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A Transdiagnostic Approach to Emotion Regulation: The Development and Validation of Two Scales of Emotion Regulation

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A TRANSDIAGNOSTIC APPROACH TO EMOTION REGULATION: THE DEVELOPMENT AND VALIDATION OF TWO SCALES OF EMOTION REGULATION

by

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To address limitations of existing emotion regulation measures, the goal of the present study was to develop new measures of emotion undercontrol and emotion overcontrol. These measures were created from 305 undergraduate participants who completed preexisting scales of emotion regulation. Analyses were applied to determine which regulatory strategies were most predictive of personality disorders associated with emotion overcontrol (i.e., AVPD and OCPD) and emotion undercontrol (i.e., BPD and ASPD). The variables most predictive of these disorders and related traits were included in the item pools for factor analysis. Exploratory factor analyses were implemented to determine which factors were associated with emotion undercontrol and emotion overcontrol. A 7-factor scale related to emotion undercontrol was established which included factors indicative of emotional avoidance, emotional identification, emotional reactivity, emotional interference, emotional control, emotional tolerance, and emotional expressivity. Additionally, a 6-factor scale was developed related to emotion overcontrol including emotional avoidance, emotional control, emotional identification, emotional interference, emotional judgment, and emotional reappraisal. These scales were found to be reliable and valid based on the current sample. Implications for the new measures and future research directions are discussed.

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INTRODUCTION

Scope of the Problem

"Transdiagnostic" is one of the current buzzwords in the research and treatment of psychological disorders. Over the past two decades, psychotherapies have been created in an attempt to function "transdiagnostically," addressing variables hypothesized to be responsible for the development and maintenance of psychopathology rather than individual disorders or symptoms. Treatment packages like Acceptance and Commitment Therapy (ACT), Dialectical Behavior Therapy (DBT), and the Unified Protocol (UP) are examples of evidenced based transdiagnostic therapies. These treatments have successfully ameliorated symptoms associated with personality disorders, eating disorders, substance use disorders, anxiety disorders, and mood disorders, often addressing these areas simultaneously (Kring & Sloan, 2010).

While tremendous strides have been made in the development of therapies to treat multiple diagnostic categories concurrently, relatively little is known about the precise mechanisms of change associated with these treatments. Each therapy has a different name for its primary hypothesized mechanism of action. In ACT, experiential avoidance is hypothesized as the variable that motivates the etiology of psychopathology (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Experiential avoidance can be understood as an emotion regulation strategy, a behavioral repertoire in which individuals regulate their emotions by avoiding contact with aversive internal events. Hayes and colleagues (1996) posit that the skills emphasized in ACT foster experiential willingness, or openness to

tolerating internal events regardless of the content of these experiences. Core to DBT is the idea that emotion vulnerability and environmental invalidation foster pervasive emotion dysregulation among individuals meeting criteria for Borderline Personality Disorder (BPD) (Linehan, 1993). The goal of each facet of DBT is to facilitate emotion regulation. Similarly, the UP emphasizes emotional avoidance as a problem underlying psychopathology and heavily focuses on emotional exposure to facilitate effective interaction with emotions, a skill that is central to this treatment (Fairholme, Boisseau, Ellard, Ehrenreich, & Barlow, 2010). Empirical evidence demonstrates that ACT, DBT, and the UP are all effective therapies in the treatment of psychopathology (Farchione et al., 2012; Hayes, Strosahl, & Wilson, 2012; Linehan et al., 2007). Less is understood, however, about how these multidimensional treatments operate. While each treatment targets emotion regulation as an underlying variable in some respect, it is unclear which facets of emotion regulation are responsible for behavioral change across these therapies. Further muddying the conceptualization of variables responsible for behavioral change, each treatment uses its own measure. For instance, in ACT, the Acceptance and Action Questionnaire-II (AAQ-II) is applied to assess changes in experiential avoidance (Bond et al., 2011). In DBT the Difficulties in Emotion Regulation Scale (DERS) is often used to measure improvement in emotion regulation. It is impossible to understand the mechanisms of change underlying transdiagnostic treatments like ACT, DBT, and the UP if there is not consistency in measuring these variables.

Additionally, if the goal of the field of psychology is to predict and influence behavior, a diagnostic system that effectively classifies behavior for its prediction and influence is essential. In order to understand the variables most crucial to transdiagnostic

treatments and to identify the specific factors at play in the development and maintenance of psychopathology, some have argued for an overhaul of the current classification system for mental disorders (Hayes et al., 1996; Widiger & Clark, 2000). In fact, the National Institute of Mental Health (NIMH) launched the Research Domain Criteria (RDoC) initiative for the purposes of "developing new ways of classifying mental disorders based on behavioral dimensions" (NIMH, 2015). Rather than organizing symptoms according to diagnostic labels, common behaviors across disorders may serve a more informative role in the diagnosis and treatment of psychopathology. Emotion regulation may function as one such organizing dimension. Classifying disorders on an emotion regulation continuum could provide more information about the variables most influential to the development and treatment of psychopathology. In order to classify disorders on regulatory dimensions, however, a means to measure these dimensions must first be established.

Popular Measures of Emotion Regulation

Two prevailing theories of emotion regulation and their corresponding measures are apparent in the extant literature. Gross and John's (2003) model of emotion regulation asserts that emotion regulation occurs as an antecedent or a response focused reaction to emotions. This model is comprised of antecedent and response focused emotion regulation. Antecedent focused emotion regulation strategies are generated before a complete emotional reaction to a situation occurs. Gross and John identify cognitive reappraisal as an antecedent focused emotion regulation strategy. According to Gross and John, when applying cognitive reappraisal as an emotion regulation strategy, an individual moves from selecting whether or not they will interact with a particular event

or situation, to modifying that situation and their attention to it, ultimately resulting in changing their beliefs about that situation (Gross & John, 2003). In response modulation, the second component of Gross and John's theory, an individual manipulates some aspect of their experience (e.g., their behavior, attention to physiological reactivity, etc.) in response to the evocation of emotion (Gross & John, 2003). Expressive suppression is identified as a form of response modulation during which an individual attempts to decrease an emotional experience (Gross & John, 2003). Based on these components of emotion regulation, the Emotion Regulation Questionnaire (ERQ) assesses cognitive reappraisal and expressive suppression as the two factors central to emotion regulation (Gross & John, 2003). While Gross and John's definition of emotion regulation is valuable in orienting researchers to antecedent and response focused regulatory strategies, this definition may be too narrow. A number of emotion regulation strategies including behavioral, emotional, and cognitive patterns of emotional responding are not identified through this measure. Furthermore, Gross and John's theory presumes that cognitive reappraisal in and of itself is an emotion regulation strategy. It may be that processes underlying cognitive reappraisal (e.g., awareness and acceptance of emotions) rather than the construct itself are the actual factors implicated in the regulation of emotions.

Another dominant theory of emotion regulation is Gratz and Roemer's (2004) conceptualization of emotion regulation. Gratz and Roemer identify patterns of behavioral, emotional, and cognitive reactivity indicative of emotional dysfunction. Within this definition, emotion regulation is characterized by awareness and understanding of emotions, acceptance of emotions, the ability to engage in goal directed

behavior when distressed, and access to effective emotion regulation strategies (Gratz & Roemer, 2004). The DERS assesses emotion dysregulation in accordance with Gratz and Roemer's theory of emotion regulation. Subscales of the DERS measure difficulties in emotional awareness, difficulties in emotional clarity, nonacceptance of emotions, impulse control difficulties, difficulties engaging in goal-directed behavior when distressed, and limited access to adaptive emotion regulation strategies (Gratz & Roemer, 2004). While the DERS is useful in identifying emotion dysregulation, it was not constructed as a comprehensive measure of emotion regulation difficulties (Bloch, Moran, & Kring, 2009). At the time of the development of the DERS, specific attention was paid to understanding the role of emotion dysregulation in BPD as this was the predominant diagnosis associated with emotion dysregulation during this time. Given the emphasis on BPD in the development of the DERS, this measure of emotion regulation may not identify all necessary components to understanding emotion regulation as a transdiagnostic dimension.

Limitations of Current Measures of Emotion Regulation

Based on narrow scope of the ERQ and the focus on BPD associated with the DERS, we believe that neither of these assessments functions as comprehensive measures of emotion regulation. Researchers who advocate for the consideration of emotion dysregulation in the assessment and treatment of psychopathology hypothesize that emotion regulation difficulties are represented in over 75% of the diagnostic categories in the *DSM-IV* (Werner & Gross, 2010). Evidence supporting this statistic includes difficulties in emotion regulation associated with personality disorders, mood disorders, anxiety disorders, eating disorders, and substance use disorders (Kring & Sloan, 2010).

Yet the majority of these diagnostic classes have not been investigated in scale development associated with emotion dysregulation. Existing measures like the DERS may over emphasize disorders of emotion undercontrol or underregulation (e.g., Borderline Personality Disorder [BPD]) and underemphasize disorders of emotion overcontrol or overregulation (e.g., Obsessive Compulsive Personality Disorder [OCPD], Anorexia Nervosa).

The Current Study

The primary goal of the current study is to develop a new measure of emotion regulation that considers both disorders of emotion undercontrol or underregulation and disorders of emotion overcontrol or overregulation in its development. It is outside of the scope of this study to include all relevant disorders in the development of this new measure. One way to consider the role of emotion dysregulation in undercontrol and overcontrol is to base this measure on a group of diagnoses that accounts for both of these difficulties. Personality disorders offer one such diagnostic class. In many ways personality disorders can be considered diagnoses of pervasive emotion dysregulation as evidenced by studies on BPD, Antisocial PD (ASPD), Histrionic PD (HPD), Narcissistic PD (NPD), Obsessive Compulsive PD (OCPD), and Avoidant PD (AVPD) (Donahue, McClure, & Moon, 2014; Gratz, Rosenthal, Tull, Lejuez, & Gunderson, 2010; Gratz, Tull, Matusiewicz, Breetz, & Lejuez, 2013; Marissen, Deen, & Franken, 2012; Rosenthal et al., 2011; Steenkamp, Suvak, Dickstein, Shea, & Litz, 2015; Taylor, Reeves, James, & Bobadilla, 2006). Based on these studies, evidence suggests that Cluster B PDs tend to be associated with impulsivity, a characteristic of undercontrol or underregulation and

Cluster C PDs tend to be connected to affective suppression, potentially indicative of emotion overregulation or overcontrol (Lynch et al., 2013).

