs. Food restriction	-1.31	.190
NSSI vs. Binging	-1.44	.149
NSSI vs. Purging	-1.28	.203
NSSI vs. Problematic exercise	-.76	.450
NSSI vs. Hair-pulling/nail-biting	-2.10	.036
NSSI vs. Skin-picking	.30	.767
Food restriction vs. Binging	-.18	.860
Food restriction vs. Purging	.00	1.000
Food restriction vs. Problematic exercise	.50	.546
Food restriction vs. Hair-pulling/nail-biting	-.76	.447
Food restriction vs. Skin-picking	1.52	.128
Binging vs. Purging	.15	.876
Binging vs. Problematic exercise	.79	.432
Binging vs. Hair-pulling/nail-biting	-.63	.532
Binging vs. Skin-picking	1.76	.079
Purging vs. Problematic exercise	.63	.531
Purging vs. Hair-pulling/nail-biting	-.71	.479
Purging vs. Skin-picking	1.42	.156
Problematic exercise vs. Hair-pulling/nail-biting	-1.27	.203
Problematic exercise vs. Skin-picking	.97	.333

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Hair-pulling/nail-biting vs. Skin-picking	2.40	.017
Interpersonal Influence subscale		
NSSI vs. Food restriction	-.14	.885
NSSI vs. Binging	.00	1.00
NSSI vs. Purging	.99	.325
NSSI vs. Problematic exercise	-.30	.761
NSSI vs. Hair-pulling/nail-biting	.00	1.00
NSSI vs. Skin-picking	.59	.553
Food restriction vs. Binging	1.39	.165
Food restriction vs. Purging	1.23	.221
Food restriction vs. Problematic exercise	-.15	.881
Food restriction vs. Hair-pulling/nail-biting	.15	.882
Food restriction vs. Skin-picking	.69	.493
Binging vs. Purging	1.06	.291
Binging vs. Problematic exercise	-.16	.876
Binging vs. Hair-pulling/nail-biting	.00	1.000
Binging vs. Skin-picking	.58	.562
Purging vs. Problematic exercise	-1.40	.162
Purging vs. Hair-pulling/nail-biting	-.96	.336
Purging vs. Skin-picking	-.38	.703
Problematic exercise vs. Hair-pulling/nail-biting	.28	.780
Problematic exercise vs. Skin-picking	.83	.407
Hair-pulling/nail-biting vs. Skin-picking	.59	.557

Sample 2	*t*(440)	*p*
Control subscale		
NSSI vs. Food restriction	.86	.391
NSSI vs. Binging	-1.75	.391
NSSI vs. Purging	-.21	.081
NSSI vs. Problematic exercise	-1.62	.838
NSSI vs. Hair-pulling/nail-biting	-2.61	.106
NSSI vs. Skin-picking	.39	.009
Food restriction vs. Binging	-2.70	.698
Food restriction vs. Purging	-1.11	.007
Food restriction vs. Problematic exercise	-2.65	.269
Food restriction vs. Hair-pulling/nail-biting	-2.95	.008
Food restriction vs. Skin-picking	-.49	.003
Binging vs. Purging	1.75	.624
Binging vs. Problematic exercise	.20	.080
Binging vs. Hair-pulling/nail-biting	-.71	.541
Binging vs. Skin-picking	1.99	.048
Purging vs. Problematic exercise	-1.48	.140
Purging vs. Hair-pulling/nail-biting	-2.15	.032
Purging vs. Skin-picking	.55	.583
Problematic exercise vs. Hair-pulling/nail-biting	-.78	.438
Problematic exercise vs. Skin-picking	1.77	.078