Several current measures of emotion regulation demonstrating reliability and validity are available in the extant literature. It is hypothesized that these measures, including the ERQ and the DERS, represent facets of emotion regulation rather than a comprehensive assessment of the construct. For example, measures of single emotion regulation strategies (e.g., thought suppression) are commonly demonstrated in the literature. As most measures of emotion regulation were developed in some way in relation to the BPD literature, these measures may be over saturated with items related to undercontrol. Therefore, it is likely that these measures do not offer a complete picture of emotional responding. While these scales are helpful in classifying emotion regulation strategies, employing several measures is a cumbersome approach. Multiple assessments of emotion regulation means vulnerability to increased measurement error in assessing this construct. Additionally, measuring isolated features of emotion regulation through different scales and theories may facilitate further compartmentalization of emotion regulation theory. The primary purpose of the present study is to determine the relevance of the underlying factors of existing measures to the development of a new global measure of emotion regulation. Additionally, we are interested in understanding whether emotion regulation functions as a construct that is predictive of personality psychopathology outside of BPD in a non-clinical sample. The goals and hypotheses of the present studies are as follows:

1. The primary goal of the current study is to develop a comprehensive measure of emotion regulation including symptoms of emotion undercontrol and emotion overcontrol.
    a. It is hypothesized that the gold standard measure of emotion regulation, the DERS, will not sufficiently predict disorders of overcontrol above and beyond a measure of alexithymia, the TAS-20, as the DERS does not include factors that address this construct.
    b. It is hypothesized that specific factors of the proposed measure will be related to emotion undercontrol (e.g., BPD). We hypothesize that these factors will reflect constructs like emotional reactivity and impulsivity.
    c. It is hypothesized that specific factors of the proposed measure will be related to emotion overcontrol (e.g., OCPD, AVPD). We hypothesize that these factors will reflect constructs like emotional suppression, thought suppression, and alexithymia.
2. The second goal of the current study is to establish preliminary construct and incremental validity for the proposed measure. We hypothesize that the proposed measure will include factors related to emotion undercontrol and overcontrol that predict emotion regulation difficulties above and beyond existing measures of emotion regulation. Additionally we hypothesize that emotion regulation factors generated by the proposed measure will be predictive of specific forms of psychopathology.
    a. Specifically, undercontrolled emotion regulation strategies like impulsivity and reactivity (e.g., lack of access to emotion regulation

strategies) will be most predictive of Cluster B personality disorders like BPD, HPD, ASPD, symptoms of eating disorders, and substance use disorders.

Emotion regulation strategies that are indicative of behavioral rigidity and inflexibility (e.g., rigid adherence to rules/lack of impulsivity, difficulty observing and describing emotions) will be most predictive of Cluster C personality disorders like AVPD and OCPD.

METHODS

Participants

Participants were undergraduate students recruited from courses at Western Michigan University (WMU). This sample includes 350 participants who completed session one of the current study and 308 participants who returned for the second session. Three participants were excluded from the analyses due to excessive missing data (e.g., lack of completion of two or more full measures). Three hundred and five participants were included in the measure development analyses. Missing data (e.g., skipping a few items on measures) were approached in these 305 participants by assessing the distribution of missing values. As missing values presented in a random pattern based on Little's Missing Completely at Random test, the missing data were replaced with predicted values via expectation maximization (Tabachnick & Fidell, 2007). Of the participants included in the sample of 305, 33 individuals returned for an optional third session. The data from the third session were used for reliability calculations in the present study.

Of the 305 participants included in the present sample, 74% were women and ranged in age from 18 to 41 with a mean age of 20 (*SD* = 3.05). With regard to race and ethnicity, 3.9% (*n* = 12) of the sample identified as Asian, 14.1% (*n* = 43) African American, 4.9% (*n* = 15) Hispanic, 73.8% (*n* = 225) Caucasian, and 3.0% (*n* = 9) biracial (see Table 1).

Table 1

Participant Demographic Characteristics

Demographic Information	Number of Participants	Mean or Percentage
Age (mean)	305	20 years
Sex (% female)	225	74%
Race (% Caucasian)	225	74%
Education (% freshman)	156	51%
Income (% ≥ $15,000)	278	91%
Residence (% dorms)	155	51%

With regard to personality psychopathology as measured by the Schedule for Nonadaptive and Adaptive Personality-2 (SNAP-2), 179 individuals did not meet criteria for a personality disorder (PD). One hundred and twenty-six participants (41%) met *DSM-5* criteria for a PD. Of the participants meeting criteria for a PD, 29 participants met criteria for Borderline Personality Disorder (BPD), 18 participants for Antisocial Personality Disorder (ASPD), 13 participants for Histrionic Personality Disorder (HPD), 14 participants for Narcissistic Personality Disorder (NPD), 39 participants for Avoidant Personality Disorder (AVPD), 44 for Obsessive Compulsive Personality Disorder (OCPD), 20 for Dependent Personality Disorder (DPNPD), 6 for Schizoid Personality Disorder, 11 for Schizotypal Personality Disorder, and 12 for Paranoid Personality Disorder (see Table 2). Fifty-three participants met criteria for comorbid personality disorders.

Table 2

Participant Personality Disorder Characteristics as Measured by the SNAP-2

Personality Disorder Status (n = 305)	Number of Participants	Percent in Sample
No Personality Disorder	179	59%
Any Personality Disorder	126	41%
Comorbid Personality Disorders	53	17%
Borderline Personality Disorder	29	10%
Antisocial Personality Disorder	18	6%
Histrionic Personality Disorder	13	4%
Narcissistic Personality Disorder	14	5%
Avoidant Personality Disorder	39	13%
Obsessive Compulsive Personality Disorder	44	14%
Dependent Personality Disorder	20	7%
Schizoid Personality Disorder	6	20%
Schizotypal Personality Disorder	11	4%
Paranoid Personality Disorder	12	4%

While this reflects a high rate of PD diagnosis, rigorous epidemiological studies have found that 18% of college students meet criteria for a PD through a structured diagnostic interview (Blanco et al., 2008). The use of a self-report PD measure (although validity measures were included) and oversampling of participants from undergraduate psychology coursework may have contributed to an inflation of PDs in the present sample.

Measures

The following measures were included in the present study. Internal consistency was calculated for all relevant scales and subscales based on the current sample. Test-retest reliability was calculated for the current sample with the measures that were included in the third session of the present study.

Measure of Demographic Information

Demographic Questionnaire. The Demographic Questionnaire (Appendix A) was implemented to collect relevant demographic information including age, gender, ethnicity, religion, and personal and family income. This 8-item measure was investigator-developed.

Measure of Personality Psychopathology

Schedule for Nonadaptive and Adaptive Personality-2 (SNAP-2). The SNAP-2 (Clark, 2003) is a 390-item, true or false, self-report measure of normal and abnormal personality features. The SNAP-2 assesses *DSM-5* personality disorders in addition to 12 lower order personality dimensions, 3 higher order temperament scales (negative temperament, positive temperament, and disinhibition), and includes 7 validity scales. The SNAP-2 includes 24 items designed to assess *DSM-5* Paranoid PD, 21 items for Schizoid PD, 25 items for Schizotypal PD, 34 items for ASPD, 33 items for BPD, 23 items for HSPD, 25 items for NPD, 19 items for AVPD, 20 items for DPNDP, and 25 items for OCPD. High rates of internal consistency are demonstrated within the personality disorder scales in a multi-site community sample (N = 540) and a patient sample (N = 106). In the community sample, alpha coefficients ranged from .65 (OCPD) to .84 (AVPD). Within this sample, stable test-retest reliability was established at 1-week

follow-up (.81 to .93) and moderate test-retest reliability was found at 4 months (.76 to .89). Four trait scales of neuroticism, conscientiousness, introversion, and antagonism have been identified within the SNAP-2 as the SNAP "Big Four," which correlate with four of the "Big Five" factors demonstrated in the NEO Five Factor Inventory (NEO-FFI) and the Personality Pathology-5 (PSY-5) scales of the Minnesota Multiphasic Personality Inventory-2. The "Big Four" of the Snap-2 was evaluated in clinical, military, college, and community samples (Calabrese, Rudick, Simms, & Clark, 2012). Similar to internal consistency demonstrated in Clark (2003), in the current sample internal consistency ranged from questionable for OCPD (.60) to acceptable for AVPD (.79) and BPD (.79) in the diagnosis of personality disorders.

Measures Included in Scale Development

Difficulties in Emotion Regulation Scale (DERS). The DERS (Gratz & Roemer, 2004) is a 36-item, self-report measure designed to assess clinically significant difficulties in emotion regulation. The DERS assesses six factors of emotion regulation based on Gratz and Roemer's (2004) definition of emotion regulation, which includes six items related to nonacceptance of emotional responses ($\alpha = .85$), five items related to difficulties engaging in goal-directed behavior ($\alpha = .89$), six items related to impulse control difficulties ($\alpha = .86$), six items related to lack of emotional awareness ($\alpha = .80$), eight items related to limited access to emotion regulation strategies ($\alpha = .88$), and five items related to lack of emotional clarity ($\alpha = .84$). The DERS was validated in an undergraduate sample. Participants rate their emotional state on the DERS on a 1 to 5 scale, with "1" representing an endorsement of "almost never," "2" as "sometimes," "3" indicating "about half the time," "4" indicative of "most of the time," and "5" as

representative of behavior that “almost always” occurs. The nonacceptance factor of the DERS includes items that highlight nonacceptance of emotional experience (e.g., “When I’m upset, I feel ashamed with myself for feeling that way”). Difficulties engaging in goal-directed behavior when distressed represents another factor of the DERS with items like, “When I’m upset, I have difficulty thinking about anything else.” Items like, “When I’m upset, I feel out of control” are found within the impulse control difficulties factor of the DERS. Lack of emotional awareness, the fourth factor of the DERS, includes items like, “I am attentive to my feelings.” The factor encompassing limited access to emotion regulation strategies is represented by items like, “When I’m upset, I believe that I will remain that way for a long time.” Lack of emotional clarity denotes the final factor of the DERS, which assesses understanding of emotional state (e.g., “I have difficulty making sense out of my feelings”). The DERS has demonstrated high internal consistency with .93 as an alpha coefficient. Strong test-retest reliability has been determined for the DERS as .88 over a 4- to 8-week span. Adequate construct and predictive validity has also been demonstrated by the DERS (Gratz & Roemer, 2004). Higher scores on the DERS are representative of greater emotion regulation difficulties.

In the current sample, internal consistency for the DERS ranged from excellent to poor as demonstrated through the subscales, clarity ($\alpha = .65$), awareness ($\alpha = .68$), impulsivity ($\alpha = .80$), nonacceptance ($\alpha = .88$), strategies ($\alpha = .87$), goals ($\alpha = .80$), and total score ($\alpha = .92$). Test-retest reliability in the present study was acceptable overall ($r = .75$). As for the subscales, test-retest reliability was acceptable for nonacceptance ($r = .79$), goals ($r = .73$), strategies ($r = .76$) impulsivity ($r = .71$), and clarity ($r = .63$), and poor for awareness ($r = .55$).

Emotion Regulation Questionnaire (ERQ). The ERQ (Gross & John, 2003) is a 10-item self-report measure that is designed to assess the emotion regulation strategies of cognitive reappraisal and expressive suppression by measuring subjective reports of emotional experience and emotional expression. Gross and John's (2003) theory of emotion regulation differentiates reappraisal from suppression as antecedent and response focused regulatory behaviors, respectively. Items on the ERQ like "I control my emotions by changing the way I think about the situation I'm in" are representative of the reappraisal factor, whereas items like "I control my emotions by not expressing them" are indicative of the suppression factor. The measure is structured in a Likert scale format with an endorsement of "1" representing that the participant "strongly disagrees" with the item listed, while a rating of a "7" indicates that the participant "strongly agrees" with the listed statement. The ERQ has demonstrated adequate internal consistency in undergraduate samples with alpha coefficients of .79 for cognitive reappraisal, which includes six items, and .73 for expressive suppression, which includes four items. Gross and John found endorsement of reappraisal regulatory behaviors to be associated with a heightened experience and expression of positive emotion, less negative emotion, and a positive relation to well-being overall. Suppression was demonstrated to be associated with a greater prevalence of the experience and expression of negative emotion than positive emotion when compared with those scoring high on reappraisal behaviors. Both the reappraisal and suppression subscales have demonstrated convergent and discriminant validity (Gross & John, 2003). Higher scores on the ERQ are indicative of more reappraisal and more suppression of emotions.

In the current sample, internal consistency ranged from good for reappraisal (α = .81), to acceptable for suppression (α = .75). Test-retest reliability in the current sample was good for the suppression subscale (*r* = .85) and unacceptable for the reappraisal subscale (*r* = .29).

Trait Meta Mood Scale (TMMS). The TMMS (Salovey, Mayer, Goldman, Turvey, & Palfai, 1995) is a 30-item self-report scale of that is designed to measure relatively stable, trait-based differences in people's propensity toward attention to their mood and emotional state, ability to discriminate among these states, and the ability to effectively regulate their emotions. The TMMS is comprised of 13 items related to attention to feelings (e.g., "I don't usually care much about what I am feeling"), 11 items related to clarity in discrimination of feelings (e.g., "I feel at ease about my emotions"), and six items related to mood repair as its three predominant factors (e.g., "When I become upset I remind myself of all the pleasures in life"). Internal consistency in an undergraduate sample within the TMMS has been established as acceptable across all three factors with alpha coefficients of .86, .88, and .82, for attention, clarity, and repair, respectively. The TMMS has demonstrated discriminant validity when compared to other measures. Higher scores on the TMMS indicate greater attention to feelings, ability to discriminate feelings, and ability to regulate mood consistently.

In the current sample, the TMMS demonstrated acceptable internal consistency with repair (α = .75), attention (α = .76), and clarity (α = .76) subscales. Acceptable internal consistency was also demonstrated via the overall score (α = .78). Test-retest reliability in the current sample was poor for attention (*r* = .57), acceptable for clarity (*r* = .60), and poor for repair (*r* = .50).

Emotional Expressivity Scale (EES). The EES (Kring, Smith, & Neale, 1994) is a 17-item self-report measure, which is designed to assess the degree to which subjects believe themselves to overtly express their emotional experiences (e.g., "I don't express my emotions to other people"). Participants are instructed to endorse the degree to which they are emotionally expressive on a "1" (never true) to "6" (always true) point Likert scale. The EES demonstrates high internal consistency (α = .90 - .93) in undergraduate samples. Additionally, convergent, discriminant, and predictive validity have been established (Kring et al., 1994). Higher scores on the EES are indicative of greater emotional expressivity.

In the current study, internal consistency was acceptable (α = .79). Test-retest reliability in the current sample was poor (*r* = .43) with the total score for the EES in the current study.

Acceptance and Action Questionnaire-II (AAQ-II). The AAQ-II (Bond et al., 2011) is a 10-item self-report measure of experiential avoidance and psychological flexibility. The AAQ-II is constructed based on a 1 to 7 point Likert scale with "1" representing an experience that is "never true" and "7" indicating an experience that is "always true." To assess the construct of psychological flexibility, the AAQ-II employs items like, "emotions cause problems in my life" and "It's OK if I remember something unpleasant." Both the reliability and validity of the AAQ-II were established in an undergraduate sample. The AAQ-II serves as a revision of the AAQ-I and subsequently demonstrates stronger internal consistency (α = .78 - .88) while maintaining a significant correlation with the original AAQ (*r* = .97) indicating measurement of the same construct. The AAQ-II demonstrates good test-retest reliability at 3-month (*r* = .81) and

12-month (r = .79) follow-ups. The AAQ-II has demonstrated predictive and discriminant validity (Bond et al., 2001). High scores on the AAQ-II indicate greater psychological flexibility.

Internal consistency was questionable for the AAQ-II in the current sample (α = .64). Test-retest reliability was questionable overall (r = .62).

Toronto Mindfulness Scale-Trait Version (TMS). The trait version of the TMS (Davis, Lau, & Cairns, 2009) was developed to function as a trait measure of mindfulness that corresponded to the factors of the original state version of the TMS. Both curiosity (e.g., "I am curious to see what my mind is up to from moment to moment") and decentering (e.g., "I am receptive to observing unpleasant thoughts and feelings without interfering with them") were included as the factors comprising the trait version of the TMS. The curiosity subscale of the TMS is comprised of six items and the decentering subscale includes seven items. Participants are instructed to respond on the basis of a "0" (not at all) to "4" (very much) scale. Internal consistency for the trait version of the TMS has been established in a combined undergraduate and community sample with regard to the curiosity (α = .91) and decentering (α = .85) subscales. Convergent validity has been demonstrated for the TMS when compared with six other validated scales of mindfulness. Construct validity has been found as individuals with meditation experience perform better on the TMS than those who have no history of meditation (Davis et al., 2009). Increased scores on the TMS are indicative of increased self-awareness and psychological mindfulness as persistent traits of an individual.

Internal consistency ranged from good for the curiosity subscale (α = .86) to poor for the decentering subscale (α = .53). In the current sample, test-retest reliability for the curiosity subscale was acceptable (*r* = .72) and poor for the decentering scale (*r* = .54).

Toronto Alexithymia Scale-20 item version (TAS-20). The TAS-20 (Bagby, Parker, & Taylor, 1994; Parker, Taylor, & Bagby, 2003) is a 20-item self-report measure of the construct of alexithymia. This derivation of the Toronto Alexithymia Scale was developed based on an earlier revision of the Toronto Alexithymia Scale-Revised to address concerns regarding internal consistency. The TAS-20 was developed to assess three factors of alexithymia including seven items assessing difficulty identifying feelings (e.g., "I am often confused about what emotion I am feeling"), five items measuring difficulty describing feelings (e.g., "It is difficult for me to find the right words for my feelings"), and eight items related to externally oriented thinking (e.g., "Being in touch with emotions is essential"), as the three primary factors of alexithymia. The TAS-20 employs a Likert scale structure where participants are asked to rate their agreement with an item on a "1" (strongly disagree) to "5" (strongly agree) scale. The TAS-20 demonstrates good internal consistency as an overall measure when employed in student (α = .81), community (α = .86), and psychiatric (α = .83) samples. In a large community sample, good internal consistency has been established for the difficulty identifying feelings (α = .79) and difficulty describing feelings (α = .75) subscales. The third subscale of the TAS-20, externally oriented thinking, demonstrated acceptable internal consistency (α = .66). Test-retest reliability at 3-weeks was .77 ($p < .01$) for the TAS-20. Elevated scores on the TAS-20 factors of difficulty identifying feelings and difficulty describing feeling and lower scores on the factor of externally oriented thinking are

associated with the greater presence of alexithymic symptoms among participants. Research on the TAS-20 demonstrates adequate convergent and concurrent validity across clinical and nonclinical populations (Bagby et al., 1994). Scores greater than or equal to 61 are indicative of alexithymia, scores from 52 to 60 indicate possible alexithymia, and scores less than 51 indicate no alexithymia.

In the current study, internal consistency ranged from excellent on the difficulty identifying feelings subscale (α = .84) to unacceptable on the difficulty describing feelings (α = .29) and externally oriented thinking (α = .20) subscales. The TAS-20 overall demonstrated acceptable internal consistency (α = .70).

Distress Tolerance Scale (DTS). The DTS (Simmons & Gaher, 2005) is a 15-item self-report scale that measures the capacity to experience and endure negative psychological states. Participants are instructed to rate their subjective experience of distress on a scale of "1" (strongly agree) to "5" (strongly disagree). The DTS is comprised of four scales including three items to measure tolerance (e.g., "Feeling distressed or upset is unbearable to me"), six items assessing appraisal (e.g., "My feelings of distress or being upset are not acceptable"), three items measuring absorption (e.g., "When I feel distressed or upset, all I can think about is how bad I feel"), and four items related to regulation (e.g., "I'll do anything to avoid feeling distressed or upset"). The DTS demonstrates high internal consistency (α = .89) and adequate test-retest reliability following a 9-month time lapse (r = .61) in an undergraduate sample. The DTS has displayed good convergent and discriminant validity in relation to other measures of emotional functioning (Simmons & Gaher, 2005). Elevated scores on the DTS are related to greater levels of positive affect and less affective distress and lability.

In the current study, the DTS demonstrated good internal consistency overall (α = .89). Additionally, a factor analysis was conducted on the DTS to determine the presence of any underlying factors for the purposes of the present study. Four factors emerged which included a factor related to tolerance (α = .67), absorption (α = .80), appraisal (α = .80), and regulation (α = .75).

White Bear Suppression Inventory (WBSI). The WBSI (Wegner & Zanakos, 1994) is a 15-item self-report inventory that is designed to assess individuals' tendency toward suppressing unwanted thoughts (e.g., "I always try to put problems out of my mind"). Participants are instructed to rate their agreement with the items on an "A" (strongly disagree) to "E" (strongly agree) scale. The WBSI has demonstrated good internal consistency (α = .87-.89) across undergraduate samples. The WBSI has been demonstrated to have good test-retest reliability at 1 week (r = .92), 3 weeks (r = .69), and 3 months (r = .69). As for validity, the WBSI demonstrates excellent convergent validity when compared to established measures of depression and anxiety. It has also been demonstrated that the WBSI is negatively correlated with repression, indicating its relevance as a unique construct. Higher scores on the WBSI are indicative of increased thought suppression.

In the current study, the WBSI demonstrated excellent internal consistency (α = .92). A factor analysis was conducted on the WBSI to determine the presence of any underlying factors for measure development purposes in the current study. Three factors were identified which included a factor related to intrusion of thoughts (α = .87) comprised of six items, a factor related to suppression of thoughts (α = .80) comprised of four items, and a factor related to self distraction (α = .82) comprised of five items.

Ego-Undercontrol Scale (EU). The EU (Block & Kremen, 1996; Letzring, Block, & Funder, 2005) is a 37-item self-report inventory that is designed to assess ego-control. Ego-control can be understood dimensionally as the construct of ego-control ranges from overcontrol to undercontrol (Block, 2002; Block & Block, 1980). Individuals displaying undercontrol can be characterized as prone to reactivity in emotions and impulses, responding to affect even when the social context is considered inappropriate. Conversely, overcontrolled individuals can be understood as restrictive and rigid in their behaviors, often resulting in difficulty making decisions, excessive organization, and denial of pleasurable tasks (Letzring et al., 2005). The EU includes items like "On the whole, I am a cautious person" and "I like to flirt." Participants are instructed to respond on a "1" (does not apply at all) to "4" (applies very strongly) point continuum. Items on the EU were derived from the Minnesota Multiphasic Personality Inventory (MMPI) and the California Psychological Inventory (CPI) (Letzring et al., 2005). The EU has displayed convergent validity average internal consistency when assessed among a sample of undergraduates ($\alpha = .63$) (Letzring et al., 2005). Higher scores on the EU are indicative of more undercontrol.

In the current study, acceptable internal consistency was demonstrated through the overall score for the EU ($\alpha = .79$). Additionally, a factor analysis was conducted on the EU to determine the presence of any underlying factors for the purposes of the present study. Three factors emerged which included a factor with 11 items related to nonconformity ($\alpha = .74$), a factor with 15 items related to overcontrol ($\alpha = .76$), and a factor with seven items related to impulsivity ($\alpha = .75$). Test-retest reliability was

acceptable in the current study for nonconformity (r = .73), good for impulsivity (r = .85), and unacceptable for overcontrol (r = .30).

Measures Included in Scale Validation

Brief Symptom Inventory (BSI). The BSI (Derogatis, 1982) is a 53-item self-report inventory, which describes a variety of distressing symptoms accounting for the subject's most recent week of relevant stressors. The BSI utilizes a 5-point scale (0 to 4), which indicates degrees of distress ranging from "not at all" to "extremely," requiring participants to endorse how much distress they experienced as a result of each item. The dimensions of somatization including seven items (α = .80) (e.g., feeling weak in parts of your body), obsession-compulsion including six items (α = .83) (e.g., having to double-check what you do), interpersonal sensitivity including four items (α = .74) (e.g., feeling inferior to others), depression including six items (α = .85) (e.g., feelings of hopelessness about the future), anxiety including six items (α = .81) (e.g., spells of terror or panic), hostility including five items (α = .78) (e.g., getting into frequent arguments), phobic anxiety including five items (α = .77) (e.g., feeling afraid in open spaces or on the streets), paranoid ideation including five items (α = .77), (e.g., feelings that people will take advantage of you if you let them), and psychoticism including five items (α = .71) (e.g., never feeling close to another person) comprise the nine subscales of the measure.