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Hair-pulling/nail-biting vs. Skin-picking	3.04	.003
Self-Improvement subscale		
NSSI vs. Food restriction	.34	.734
NSSI vs. Binging	-.75	-4.52
NSSI vs. Purging	-4.78	<.001
NSSI vs. Problematic exercise	-2.00	.046
NSSI vs. Hair-pulling/nail-biting	-4.17	<.001
NSSI vs. Skin-picking	-2.59	.010
Food restriction vs. Binging	-1.13	.261
Food restriction vs. Purging	-4.71	<.001
Food restriction vs. Problematic exercise	-2.43	.015
Food restriction vs. Hair-pulling/nail-biting	-3.69	<.001
Food restriction vs. Skin-picking	-2.53	.012
Binging vs. Purging	-4.10	<.001
Binging vs. Problematic exercise	-1.14	.225
Binging vs. Hair-pulling/nail-biting	-1.17	.242
Binging vs. Skin-picking	-1.63	.104
Purging vs. Problematic exercise	2.66	.008
Purging vs. Hair-pulling/nail-biting	.63	.531
Purging vs. Skin-picking	1.80	.073
Problematic exercise vs. Hair-pulling/nail-biting	-1.76	.080
Problematic exercise vs. Skin-picking	-.54	.588
Hair-pulling/nail-biting vs. Skin-picking	1.35	.179
Coping with Emotional Pain subscale		
NSSI vs. Food restriction	2.31	.021
NSSI vs. Binging	-2.76	.006
NSSI vs. Purging	2.31	.021
NSSI vs. Problematic exercise	-1.06	.288
NSSI vs. Hair-pulling/nail-biting	-.90	.371
NSSI vs. Skin-picking	1.41	.158
Food restriction vs. Binging	-5.37	<.001
Food restriction vs. Purging	-.37	.713
Food restriction vs. Problematic exercise	-3.79	<.001
Food restriction vs. Hair-pulling/nail-biting	2.98	.003
Food restriction vs. Skin-picking	-1.00	.319
Binging vs. Purging	5.62	<.001
Binging vs. Problematic exercise	-1.14	.255
Binging vs. Hair-pulling/nail-biting	1.96	.051
Binging vs. Skin-picking	3.89	<.001
Purging vs. Problematic exercise	-3.46	.001
Purging vs. Hair-pulling/nail-biting	-2.95	.003
Purging vs. Skin-picking	-.74	.461
Problematic exercise vs. Hair-pulling/nail-biting	.20	.841
Problematic exercise vs. Skin-picking	.19	.849
Hair-pulling/nail-biting vs. Skin-picking	2.42	.016
Positive Emotion Down-regulation		

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NSSI vs. Food restriction	2.90	.004
NSSI vs. Binging	-1.37	.172
NSSI vs. Purging	2.84	.005
NSSI vs. Problematic exercise	.20	.842
NSSI vs. Hair-pulling/nail-biting	-1.73	.552
NSSI vs. Skin-picking	-.60	.002
Food restriction vs. Binging	-4.60	<.001
Food restriction vs. Purging	-.53	.594
Food restriction vs. Problematic exercise	-3.18	.002
Food restriction vs. Hair-pulling/nail-biting	-4.25	<.001
Food restriction vs. Skin-picking	-3.29	.001
Binging vs. Purging	-4.10	<.001
Binging vs. Problematic exercise	1.54	.125
Binging vs. Hair-pulling/nail-biting	.73	.464
Binging vs. Skin-picking	.69	.490
Purging vs. Problematic exercise	-2.65	.008
Purging vs. Hair-pulling/nail-biting	-4.21	<.001
Purging vs. Skin-picking	-3.10	.002
Problematic exercise vs. Hair-pulling/nail-biting	-1.70	.089
Problematic exercise vs. Skin-picking	-.70	.481
Hair-pulling/nail-biting vs. Skin-picking	1.09	.276
Interpersonal Influence subscale		
NSSI vs. Food restriction	2.03	.043
NSSI vs. Binging	-1.94	.053
NSSI vs. Purging	2.01	.045
NSSI vs. Problematic exercise	-1.00	.319
NSSI vs. Hair-pulling/nail-biting	-1.93	.055
NSSI vs. Skin-picking	.00	1.00
Food restriction vs. Binging	-4.22	<.001
Food restriction vs. Purging	-.36	.721
Food restriction vs. Problematic exercise	-3.41	.001
Food restriction vs. Hair-pulling/nail-biting	-3.55	<.001
Food restriction vs. Skin-picking	-1.94	.053
Binging vs. Purging	4.56	<.001
Binging vs. Problematic exercise	1.70	.089
Binging vs. Hair-pulling/nail-biting	.20	.841
Binging vs. Skin-picking	1.81	.071
Purging vs. Problematic exercise	-3.09	.022
Purging vs. Hair-pulling/nail-biting	-3.61	<.001
Purging vs. Skin-picking	-1.80	.073
Problematic exercise vs. Hair-pulling/nail-biting	-.76	.450
Problematic exercise vs. Skin-picking	.87	.382
Hair-pulling/nail-biting vs. Skin-picking	1.93	.055

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Appendix F

Spearman Rank-Order Correlations Between EBCQ Subscale Scores and Frequencies of Self-Damaging Behaviors, Separated by Gender