In scoring the BSI, three global indexes can be calculated. The General Severity Index of the BSI can be calculated as the result of the sum of the ratings the subject has indicated for each item acting as a global index of functioning. The Positive Symptom Total of the BSI refers to a frequency count of the participant's self-reported number of symptoms. The Positive Symptom Distress Index serves as the final global index of the

BSI, which is reflexive of the overall intensity of distress where the number of endorsed symptoms is corrected for in the scoring process. The BSI demonstrates good internal consistency with alpha scores ranging from .75 to .96 in a psychiatric outpatient sample. Test-retest reliability for the BSI is also relatively strong with correlations ranging from .68 to .91 between measure administrations. Higher scores on the BSI indicate the endorsement of greater levels of psychological distress. The BSI demonstrates convergent validity in its correlation with the Symptom Checklist-90-Revised (SCL-90-R) in its correlation (r = .92 - .99) with this measure. In the current sample, internal consistency for the General Severity Index of the BSI was excellent (α = .96).

COPE. The COPE (Carver, Scheier, & Weintraub, 1989) is a 60-item self-report inventory that assesses participants' subjective reports of coping behavior dispositions when enduring stressful situations. The COPE utilizes 14 different coping subscales each containing four items. Internal consistency in an undergraduate sample ranges from excellent to unacceptable on the COPE in the areas of active coping (α = .62), planning (α = .80), suppression of competing activities (α = .68), restraint coping (α = .72), seeking social support—instrumental (α = .75), seeking social support—emotional (α = .85), positive reinterpretation and growth (α = .68), acceptance (α = .65), turning to religion (α = .92), focus on and venting emotions (α = .77), denial (α = .71), behavioral disengagement (α = .63), mental disengagement (α = .45), and alcohol-drug disengagement (not reported).

In the current sample, internal consistency for each subscale ranged from unacceptable to excellent with regard to active coping (α = .70), planning (α = .83), suppression of competing activities (α = .59), restraint coping (α = .46), seeking social

support—instrumental (α = .81), seeking social support—emotional (α = .90), positive reinterpretation and growth (α = .73), acceptance (α = .71), turning to religion (α = .95), focus on and venting emotions (α = .82), denial (α = .75), behavioral disengagement (α = .52), mental disengagement (α = .45), and alcohol-drug disengagement (α = .96).

Eating Disorder Examination-Self-Report Questionnaire Version (EDE-Q). The EDE-Q (Fairburn & Beglin, 2008) is a 28-item self-report questionnaire based on the existing Eating Disorder Examination which functions as a clinical interview. The EDE-Q assesses key behavioral features and associated psychopathology implicated in eating disorders occurring within participants in the past 28 days. The EDE-Q is divided into the four subscales of restraint (e.g., "Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight [whether or not you have succeeded]") which contains five items, shape concern (e.g., "Has your shape influenced how you think about [judge] yourself as a person") which contains eight items, weight concern (e.g., "Have you had a definite fear that you might gain weight") which contains five items, and eating concern (e.g., "How concerned have you been about other people seeing you eat") which contains five items. The internal consistencies and test retest-reliability for restraint (α = .84, *r* = .81), shape concern (α = .93, *r* = .94), weight concern (α = .89, *r* = .92), and eating concern (α = .78, *r* = .87) range from excellent to acceptable in an undergraduate sample. In the current sample, internal consistency ranged from excellent for the shape concern subscale (α = .92), to good for the restraint (α = .80), weight concern (α = .88), and eating concern (α = .80) subscales.

Affective Control Scale (ACS). The ACS (Williams, Chambless, & Ahrens, 1996) is a 42-item self-report measure designed to assess fear of strong emotions. The

four subscales of anger (α = .72), which includes eight items, positive affect (α = .84), which includes 13 items, depressed mood (α = .91), which includes eight items, and anxiety (α = .89), which includes 13 items comprise the ACS. The internal consistency of these subscales was calculated from an undergraduate sample. The ACS assesses fear of strong emotions by emphasizing beliefs about the consequences of experiencing emotions and assessing the degree to which emotional control is sought. The ACS is structured using positive and reverse worded items to which participants are instructed to respond on the basis of a "1" (very strongly disagree) to "7" (very strongly agree) point Likert scale. The anger subscale assesses affective control in response to the emotion of anger with statements like, "I am afraid that letting myself feel really angry about something could lead me into an unending rage." Response to positive affect is indicated on the ACS with items like, "Having an orgasm is scary for me because I am afraid of losing control." The depressed mood subscale of the ACS consists of items like, "Being depressed is not so bad because I know it will soon pass." Within the anxiety subscale of the ACS participants are instructed to rate the degree to which they agree with statements like, "I am able to prevent myself from becoming overly anxious." As an overall construct, the ACS demonstrates strong internal consistency (α = .94) and good 2-week test-retest reliability (*r* = .78) in an undergraduate sample. The ACS has demonstrated convergent validity with respect to related measures of emotion regulation (Williams et al., 1996). High scores on the ACS indicate fear of emotion.

In the current study, internal consistency for the ACS ranged from good to acceptable as indicated by the anger (α = .72), anxiety (α = .80), happiness (α = .79), and depressed (α = .85) subscales. Internal consistency for the ACS total score was excellent

(α = .91). Test-retest reliability in the current sample was good for the ACS as an overall scale (*r* = .86). It was acceptable for the anger (*r* = .77) and depression (*r* = .65) subscales and good for happiness (*r* = .81) and anxiety (*r* = .88).

Courtauld Emotional Over Control Scale (CECS). The CECS (Watson & Greer, 1983) is a 21-item self-report inventory assessing suppression of the emotions of anger (e.g., "I smother my feelings"), depression (e.g., "I hide my unhappiness"), and anxiety (e.g., "I say what I feel"). Within each seven-item subscale, the same statements are presented with a different emotional valence (e.g., "When I feel ANGRY: I smother my feelings"), which, like the other items, falls under all three subscales. Participants are asked to rate themselves on a scale from "1" (almost never) to "4" (almost always) with regard to their endorsement of each item. The CECS demonstrates good internal consistency in a medical setting with alpha coefficients ranging from .83 to .86 among hospital employees and heart patients (Watson & Greer, 1983). Higher scores on the CECS indicate greater emotional control.

In the present study, poor internal consistency was found for the CECS anxiety (α = .36), depression (α = .49), and anger (α = .42) subscales. For the total scale, internal consistency was acceptable (α = .72). Test-retest reliability in the current sample was acceptable overall (*r* = .61), acceptable for the depressed subscale (*r* = .61), poor for the anxiety subscale (*r* = .55), unacceptable for the anger subscale (*r* = .39).

State Difficulties in Emotion Regulation Scale (S-DERS). The S-DERS (Lavender, Tull, DiLillo, Messman-Moore, & Gratz, under review) is a state version of Gratz and Roemer's (2004) trait based DERS. The S-DERS is a 30-item questionnaire designed to assess state-based emotion regulation difficulties consistent with Gratz and

Roemer's theory of emotion regulation. The version of this measure used in the present study was comprised of five subscales including non-acceptance of emotions (e.g., "I feel guilty for feeling this way"), difficulty engaging in goal directed behavior (e.g., "I am having difficulty focusing on anything other than my emotions"), impulse control difficulties (e.g., "I feel out of control"), lack of awareness of emotions (e.g., "I am paying attention to how I feel"), difficulty accessing emotion regulation strategies (e.g., "I am feeling very bad about myself"), and lack of emotional clarity (e.g., "I have no idea how I am feeling"). The S-DERS has been revised to a four-factor model since its inclusion in the present study. A new factor, "modulate," was created from the impulse, goals, and strategies subscales. Lavender et al. (under review) found good internal consistency for the total scale ($\alpha = 0.86$), adequate to excellent internal consistency for the non-acceptance ($\alpha = 0.92$), modulate ($\alpha = 0.85$), and awareness subscales ($\alpha = 0.79$), and satisfactory internal consistency for the clarity subscale ($\alpha = 0.65$). Construct validity and predictive validity have also been established for the S-DERS when compared to the trait version of the DERS.

In the current study, internal consistency ranged from excellent to acceptable for the factors of the S-DERS as evidenced by non-acceptance ($\alpha = 0.94$), impulse ($\alpha = 0.62$), goals ($\alpha = 0.62$), awareness ($\alpha = 0.62$), strategies ($\alpha = 0.81$), and clarity ($\alpha = 0.67$) subscales.

Procedure

All procedures in the present study were reviewed and approved by the university's Human Subjects Institutional Review Board (see Appendix B). All enrolled WMU students age 18 and above were eligible for participation.

Session One

In session one of the current study, participants first met with a research assistant or graduate student investigator to review and sign the informed consent document. In the informed consent document, participants were provided with information about the components of the present study and had the opportunity to ask questions to the graduate student investigator or research assistant. Participants were told they would be asked to participate in three sessions to learn more about their emotions and how students respond to stressful situations. Following the informed consent process, the remainder of the first session was devoted to completing a battery of self-report assessments. This battery of self-report assessments included the SNAP-2, Demographic Questionnaire, COPE, EDE-Q, EU, BSI, and CECS. Participants were scheduled for a second session one week after the first session.

Session Two

The informed consent was reviewed with participants at the start of the study's second session. Participants were then given a different battery of self-report assessments to complete. This packet assessed constructs related to trait emotion regulation, which included the DERS, TMS, ACS, AAQ-II, ERQ, TAS-20, DTS, TMMS, EES, and WBSI. Upon completion of this packet, participants were given a smaller packet of state emotion regulation measures. Participants were then asked to complete one of two mood induction tasks to which they were randomly assigned. This procedure was associated with a different study, the graduate student investigator's thesis (Borges & Naugle, 2015). After participating in the mood induction procedure, participants were asked to complete the state emotion regulation measures a second time.

Session Three

As part of a different study, participants were asked to complete an optional third session for which they were not offered extra credit. A new packet containing measures participants completed during sessions one and two was distributed for completion during the third session. This packet of measures included the DERS, ERQ, CECS, ACS, EU, WBSI, and AAQ-II. In the current study, session three was used to provide test-retest reliability for the measures administered.

Item Pool Development

The measures related to trait emotion regulation completed in sessions one and two of the present study formed the item pool for the basis of a new measure of emotion regulation. In order to determine which variables were appropriate for inclusion in factor analyses, each emotion regulation variable was initially entered into a correlation matrix. Variables that demonstrated no overlap with other variables were removed from the item pool. Next, discriminant function analyses were employed to determine which emotion regulation variables were most predictive of personality disorders indicative of the construct of overcontrol (i.e., AVPD and OCPD) and personality disorders indicative of the construct of undercontrol (i.e., BPD and ASPD) on the SNAP-2. To ensure all relevant emotion regulation variables were included in the item pool, multiple linear regressions were employed to assess the relationship between personality traits associated with emotion undercontrol and overcontrol and emotion regulation variables. The discriminant function analyses predicting personality psychopathology and the multiple regressions predicting personality traits determined the items to be included in the item pools for exploratory factor analyses (EFAs). Because of the number of variables

predictive of undercontrol and overcontrol respectively, and the sample size of 305 participants, to attain sufficient power two separate measures were developed with the intent of merging these scales in future research. Variables most predictive of BPD, ASPD, and associated personality traits were included in the item pool for the emotion undercontrol scale. Variables most predictive of AVPD, OCPD, and associated personality traits were included in the item pool for the emotion overcontrol scale.