	NSSI		FR		BG		PG		PE		HP/NB		SP	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Sample 1														
C	.25*	.28*	.45*	.43*	.64*	.37*	.26*	.26*	.37*	.39*	.25*	.25*	.18	.13*
S-I	.29*	.23*	.48*	.61*	.44*	.51*	.22*	.32*	.43*	.41*	.20*	.24*	.39*	.20*
CEP	.39*	.55*	.27*	.30*	.53*	.35*	.14	.13*	.48*	.29*	.29*	.40*	.28*	.21*
PE-D	-.07	.11	.17	.20*	.32*	.19*	-.02	.22*	.05	.18*	.17	.25*	-.03	.10
II	.12	.14*	.12	.14	.26*	.10	-.03	.07	.21	.15*	.14	.14*	.23*	.06
Sample 2														
C	.25*	.31*	.18*	.27*	.40*	.37*	.46*	.20*	.44*	.30*	.43*	.39*	.38*	.21*
S-I	.30*	.23*	.24*	.21*	.35*	.26*	.48*	.44*	.41*	.31*	.45*	.44*	.50*	.33*
CEP	.51*	.32*	.30*	.25*	.56*	.51*	.41*	.14*	.52*	.40*	.50*	.40*	.38*	.28*
PE-D	.37*	.25*	.20*	.11	.46*	.30*	.30*	.12	.42*	.24*	.47*	.25*	.33*	.31*
II	.33*	.23*	.18*	.14*	.47*	.29*	.33*	.12*	.42*	.28*	.43*	.33*	.33*	.21

*p < .05

Note. M = Male. F = Female. NSSI = Nonsuicidal self-injury. FR = Food restriction. BG = Binging. PG = Purging. PE = Problematic exercise. HP/NB = Hair-pulling/Severe nail-biting. SP = Skin-picking. C = Control. S-I = Self-Improvement. CEP = Coping with Emotional Pain. PE-D = Positive Emotion Down-regulation. II = Interpersonal Influence.

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Appendix G

Convergent and Divergent Validity of the Expectancies for Body-Focused Coping Questionnaire (EBCQ) in Sample 1, Separated by Gender

	C		S-I		CEP		PE-D		II	
	M	F	M	F	M	F	M	F	M	F
Convergent Measures										
QNSSI: Emotion relief	.07	.14	-.09	.13	.19	.19	.55*	.09	.19	.07
QNSSI: Self-punishment	.22	.08	.04	.16	.33	.19	.43	.07	.04	.13
QNSSI: Feeling generation	.26	.16	-.10	.11	.26	.23*	.54*	.11	.26	.06
QNSSI: Interpersonal communication	.18	.00	-.12	-.08	.16	-.04	-.14	.04	.28	.01
QNSSI: Interpersonal influence	.18	.00	-.12	-.08	.16	-.04	-.14	.04	.28	.01
BREQ: External regulation	.13	.19*	.06	.24*	.31*	.18*	.33*	.12*	.32*	.13*
BREQ: Introjected regulation	.34*	.20*	.37*	.33*	.29*	.10	.23*	.01	.23*	.11
BREQ: Identified regulation	.16	.02	.20	.08	.09	-.06	.14	-.03	.07	.02
BREQ: Intrinsic regulation	.07	-.11	.14	-.06	-.08	-.15*	.01	-.11	.01	-.08
BAS: Attractiveness	.22	.16*	.34*	.24*	.10	.11	.10	.05	.09	.11
BAS: Health	.06	.04	.07	-.06	-.10	-.03	-.07	-.01	-.07	-.04
BAS: Body Integrity	.30*	.35*	.27*	.35*	.26*	.32*	.12	.13*	.27*	.14*
BAS: Body Effectiveness	.01	-.06	-.02	-.13*	-.14	-.09	-.05	-.12	-.08	-.05
DERS	.29*	.34*	.30*	.32*	.37*	.34*	.05	.12	.19	.22*
DERS-P	.20	.19*	.24*	.10	.01	.20*	-.06	.06	.05	.10
UPPS-P: Negative Urgency	.32*	.23*	.14	.22*	.20	.19*	-.10	.06	.12	.13*
UPPS-P: Lack of Perseverance	.03	.10	.00	.06	.06	.16*	-.10	.04	.01	.09
UPPS-P: Lack of Premeditation	-.09	.11	-.16	.08	-.16	.07	-.15	.05	-.04	.08
UPPS-P: Positive Urgency	.11	.25*	.03	.22*	.01	.22*	-.06	.12	.04	.14*
UPPS-P: Sensation Seeking	.10	.05	.01	.07	.00	.08	.11	.06	.09	.10
PI	.23*	.11	.28*	.24*	.28*	.12	.26*	.01	.14	.04
BVS	.13	.06	.13	-.01	.13	.05	-.10	-.01	.10	-.04

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	C		S-I		CEP		PE-D		II	
	M	F	M	F	M	F	M	F	M	F
IIP	.41*	.31*	.31*	.27*	.35*	.26*	.27*	.10	.35*	.11
BEST	.37*	.23*	.06	.25*	.41*	.28*	.27*	.07	.40*	.09
MASQ: Anhedonic Depression	.04	.24*	.06	.29*	.09	.25*	-.15	.09	.26*	.08
MASQ: General Distress: Depression	.29*	.35*	.24*	.38*	.42*	.38*	.05	.18	.26*	.15*
MASQ: General Distress: Anxiety	.35*	.28*	.13	.24*	.39*	.32*	.23*	.11	.38*	.10
MASQ: Anxious Arousal	.36*	.27*	.14*	.24*	.49*	.34*	.00	.13*	.45*	.12
PCL-5	.12	.26*	.01	.25*	.15	.33*	-.01	.11	.09	.10
SPS-R	.24*	.13*	.27*	.11	.44*	.16*	.04	.05	.26*	.03
MGH-HP	.02	.11	.02	.10	-.01	.18*	-.05	.06	-.06	.07
EAI	.20	.05	.27*	.11	.07	-.01	.11	.10	.10	.01
INQ: Perceived Burdensomeness	.11	.26*	-.03	.34*	.13	.34*	-.05	.14*	.21	.11
INQ: Thwarted Belongingness	.17	.24*	.17	.28*	.12	.28*	.04	.08	.10	.07
ACSS	.01	.12*	-.04	.17*	-.19	.12	.00	.05	.04	.03
Divergent Measures										
MCSDS	-.04	.12	-.05	.14*	.03	.09	-.02	.00	.07	.03

*p < .05

Note. M = Male. F = Female. C = Control. S-I = Self-Improvement. CEP = Coping with Emotional Pain. PE-D = Positive Emotion Down-regulation. II = Interpersonal Influence. QNSSI = Questionnaire for Nonsuicidal Self-Injury. BREQ = Behavioral Regulation in Exercise Questionnaire. BAS = Body Attitudes Scale. DERS = Difficulties in Emotion Regulation Scale. DERS-P = Difficulties in Emotion Regulation Scale-Positive. UPPS-P = UPPS-P Impulsive Behavior Scale. PI = Perfectionism Inventory. BVS = Body Vigilance Scale. IIP = Inventory of Interpersonal Problems. BEST = Borderline Evaluation of Severity over Time. MASQ = Mood and Anxiety Symptom Questionnaire. PCL-5 = Posttraumatic Stress Disorder Checklist-Civilian. SPS-R = Skin-Picking Scale. MGH-HS = Massachusetts General Hospital Hair-Pulling Scale. EAI = Exercise Addition Inventory. INQ = Interpersonal Needs Questionnaire. ACSS = Acquired Capability for Suicide Scale. MCSDS = Marlowe-Crowne Social Desirability Scale.

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Appendix H

Convergent and Divergent Validity of the Expectancies for Body-Focused Coping Questionnaire (EBCQ) in Sample 2, Separated by Gender