RESULTS

In the current study, three different groups of measures were included. One set of measures reflected personality psychopathology (SNAP-2) and demographic information (Demographic Questionnaire). The second group of questionnaires included measures that were hypothesized to measure the construct of emotion regulation. These measures included the DERS, TAS-20, ERQ, TMMS, WBSI, TMS, EU, AAQ-II, DTS, and EES. The third set of measures included in the current study was used as preliminary assessments of the reliability and validity of the new measures. Included to assess reliability and validity were the BSI, COPE, ACS, CECS, EDE-Q, and the S-DERS.

Preliminary Analyses

Descriptive Statistics

Means and standard deviations were calculated for all measures included in the current study. Additionally, the internal consistency in the present sample and number of items included in each variable are reported in Table 3 and Table 4.

Table 3

Descriptive Statistics for Personality Variables and Reliability and Validity Variables

Variable	# Items	α	Mean	*SD*
SNAP-2_ASPD (total items)	34	.70	7.47	4.96
SNAP-2_BPD (total items)	33	.79	10.09	5.59
SNAP-2_AVPD (total items)	19	.79	8.10	4.46
SNAP-2_OCPD (total items)	25	.65	13.30	3.85
BSI	53	.96	48.53	32.25
ACS_PA	13	.79	47.29	9.38
ACS_anger	8	.72	18.79	2.74
ACS_depressed	8	.85	29.45	9.35
ACS_anxiety	13	.80	52.80	10.32
CECS_anger	7	.42	18.79	2.74
CECS_depression	7	.49	16.65	3.34
CECS_anxiety	7	.36	19.56	2.38
EDE-Q_restraint	5	.80	1.66	1.52
EDE-Q_weightconcern	5	.88	2.15	1.77
EDE-Q_shapeconcern	8	.92	2.47	1.76
EDE-Q_eatingconcern	5	.80	.84	1.09
EDE-Q_total	28	.89	1.78	1.35
COPE_activecoping	4	.70	11.28	2.34
COPE_planning	4	.83	11.93	2.68
COPE_suppression	4	.59	9.81	2.28
COPE_restraint	4	.46	9.84	2.46
COPE_instsocsupport	4	.81	11.55	3.09
COPE_emosocsupport	4	.90	10.27	3.30
COPE_posreinterp	4	.73	12.60	2.42
COPE_acceptance	4	.71	11.35	2.50
COPE_religion	4	.95	8.87	4.40
COPE_emoventing	4	.82	10.27	3.30
COPE_denial	4	.75	6.03	2.28
COPE_bxdisengage	4	.52	6.60	2.30
COPE_mentaldisengage	4	.45	10.53	2.53
COPE_alcdrug	4	.96	5.95	3.04

Table 4

Descriptive Statistics for Emotion Regulation Variables and Variables Included in Subsequent Analyses

Variable	# Items	α	Mean	*SD*	Correlation	Discriminant Function	EFA Undercontrol	EFA Overcontrol
TMS_Curiosity	6	.91	14.44	4.85	N	--	--	--
TMS_Decentering	7	.85	13.48	3.98	N	--	--	--
TMMS_Attention	13	.86	44.75	8.33	Y	Y	--	--
TMMS_Clarity	11	.88	36.67	7.06	Y	Y	--	--
TMMS_Repair	6	.82	31.85	4.75	Y	Y	--	Y
DTS_Tolerance	3	.67	9.74	2.82	Y	N	--	--
DTS_Appraisal	6	.80	21.65	5.06	Y	Y	Y	--
DTS_Absorption	3	.80	9.59	3.21	Y	Y	Y	--
DTS_Regulation	4	.75	8.76	2.93	Y	N	--	--
WBSI_Intrusion	6	.87	20.17	5.64	Y	Y	--	--
WBSI_Suppression	4	.80	14.66	3.62	Y	N	--	--
WBSI_SelfDistraction	5	.82	16.05	5.19	Y	Y	--	--
AAQII_Total	10	.64	35.45	8.17	Y	Y	Y	Y
ERQ_Suppression	4	.75	13.12	5.10	Y	Y	Y	--
ERQ_Reappraisal	6	.81	28.39	6.39	N	--	--	--
TAS20_IDFeelings	7	.84	15.19	5.58	Y	Y	Y	Y
TAS20_DescribeFeelings	5	.29	14.20	3.13	Y	Y	--	Y
TAS20_ExternalThinking	8	.20	25.53	3.37	Y	N	--	--

Table 4—Continued

Variable	# Items	α	Mean	*SD*	Correlation	Discriminant Function	EFA Undercontrol	EFA Overcontrol
DERS_Nonacceptance	6	.88	13.27	5.72	Y	Y	--	Y
DERS_Goals	5	.80	14.97	4.22	Y	Y	Y	Y
DERS_Impulsivity	6	.80	14.97	4.41	Y	Y	Y	--
DERS_Awareness	6	.68	18.33	4.31	Y	N	--	--
DERS_Strategies	7	.87	17.55	6.80	Y	Y	Y	Y
DERS_Clarity	5	.65	12.27	3.36	Y	Y	--	Y
EU_Nonconformity	11	.74	29.73	5.48	Y	Y	--	--
EU_Overcontrol	15	.76	25.62	3.21	Y	N	--	--
EU_Impulsivity	7	.75	16.86	3.99	Y	N	Y	Y
EES_Total	17	.79	56.06	11.79	N	--	--	--

Note. "Y" indicates inclusion in statistical analysis and statistical significance. "N" denotes inclusion in analysis and non-statistical significance. Exclusion from analysis is indicated by the "--" symbol.

Hierarchical Linear Regressions

To begin to assess the adequacy of the gold standard measure of emotion regulation, the DERS, in predicting all facets of emotion regulation, hierarchical linear regressions were employed to assess the extent to which the DERS predicted symptoms of BPD, OCPD, and AVPD. Statistical assumptions were tested before regressions were performed. First, the size of the sample indicated strong statistical power (.99) with the number of predictor variables (9 predictors) to be tested and the amount of participants included in the sample. The data did not violate any of the assumptions of linear regression including linearity, homoscedasticity, independence of observations, absence of outliers, absence of multicollinearity and singularity, and normality of error (Tabachnick & Fidell, 2007). Hierarchical linear regressions were applied to assess whether a measure of emotional functioning hypothesized to be related to emotion overcontrol, the TAS-20, was more predictive of Cluster C personality disorders than the DERS. If the TAS-20 was in fact more predictive of Cluster C personality disorders, this would provide some evidence that the DERS does not sufficiently address emotion regulation difficulties among these individuals.

It was hypothesized that when the DERS subscales were entered into the first step of the model, and the TAS-20 subscales into the second step, the TAS-20 would account for additional variance in OCPD and AVPD symptoms above and beyond the DERS. The difficulty identifying feelings, difficulty describing feelings, and externally oriented thinking subscales of the TAS-20 were hypothesized to account for more variance than the DERS as difficulty observing and labeling emotions are often observed in Cluster C personality disorders.

BPD. The subscales of the DERS were entered in step one of a hierarchical multiple regression and emerged significantly predicting 23% of the variance in BPD symptoms $F(6, 212) = 11.65$, $p < .001$. In step two of the hierarchical multiple regression the TAS-20 subscales were entered. Model two demonstrated an increase in predictive capacity, accounting for 30% of the variance in BPD symptoms $F(9, 203) = 9.64$, $p < .001$. As indicated by *R* square change scores, this suggests that the addition of the TAS-20 uniquely accounts for 4.6% of the variance in BPD symptoms above and beyond the DERS. Difficulties in goal directed behavior ($\beta = .08$, $p < .05$), impulsivity ($\beta = .08$, $p < .05$), and awareness ($\beta = .10$, $p < .05$) emerged as significant predictors of BPD symptoms from the DERS in model two. Additionally, difficulty identifying feelings subscale from the TAS-20 ($\beta = .07$, $p < .01$) was also a significant predictor of BPD symptoms in model two (see Table 5).

AVPD. Following the same structure as the previous set of hierarchical multiple regressions for BPD symptoms, model one significantly predicted AVPD symptoms, accounting for 11% of the variance in these symptoms $F(6, 178) = 4.28$, $p < .01$. Model two which included the TAS-20 subscales, accounted for 5.8% more variance, thus predicting 17% of the variance in AVPD symptoms $F(9, 175) = 7.34$, $p < .001$. In model two, difficulties in strategies ($\beta = .06$, $p < .05$) emerged as significant predictors of AVPD symptoms from the DERS. Of the TAS-20 subscales, difficulty describing feelings significantly predicted AVPD symptoms ($\beta = .12$, $p < .01$) (see Table 6).

Table 5

Summary of Hierarchical Linear Regressions for Variables Predicting BPD Symptoms

Step	Variable	B	SE B	β	R^2	ΔR^2	ΔF
1	DERS				.25	.25	4.3***
	DERS_Nonacceptance	-.02	.03	-.06			
	DERS_Goals	.06	.03	.15			
	DERS_Impulse	.10	.03	.28			
	DERS_Awareness	.09	.04	.14			
	DERS_Strategies	.04	.03	.15			
	DERS_Clarity	.03	.04	.04			
2	DERS + TAS-20				.30	.05	4.6**
	DERS_Nonacceptance	-.02	.02	-.08			
	DERS_Goals	.08	.03	.19			
	DERS_Impulse	.08	.03	.22			
	DERS_Awareness	.10	.04	.15			
	DERS_Strategies	.02	.03	.08			
	DERS_Clarity	-.04	.05	-.06			
	TAS-20_Identify	.07	.03	.23			
	TAS-20_Describe	.06	.04	.10			
	TAS-20_External	-.05	.03	-.11			

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

Table 6

Summary of Hierarchical Linear Regressions for Variables Predicting AVPD Symptoms

Step	Variable	B	SE B	β	R^2	ΔR^2	ΔF
1	DERS				.11	.11	3.72**
	DERS_Nonacceptance	.01	.02	-.06			
	DERS_Goals	.00	.03	.15			
	DERS_Impulse	-.03	.03	.28			
	DERS_Awareness	.06	.04	.14			
	DERS_Strategies	.07	.03	.15			
	DERS_Clarity	-.02	.04	.04			
2	DERS + TAS-20				.17	.06	4.10**
	DERS_Nonacceptance	.004	.02	.02			
	DERS_Goals	.02	.03	.06			
	DERS_Impulse	-.04	.03	-.12			
	DERS_Awareness	.08	.03	.13			
	DERS_Strategies	.06	.04	.28			
	DERS_Clarity	-.04	.04	-.09			
	TAS-20_Identify	.00	.03	-.001			
	TAS-20_Describe	.12	.04	.27			
	TAS-20_External	-.02	.03	-.05			

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

OCPD. Using the same structure as the previous analyses, model one of this hierarchical multiple regression significantly predicted OCPD symptoms using the DERS subscales $F(6, 261) = 2.52$, $p < .05$. Model one explained 23.1% of the variance in OCPD symptoms. In model two, where the TAS-20 was entered in the second step of the hierarchical multiple regression, 29.8% of the variance in OCPD symptoms was

explained $F(9, 258) = 2.80$, $p < .01$. This reflects a 3.6% increase in predictive capacity. The emotion regulation variable significantly contributing to the prediction of OCPD symptoms in model two was difficulty engaging in goal directed behavior when distressed ($\beta = .07$, $p < .01$). As for the TAS-20, difficulties describing feelings ($\beta = .06$, $p < .05$) emerged as predictive of OCPD symptoms (see Table 7).

Table 7

Summary of Hierarchical Linear Regressions for Variables Predicting OCPD Symptoms

Step	Variable	B	SE B	β	R^2	ΔR^2	ΔF
1	DERS				.05	.05	2.5*
	DERS_Nonacceptance	-.02	.02	-.09			
	DERS_Goals	.05	.02	.18			
	DERS_Impulse	.04	.03	.13			
	DERS_Awareness	.02	.03	.03			
	DERS_Strategies	.003	.02	.02			
	DERS_Clarity	-.008	.04	-.02			
2	DERS + TAS-20				.09	.04	3.4*
	DERS_Nonacceptance	-.10	.02	-.15			
	DERS_Goals	-.03	.02	.22			
	DERS_Impulse	.07	.03	.10			
	DERS_Awareness	.03	.03	.06			
	DERS_Strategies	-.009	.02	-.05			
	DERS_Clarity	-.04	.04	-.08			
	TAS-20_Identify	.03	.03	.14			
	TAS-20_Describe	.06	.02	.15			
	TAS-20_External	-.003	.02	-.008			

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

Correlations

As a screening procedure to determine which emotion regulation variables were appropriate for inclusion in further analyses for measure development, a correlation matrix was generated including all trait emotion regulation variables in the present study (see Table 8). Statistical assumptions were tested before the correlation matrix was generated. Sufficient power (.99) was attained. The data did not violate any of the assumptions of correlations including linearity, homoscedasticity, independence of observations, and absence of outliers. Twenty-eight emotion regulation variables were entered into the correlation analysis. These variables were selected due to inclusion in the present study and theoretical consistency with the other variables. Generally, emotion regulation variables that did not demonstrate at least moderate correlations with other emotion regulation variables were not included in further analyses. The EES and both of the TMS subscales were removed, as no correlations were greater than .35 between other variables and these measures. The ERQ reappraisal subscale was also removed. While the ERQ reappraisal subscale demonstrated moderate correlations with the TMMS, this subscale was removed due to poor test-retest reliability and low correlations with other measures included in the current sample. While the overcontrol subscale of the EU did not demonstrate correlations above .35 with other factors, this subscale was retained due to hypothesized theoretical importance in assessing overcontrol and because the factor structure of this measure was calculated in the present study. Based on emotion regulation variable correlations, 24 predictor variables were retained for inclusion in later analyses.

Table 8

Correlations Between Emotion Regulation Variables 1 to 28 to Determine Inclusion in Discriminant Function Analyses

Variable	1	2	3	4	5	6	7	8	9	10
1. TMS_Curiosity	--									
2. TMS_Decentering	.46**	--								
3. TMMS_Attention	.28**	.18**	--							
4. TMMS_Clarity	.01	.13*	.37**	--						
5. TMMS_Repair	.20**	.19**	.33**	.37**	--					
6. DTS_Tolerance	-.01	-.005	.05	.31**	.19**	--				
7. DTS_Appraisal	-.06	-.05	.13*	.48**	.43**	.57**	--			
8. DTS_Absorption	.001	.01	-.01	.37**	.33**	.67**	.72**	--		
9. DTS_Regulation	-.11	-.17**	.02	.13*	.09	.48**	.43**	.42**	--	
10. WBSI_Intrusion	.16*	.02	.07	-.34**	-.22**	-.30**	-.46**	-.49**	-.18**	--
11. WBSI_Suppression	.06	-.06	.06	-.16**	.02	-.24**	-.17**	-.28**	-.22**	.61**
12. WBSI_SelfDistraction	.13*	.004	-.02	-.35**	-.15**	-.33**	-.42**	-.45**	-.26**	.70**
13. AAQII_Total	.19**	.10	-.02	-.40**	-.33**	-.31**	-.56**	-.50**	-.19**	.52**
14. ERQ_Suppression	-.04	.03	-.40**	-.25**	-.30**	-.10	-.27**	-.16**	-.12*	.18**
15. ERQ_Reappraisal	.31**	.24**	.24**	.41**	.54**	.22**	.33**	.27**	-.01	-.11
16. TAS20_IDFeelings	.20**	.04	-.13*	-.59**	-.28**	-.34**	-.59**	-.49**	-.26**	.54**
17. TAS20_DescribeFeelings	.12*	.09	-.22**	-.39**	-.28**	-.20**	-.33**	-.31**	-.19**	.34**
18. TAS20_ExternalThinking	.14*	.10	.18**	.06	.12*	.02	-.02	.01	-.13*	.20**
19. DERS_Nonacceptance	.13*	.06	-.12*	-.41**	-.29**	-.39**	-.63**	-.43**	-.32**	.42**

Table 8—Continued

Variable	1	2	3	4	5	6	7	8	9	10
20. DERS_Goals	.06	.03	.07	-.27**	-.21**	-.38**	-.45**	-.50**	-.27**	.40**
21. DERS_Impulsivity	.003	.07	-.15**	-.41**	-.33**	-.39**	-.58**	-.49**	-.29**	.39**
22. DERS_Awareness	.12*	.12*	.37**	.32**	.15*	.08	.09	.03	.002	-.09
23. DERS_Strategies	.04	-.01	-.07	-.40**	-.39**	-.42**	-.62**	-.60**	-.31**	.46**
24. DERS_Clarity	.06	-.01	-.13*	-.38**	-.26**	-.19**	-.36**	-.33**	-.11	.37**
25. EU_Nonconformity	.14*	.05	.05	-.30**	-.24**	-.25**	-.39**	-.37**	-.16**	.35**
26. EU_Overcontrol	.02	.06	.10	.23**	.05	.009	.13**	.09	-.07	-.003
27. EU_Impulsivity	.11	.12*	.01	-.10	-.05	-.05	-.19	-.08	-.01	.14*
28. EES_Total	.006	.10	.10	.07	-.05	-.12	-.02	-.11	-.05	.11

Variable	11	12	13	14	15	16	17	18	19	20
11. WBSI_Suppression	--									
12. WBSI_SelfDistraction	.61**	--								
13. AAQII_Total	.24**	.47**	--							
14. ERQ_Suppression	.09	.22**	.28**	--						
15. ERQ_Reappraisal	.06	-.07	-.20**	-.18**	--					
16. TAS20_IDFeelings	.25**	.54**	.59**	.31**	-.21**	--				
17. TAS20_DescribeFeelings	.13*	.37**	.40**	.56**	-.16**	.55**	--			
18. TAS20_ExternalThinking	.15**	.13*	.16**	-.04	.23**	.07	.08	--		
19. DERS_Nonacceptance	.22**	.41**	.53**	.32**	-.21**	.58**	.39**	.16**	--	
20. DERS_Goals	.23**	.39**	.47**	.10	-.23**	.39**	.18**	.09	.51**	--

Table 8—Continued

Variable	11	12	13	14	15	16	17	18	19	20
21. DERS_Impulsivity	.15**	.36**	.53**	.26**	-.34**	.59**	.34**	-.01	.57**	.46**
22. DERS_Awareness	-.05	-.14*	-.027	-.25**	.16**	-.16**	-.24**	.003	-.15**	-.04
23. DERS_Strategies	.21**	.44	.61**	.29**	-.33**	.60**	.38**	.04	.72**	.64**
24. DERS_Clarity	.18**	.37**	.44**	.27**	-.21**	.58**	.37**	-.04	.45**	.34**
25. EU_Nonconformity	.15**	.31**	.47**	.17**	-.13*	.40**	.28**	.05	.36**	.31**
26. EU_Overcontrol	.002	-.07	.03	.007	.13*	.04	-.06	.03	.03	.11
27. EU_Impulsivity	.05	.07	.11	.05	-.17**	.09	.06	.06	.16**	.008
28. EES_Total	.12*	.08	.07	-.02	.05	.05	-.06	.02	.13*	.11

Variable	21	22	23	24	25	26	27	28
21. DERS_Impulsivity	--							
22. DERS_Awareness	-.12*	--						
23. DERS_Strategies	.68**	-.10	--					
24. DERS_Clarity	.53**	-.02	.50**	--				
25. EU_Nonconformity	.32**	.03	.41**	.27**	--			
26. EU_Overcontrol	.06	.31**	.06	.03	.04	--		
27. EU_Impulsivity	.13*	.03	.11	.11	.48**	-.05	--	
28. EES_Total	.06	.00	.10	.01	.08	.001	.05	--

* $p < .05$. ** $p < .01$.

Discriminant Function Analyses: Predicting PD Diagnoses from Emotion Regulation Variables

Discriminant function analyses were used to assess which emotion regulation variables were most strongly predictive of personality disorders. To attain a statistical power of .80 or greater with 24 variables and two groups (PD diagnosis vs. no PD diagnosis), 380 participants would have been necessary in the present sample. As these discriminative function analyses were used as a screening procedure to determine the item pools for the proposed measures, all variables were retained in the discriminate function analyses despite low statistical power (.68). Before completing discriminate function analyses, statistical assumptions were tested. The data did not violate any of the assumptions of multivariate tests including linearity, normality, absence of outliers, homogeneity of variance-covariance matrices, and absence of multicollinearity and singularity (Tabachnick & Fidell, 2007). In the current study, BPD and ASPD were found to be the most predominantly occurring cluster B personality disorders. AVPD and OCPD were demonstrated as the most commonly occurring Cluster C personality disorders in the present sample (see Table 2). The resulting predictive variables that were most highly correlated with BPD, ASPD, OCPD, and AVPD were included in the item pools for measure development.

BPD. The canonical correlation between the predictor variables and the discriminant function (R = .48, χ^2 [25] = 73.50, p < .001) demonstrated that emotion regulation variables effectively discriminate between participants meeting criteria for BPD and participants who did not meet criteria for BPD. As shown in Table 9, among the most significant predictors of BPD were impulsivity (DERS) (r = .67), experiential avoidance (AAQ-II) (r = .63), difficulty engaging in emotion regulation strategies

(DERS*)* (*r* = .58), difficulty identifying feelings (TAS-20) (*r* = .55), nonconformity (EU) (*r* = .54), appraisal (DTS) (*r* = -.51), emotional clarity (DERS) (*r* = .44), absorption (DTS) (*r* = -.43), thought intrusion (WBSI) (*r* = .42), self distraction (WBSI) (*r* = .39), and nonacceptance (DERS) (*r* = .35). The current model correctly classified 91.7% of cases to either BPD or no BPD.

ASPD. The canonical correlation between the predictor variables and the discriminant function (R = .41, χ^2 [25] = 52.37, p < .01) demonstrated that emotion regulation variables discriminate between participants meeting criteria for ASPD and participants who did not meet criteria for ASPD. As demonstrated in Table 10, the most significant predictors of ASPD were nonconformity (EU) (*r* = .50), impulsivity (EU) (*r* = .45), impulsivity (DERS) (*r* = .42), suppression (ERQ) (*r* = .37), and repair (TMMS) (*r* = -.35). This model appropriately classified 94% of cases to either ASPD or no ASPD.