	C		S-I		CEP		PE-D		II	
	M	F	M	F	M	F	M	F	M	F
Convergent Measures										
QNSSI: Emotion relief	.60*	.45*	.56*	.31*	.63*	.51*	.62*	.41*	.56*	.38*
QNSSI: Self-punishment	.43*	.30*	.44*	.28*	.45*	.36*	.42*	.28*	.38*	.26*
QNSSI: Feeling generation	.53*	.31*	.43*	.23*	.55*	38*	.54*	.43*	.51*	.40*
QNSSI: Interpersonal communication	.53*	.18*	.40*	.21*	.58*	35*	.59*	.46*	.56*	.46*
QNSSI: Interpersonal influence	53*	.18*	.40*	.21*	.58*	.35*	.59*	.46*	.56*	.46*
BREQ: External regulation	.39*	.26*	.37*	.32*	.44*	.30*	.44*	.35*	.44*	.37*
BREQ: Introjected regulation	.32*	.24*	.34*	.31*	.26*	.13*	.25*	.13*	.25*	.08
BREQ: Identified regulation	.10	.20*	.15	.26*	.06	.09	.08	.13*	.06	.08
BREQ: Intrinsic regulation	.10	.15*	.11	.20*	.11	.23*	.12	.29*	.10	.26*
BAS: Attractiveness	.44*	.23*	.42*	.23*	.54*	.26*	.54*	.32*	.49*	.33*
BAS: Health	.33*	.13*	.34*	.08	.38*	.22*	.38*	.31*	.33*	.27*
BAS: Body Integrity	.46*	.34*	.45*	.23*	.51*	.41*	.49*	.32*	.44*	.31*
BAS: Body Effectiveness	.30*	.16*	.27*	.15*	.36*	.23*	.38*	.34*	.35*	.29*
DERS	.40*	.32*	.36*	.25*	.43*	.35*	.39*	.33*	.38*	.22*
DERS-P	.53*	.30*	.47*	.28*	.58*	.46*	.58*	.53*	.38*	.54*
UPPS-P: Negative Urgency	.21*	.26*	.24*	.18*	.22*	.29*	.19*	.20*	.55*	.22*
UPPS-P: Lack of Perseverance	.32*	.04	.25*	.02	.37*	.20*	.34*	.15*	.35*	.18*
UPPS-P: Lack of Premeditation	.32*	.02	.26*	-.03	.36*	.14*	.33*	.13*	.33*	.15*
UPPS-P: Positive Urgency	.30*	.25*	.28*	.24*	.34*	.37*	.33*	.39*	.33*	.39*
UPPS-P: Sensation Seeking	.01	.07	.05	.09	.00	.21*	.02	.26*	.03	.27*
PI	.26*	.30*	.32*	.30*	.29*	.21*	.28*	.14*	.26*	.11
BVS	.15	.06	.11	.05	.17*	.10	.16*	.12	.16*	.13*

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	C		S-I		CEP		PE-D		II	
	M	F	M	F	M	F	M	F	M	F
IIP	.47*	.38*	.47*	.25*	.55*	.37*	.51*	.33*	.48*	.30*
BEST	.52*	.43*	.51*	.40*	.60*	.54*	.57*	.46*	.60*	.47*
MASQ: Anhedonic Depression	.05	.12	.01	.06	.06	.08	.01	-.08	.03	-.07
MASQ: General Distress: Depression	.35*	.42*	.34*	.29*	.41*	.33*	.36*	.20*	.33*	.20*
MASQ: General Distress: Anxiety	.37*	.35*	.34*	.30*	.46*	.41*	.42*	.33*	.40*	.30*
MASQ: Anxious Arousal	.46*	.39*	.40*	.31*	.53*	.45*	.51*	.43*	.48*	.43*
PCL-5	.51*	.31*	.52*	.31*	.60*	.40*	.54*	.35*	.52*	.33*
SPS-R	.45*	.35*	.41*	.32*	.50*	.39*	.44*	.32*	.46*	.35*
MGH-HP	.45*	.29*	.42*	.24*	.52*	.32*	.50*	.30*	.50*	.32*
EAI	.41*	.35*	.43*	.43*	.37*	.32*	.38*	.37*	.37*	.33*
INQ: Perceived Burdensomeness	.46*	.31*	.41*	.33*	.52*	.39*	.49*	.31*	.49*	.35*
INQ: Thwarted Belongingness	.17*	.19*	.10	.21*	.18*	.20*	.13	.06	.14	.08
ACSS	.01	.08	.05	.07	.01	.12*	.09	.18*	.04	.17*
Divergent Measures										
MCSDS	.13	.13*	.10	.12	.08	.10	.10	.04	.07	.05

*p < .05

Note. M = Male. F = Female. C = Control. S-I = Self-Improvement. CEP = Coping with Emotional Pain. PE-D = Positive Emotion Down-regulation. II = Interpersonal Influence. QNSSI = Questionnaire for Nonsuicidal Self-Injury. BREQ = Behavioral Regulation in Exercise Questionnaire. BAS = Body Attitudes Scale. DERS = Difficulties in Emotion Regulation Scale. DERS-P = Difficulties in Emotion Regulation Scale-Positive. UPPS-P = UPPS-P Impulsive Behavior Scale. PI = Perfectionism Inventory. BVS = Body Vigilance Scale. IIP = Inventory of Interpersonal Problems. BEST = Borderline Evaluation of Severity over Time. MASQ = Mood and Anxiety Symptom Questionnaire. PCL-5 = Posttraumatic Stress Disorder Checklist-Civilian. SPS-R = Skin-Picking Scale. MGH-HS = Massachusetts General Hospital Hair-Pulling Scale. EAI = Exercise Addition Inventory. INQ = Interpersonal Needs Questionnaire. ACSS = Acquired Capability for Suicide Scale. MCSDS = Marlowe-Crowne Social Desirability Scale.

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