AVPD. The canonical correlation between the predictor variables and the discriminant function (R = .49, χ^2 [24] = 80.25, p < .001) demonstrated that emotion regulation variables discriminate between participants meeting criteria for AVPD and participants who did not meet criteria for AVPD. As demonstrated in Table 11, among the most significant predictors of AVPD were difficulty describing feelings (TAS-20) (*r* = .45), strategies (DERS) (*r* = .45), nonacceptance (DERS) (*r* = .44), experiential avoidance (AAQ-II) (*r* = .40), difficulty identifying feelings (TAS-20) (*r* = .38), and goals (DERS) (*r* = .35) (see Table 9). Eighty-six percent of cases were correctly classified to either AVPD or no AVPD in this model.

Table 9

Correlations Between Trait Emotion Regulation and the Discriminant Function and Standardized Discriminant Function Coefficients in Predicting BPD

Trait Emotion Regulation (Measure)	*R* Discriminant Function	Function Coefficients
Nonacceptance (DERS)	.35	-.48
Goals (DERS)	.57	.35
Impulsivity (DERS)	.67	.41
Awareness (DERS)	.06	-.03
Strategies (DERS)	.58	.05
Clarity (DERS)	.44	.02
Identify Feelings (TAS-20)	.55	.11
Describe Feelings (TAS-20)	.33	.14
External Thinking (TAS-20)	-.10	-.22
Experiential Avoidance (AAQ-II)	.63	.31
Attention (TMMS)	.06	.16
Clarity (TMMS)	-.32	-.04
Repair (TMMS)	-.31	-.10
Tolerance (DTS)	-.29	.06
Appraisal (DTS)	-.51	-.26
Absorption (DTS)	-.43	.24
Regulation (DTS)	-.26	-.10
Nonconformity (EU)	.53	.11
Overcontrol (EU)	.26	.31
Impulsivity (EU)	.33	.30
Thought Intrusion (WBSI)	.42	-.07
Thought Suppression (WBSI)	.20	.06
Self Distraction (WBSI)	.40	.10
Emotional Suppression (ERQ)	.13	-.15

Table 10

Correlations Between Trait Emotion Regulation and the Discriminant Function and Standardized Discriminant Function Coefficients in Predicting ASPD

Trait Emotion Regulation (Measure)	*R* Discriminant Function	Function Coefficients
Nonacceptance (DERS)	.16	-.22
Goals (DERS)	.11	.07
Impulsivity (DERS)	.42	.61
Awareness (DERS)	.04	.03
Strategies (DERS)	.11	-.59
Clarity (DERS)	.22	.05
Identify Feelings (TAS-20)	.26	.05
Describe Feelings (TAS-20)	.22	-.10
External Thinking (TAS-20)	-.11	-.13
Experiential Avoidance (AAQ-II)	.27	.31
Attention (TMMS)	-.03	.37
Clarity (TMMS)	-.32	-.17
Repair (TMMS)	-.34	-.43
Tolerance (DTS)	-.16	-.12
Appraisal (DTS)	-.27	-.16
Absorption (DTS)	-.08	.47
Regulation (DTS)	-.19	-.15
Nonconformity (EU)	.50	.31
Overcontrol (EU)	.18	.23
Impulsivity (EU)	.46	.37
Thought Intrusion (WBSI)	.18	-.25
Thought Suppression (WBSI)	.24	.36
Self Distraction (WBSI)	.19	.02
Emotional Suppression (ERQ)	.38	.46

Table 11

Correlations Between Trait Emotion Regulation and the Discriminant Function and Standardized Discriminant Function Coefficients in Predicting AVPD

Trait Emotion Regulation (Measure)	*R* Discriminant Function	Function Coefficients
Nonacceptance (DERS)	.44	.42
Goals (DERS)	.35	.17
Impulsivity (DERS)	.16	-.35
Awareness (DERS)	.09	.38
Strategies (DERS)	.45	.28
Clarity (DERS)	.03	-.57
Identify Feelings (TAS-20)	.38	.34
Describe Feelings (TAS-20)	.45	.38
External Thinking (TAS-20)	-.08	-.22
Experiential Avoidance (AAQ-II)	.40	.31
Attention (TMMS)	-.12	.37
Clarity (TMMS)	-.26	-.17
Repair (TMMS)	-.18	-.43
Tolerance (DTS)	-.26	-.11
Appraisal (DTS)	-.28	.19
Absorption (DTS)	-.29	.02
Regulation (DTS)	-.20	.003
Nonconformity (EU)	.30	.39
Overcontrol (EU)	.15	.006
Impulsivity (EU)	-.26	-.58
Thought Intrusion (WBSI)	.12	-.15
Thought Suppression (WBSI)	-.007	-.09
Self Distraction (WBSI)	.18	-.04
Emotional Suppression (ERQ)	.33	.14

OCPD. The canonical correlation between the predictor variables and the discriminant function (R = .40, χ^2 [24] = 50.16, p < .01) demonstrated that emotion regulation variables discriminate between participants meeting criteria for OCPD and participants who did not meet criteria for OCPD. As demonstrated in Table 12, the most significant predictors of OCPD were difficulty engaging in goal directed behaviors when distressed (DERS) (r = .46) and difficulty tolerating distress via regulation (DTS) (r = -.36). Eighty-three percent of cases were correctly classified to either AVPD or no AVPD in this model.

Multiple Linear Regressions

Multiple linear regressions were performed to assess the relationship between emotion regulation variables and the prediction of personality traits hypothesized to underlie cluster B and C personality disorders. Statistical assumptions were tested before regressions were performed. Sufficient power (.99) was attained for the multiple linear regressions and 24 predictor variables based on a sample size of 305 participants. The data did not violate any of the assumptions of linear regression including linearity, homoscedasticity, independence of observations, absence of outliers, absence of multicollinearity and singularity, and normality of error (Tabachnick & Fidell, 2007). The variables hypothesized to be predictive of cluster B personality disorders were self-harm (see Table 13), disinhibition (see Table 14), impulsivity (see Table 15), aggression (see Table 16), mistrust (see Table 17), eccentric perceptions (see Table 18), and manipulativeness (see Table 19). Emotion regulation variables hypothesized to be predictive of Cluster C personality disorders were investigated as predictive of detachment (see Table 20), workaholism (see Table 21), and propriety (see Table 22).

Table 12

Correlations Between Trait Emotion Regulation and the Discriminant Function and Standardized Discriminant Function Coefficients in Predicting OCPD

Trait Emotion Regulation (Measure)	*R* Discriminant Function	Function Coefficients
Nonacceptance (DERS)	.20	-.16
Goals (DERS)	.46	.53
Impulsivity (DERS)	.28	.09
Awareness (DERS)	.09	.22
Strategies (DERS)	.33	-.05
Clarity (DERS)	.13	-.20
Identify Feelings (TAS-20)	.33	.41
Describe Feelings (TAS-20)	.31	.35
External Thinking (TAS-20)	.007	.03
Experiential Avoidance (AAQ-II)	.32	.11
Attention (TMMS)	-.15	-.37
Clarity (TMMS)	-.26	.21
Repair (TMMS)	-.16	.03
Tolerance (DTS)	-.14	.24
Appraisal (DTS)	-.22	.07
Absorption (DTS)	-.28	-.11
Regulation (DTS)	-.36	-.31
Nonconformity (EU)	.33	.58
Overcontrol (EU)	.14	-.05
Impulsivity (EU)	-.27	-.57
Thought Intrusion (WBSI)	-.08	-.53
Thought Suppression (WBSI)	-.14	-.09
Self Distraction (WBSI)	.08	.01
Emotional Suppression (ERQ)	.08	.23

Table 13

Multiple Linear Regressions of Variables Most Predictive of Self-Harm

Trait Emotion Regulation (Measure)	B	SE B	β	R^2
Nonacceptance (DERS)	.12	.14	.06	.43
Goals (DERS)	.15	.16	.06	
Impulsivity (DERS)	.52	.19	.20**	
Awareness (DERS)	.60	.24	.14*	
Strategies (DERS)	.09	.15	.05	
Clarity (DERS)	-.13	.25	-.03	
Identify Feelings (TAS-20)	-.03	.16	-.02	
Describe Feelings (TAS-20)	.14	.22	.04	
External Thinking (TAS-20)	.06	.16	.02	
Experiential Avoidance (AAQ-II)	.18	.09	.14*	
Attention (TMMS)	-.25	.11	-.13	
Clarity (TMMS)	-.12	.13	-.07	
Repair (TMMS)	-.42	.15	-.15*	
Tolerance (DTS)	.61	.25	.16*	
Appraisal (DTS)	.004	.19	.002	
Absorption (DTS)	-.46	.28	-.14	
Regulation (DTS)	-.07	.21	-.02	
Nonconformity (EU)	.28	.12	.14**	
Overcontrol (EU)	-.13	.18	-.04	
Impulsivity (EU)	-.22	.15	-.08	
Thought Intrusion (WBSI)	-.11	.15	-.06	
Thought Suppression (WBSI)	.004	.19	.001	
Self Distraction (WBSI)	.22	.15	.10	
Emotional Suppression (ERQ)	-.03	.13	-.02	

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

Table 14

Multiple Linear Regressions of Variables Most Predictive of Disinhibition

Trait Emotion Regulation (Measure)	B	SE B	β	R^2
Nonacceptance (DERS)	.005	.13	.003	.46
Goals (DERS)	.14	.14	.06	
Impulsivity (DERS)	.26	.16	.11	
Awareness (DERS)	-.05	.21	-.01	
Strategies (DERS)	-.30	.13	-.19*	
Clarity (DERS)	.22	.23	.06	
Identify Feelings (TAS-20)	.11	.14	.06	
Describe Feelings (TAS-20)	.29	.20	-.02	
External Thinking (TAS-20)	.02	.14	.08	
Experiential Avoidance (AAQ-II)	.03	.08	.03	
Attention (TMMS)	.15	.10	.009	
Clarity (TMMS)	-.30	.11	-.18**	
Repair (TMMS)	-.26	.14	-.14**	
Tolerance (DTS)	.49	.23	.07	
Appraisal (DTS)	-.11	.17	-.03	
Absorption (DTS)	-.33	.25	-.02	
Regulation (DTS)	.24	.18	.05	
Nonconformity (EU)	-.02	.11	.09	
Overcontrol (EU)	.18	.16	-.03	
Impulsivity (EU)	1.53	.13	.51***	
Thought Intrusion (WBSI)	-.34	.13	-.009	
Thought Suppression (WBSI)	.14	.17	.01	
Self Distraction (WBSI)	.07	.14	-.12	
Emotional Suppression (ERQ)	-.15	.11	-.02	

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

Table 15

Multiple Linear Regressions of Variables Most Predictive of Impulsivity

Trait Emotion Regulation (Measure)	B	SE B	β	R^2
Nonacceptance (DERS)	.05	.13	.03	.47
Goals (DERS)	.20	.15	.09	
Impulsivity (DERS)	.21	.17	.08	
Awareness (DERS)	-.30	.21	-.08	
Strategies (DERS)	-.23	.14	-.15	
Clarity (DERS)	.29	.23	.21	
Identify Feelings (TAS-20)	.11	.14	.18	
Describe Feelings (TAS-20)	-.07	.20	.09	
External Thinking (TAS-20)	.25	.14	.007	
Experiential Avoidance (AAQ-II)	.03	.08	.02	
Attention (TMMS)	.02	.10	.09	
Clarity (TMMS)	-.31	.11	-.17**	
Repair (TMMS)	-.36	.14	-.10	
Tolerance (DTS)	.26	.23	.14*	
Appraisal (DTS)	-.06	.17	-.06	
Absorption (DTS)	-.06	.25	-.11	
Regulation (DTS)	.17	.19	.07	
Nonconformity (EU	.16	.11	-.008	
Overcontrol (EU)	-.09	.16	.06	
Impulsivity (EU)	1.27	.13	.62***	
Thought Intrusion (WBSI)	-.02	.13	-.19*	
Thought Suppression (WBSI)	.04	.17	.05	
Self Distraction (WBSI)	-.22	.14	.04	
Emotional Suppression (ERQ)	-.04	.11	-.08	

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

Table 16

Multiple Linear Regressions of Variables Most Predictive of Aggression

Trait Emotion Regulation (Measure)	B	SE B	β	R^2
Nonacceptance (DERS)	-.35	.15	-.18*	.37
Goals (DERS)	.31	.17	.12	
Impulsivity (DERS)	.66	.20	.25**	
Awareness (DERS)	.06	.25	.01	
Strategies (DERS)	-.18	.16	-.10	
Clarity (DERS)	-.36	.27	-.09	
Identify Feelings (TAS-20)	.43	.17	.22*	
Describe Feelings (TAS-20)	.01	.24	.003	
External Thinking (TAS-20)	-.07	.17	-.02	
Experiential Avoidance (AAQ-II)	-.08	.10	-.14	
Attention (TMMS)	-.10	.11	-.06	
Clarity (TMMS)	-.01	.13	-.006	
Repair (TMMS)	-.87	.16	-.32***	
Tolerance (DTS)	.60	.27	.15*	
Appraisal (DTS)	-.14	.20	-.07	
Absorption (DTS)	-.06	.30	-.02	
Regulation (DTS)	.13	.22	.03	
Nonconformity (EU)	.37	.13	.19**	
Overcontrol (EU)	.48	.19	-.14*	
Impulsivity (EU)	.59	.15	.22***	
Thought Intrusion (WBSI)	-.28	.16	-.14	
Thought Suppression (WBSI)	.56	.21	.19**	
Self Distraction (WBSI)	.06	.16	.03	
Emotional Suppression (ERQ)	-.17	.13	-.08	

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

Table 17

Multiple Linear Regressions of Variables Most Predictive of Mistrust

Trait Emotion Regulation (Measure)	B	SE B	β	R^2
Nonacceptance (DERS)	-.03	.16	-.02	.41
Goals (DERS)	.10	.18	.04	
Impulsivity (DERS)	.38	.20	.13	
Awareness (DERS)	.13	.26	.03	
Strategies (DERS)	-.004	.17	-.002	
Clarity (DERS)	-.34	.28	-.08	
Identify Feelings (TAS-20)	.11	.17	.05	
Describe Feelings (TAS-20)	.45	.25	.12	
External Thinking (TAS-20)	-.004	.18	-.001	
Experiential Avoidance (AAQ-II)	.05	.10	.03	
Attention (TMMS)	-.05	.12	-.03	
Clarity (TMMS)	-.44	.14	-.22**	
Repair (TMMS)	-.11	.17	-.04	
Tolerance (DTS)	.13	.28	.03	
Appraisal (DTS)	-.07	.21	-.03	
Absorption (DTS)	-.11	.31	-.03	
Regulation (DTS)	.17	.23	.04	
Nonconformity (EU)	.48	.13	.23***	
Overcontrol (EU)	.84	.19	.23***	
Impulsivity (EU)	.14	.16	.05	
Thought Intrusion (WBSI)	-.06	.16	-.03	
Thought Suppression (WBSI)	-.11	.21	-.04	
Self Distraction (WBSI)	.14	.17	.06	
Emotional Suppression (ERQ)	.16	.14	.07	

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

Table 18

Multiple Linear Regressions of Variables Most Predictive of Eccentric Perceptions

Trait Emotion Regulation (Measure)	B	SE B	β	R^2
Nonacceptance (DERS)	-.22	.16	-.11	.36
Goals (DERS)	-.27	.18	-.10	
Impulsivity (DERS)	.20	.20	.07	
Awareness (DERS)	.05	.26	.01	
Strategies (DERS)	.10	.17	.05	
Clarity (DERS)	-.16	.28	-.04	
Identify Feelings (TAS-20)	.60	.17	.30**	
Describe Feelings (TAS-20)	-.13	.25	-.04	
External Thinking (TAS-20)	.14	.18	.04	
Experiential Avoidance (AAQ-II)	-.03	.10	-.02	
Attention (TMMS)	.18	.12	.09	
Clarity (TMMS)	-.18	.14	-.09	
Repair (TMMS)	.02	.17	.007	
Tolerance (DTS)	.30	.28	.08	
Appraisal (DTS)	-.25	.21	-.11	
Absorption (DTS)	.13	.31	.04	
Regulation (DTS)	-.51	.23	-.13*	
Nonconformity (EU)	.09	.13	.04	
Overcontrol (EU)	.57	.19	.16**	
Impulsivity (EU)	.51	.16	.18**	
Thought Intrusion (WBSI)	.05	.16	.02	
Thought Suppression (WBSI)	-.48	.21	-.16*	
Self Distraction (WBSI)	.43	.17	.20*	
Emotional Suppression (ERQ)	.31	.14	.14*	

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

Table 19

Multiple Linear Regressions of Variables Most Predictive of Manipulativeness

Trait Emotion Regulation (Measure)	B	SE B	β	R^2
Nonacceptance (DERS)	.004	.16	.002	.40
Goals (DERS)	.16	.18	.06	
Impulsivity (DERS)	.41	.20	.15*	
Awareness (DERS)	.17	.26	.04	
Strategies (DERS)	-.19	.16	-.11	
Clarity (DERS)	.39	.27	.09	
Identify Feelings (TAS-20)	.001	.17	.00	
Describe Feelings (TAS-20)	.05	.24	.13	
External Thinking (TAS-20)	.43	.17	-.05	
Experiential Avoidance (AAQ-II)	.001	.10	.00	
Attention (TMMS)	-.17	.12	-.09	
Clarity (TMMS)	-.36	.13	-.18**	
Repair (TMMS)	-.43	.17	-.15*	
Tolerance (DTS)	.38	.27	.09	
Appraisal (DTS)	-.23	.20	-.10	
Absorption (DTS)	.10	.30	.03	
Regulation (DTS)	.08	.22	.02	
Nonconformity (EU)	.38	.13	.18	
Overcontrol (EU)	.22	.19	.06	
Impulsivity (EU)	.90	.16	.32***	
Thought Intrusion (WBSI)	-.10	.16	-.05	
Thought Suppression (WBSI)	-.11	.21	-.03	
Self Distraction (WBSI)	-.20	.16	-.09	
Emotional Suppression (ERQ)	-.09	.14	-.04	

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

Table 20

Multiple Linear Regressions of Variables Most Predictive of Detachment

Trait Emotion Regulation (Measure)	B	SE B	β	R^2
Nonacceptance (DERS)	-.14	.13	-.08	.45
Goals (DERS)	-.03	.15	-.02	
Impulsivity (DERS)	-.006	.17	-.003	
Awareness (DERS)	.43	.21	.11*	
Strategies (DERS)	.01	.14	.009	
Clarity (DERS)	.30	.23	.08	
Identify Feelings (TAS-20)	.01	.14	.006	
Describe Feelings (TAS-20)	.67	.20	.22**	
External Thinking (TAS-20)	.12	.14	.04	
Experiential Avoidance (AAQ-II)	-.05	.08	-.04	
Attention (TMMS)	-.24	.10	-.14*	
Clarity (TMMS)	-.06	.11	-.03	
Repair (TMMS)	-.52	.14	-.21***	
Tolerance (DTS)	.46	.23	.13*	
Appraisal (DTS)	.30	.17	.15	
Absorption (DTS)	-.55	.25	-.18*	
Regulation (DTS)	.04	.19	.01	
Nonconformity (EU)	.35	.11	.20**	
Overcontrol (EU)	.39	.16	.13*	
Impulsivity (EU)	-.63	.13	-.26***	
Thought Intrusion (WBSI)	-.06	.13	-.04	
Thought Suppression (WBSI)	-.05	.17	-.02	
Self Distraction (WBSI)	.03	.14	.02	
Emotional Suppression (ERQ)	.53	.11	.28***	

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

Table 21

Multiple Linear Regressions of Variables Most Predictive of Workaholism

Trait Emotion Regulation (Measure)	B	SE B	β	R^2
Nonacceptance (DERS)	-.13	.17	-.07	.13
Goals (DERS)	-.23	.19	-.09	
Impulsivity (DERS)	.30	.21	.20	
Awareness (DERS)	.14	.27	.03	
Strategies (DERS)	.23	.17	.15	
Clarity (DERS)	-.89	.29	-.23**	
Identify Feelings (TAS-20)	.12	.18	.07	
Describe Feelings (TAS-20)	.43	.26	.13	
External Thinking (TAS-20)	-.23	.19	-.08	
Experiential Avoidance (AAQ-II)	-.03	.11	-.03	
Attention (TMMS)	-.05	.12	-.03	
Clarity (TMMS)	.21	.14	.12	
Repair (TMMS)	.06	.18	.02	
Tolerance (DTS)	-.24	.30	-.07	
Appraisal (DTS)	-.10	.22	-.05	
Absorption (DTS)	.65	.32	.21*	
Regulation (DTS)	-.21	.24	-.06	
Nonconformity (EU)	.17	.14	.09	
Overcontrol (EU)	.52	.20	.17*	
Impulsivity (EU)	-.18	.17	-.07	
Thought Intrusion (WBSI)	.05	.17	.03	
Thought Suppression (WBSI)	.02	.22	.008	
Self Distraction (WBSI)	.24	.17	.13	
Emotional Suppression (ERQ)	-.12	.15	-.06	

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

Table 22

Multiple Linear Regressions of Variables Most Predictive of Propriety

Trait Emotion Regulation (Measure)	B	SE B	β	R^2
Nonacceptance (DERS)	-.14	.13	-.10	.18
Goals (DERS)	.04	.15	.02	
Impulsivity (DERS)	-.03	.17	-.01	
Awareness (DERS)	-.003	.21	-.001	
Strategies (DERS)	-.122	.14	.10	
Clarity (DERS)	-.29	.23	-.09	
Identify Feelings (TAS-20)	-.09	.14	-.06	
Describe Feelings (TAS-20)	.09	.20	.04	
External Thinking (TAS-20)	.06	.14	.03	
Experiential Avoidance (AAQ-II)	-.03	.08	-.03	
Attention (TMMS)	-.003	.10	-.002	
Clarity (TMMS)	.007	.11	.005	
Repair (TMMS)	.43	.14	.21**	
Tolerance (DTS)	-.59	.29	-.21*	
Appraisal (DTS)	-.26	.17	-.16	
Absorption (DTS)	.62	.25	.25*	
Regulation (DTS)	-.33	.19	-.12	
Nonconformity (EU)	.07	.11	.05	
Overcontrol (EU)	.34	.16	.14*	
Impulsivity (EU)	-.40	.13	-.20**	
Thought Intrusion (WBSI)	.05	.13	.06	
Thought Suppression (WBSI)	.08	.17	.02	
Self Distraction (WBSI)	.05	.14	.009	
Emotional Suppression (ERQ)	.01	.14	-.003	

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

The results of these multiple regressions were compared to the discriminant function analyses predicting BPD, ASPD, AVPD, and OCPD to ensure that all relevant emotion regulation variables were included in the item pools for factor analyses.

Resulting Item Pools

Due to the sample size of 305 participants, rather than constructing one scale, a separate scale of undercontrol and a separate scale of overcontrol were developed to ensure sufficient power. Per best practice in factor analysis, a ratio of one item to five participants was applied to both scales, such that no more than 60 items were included in the initial iteration of each EFA based on the sample size (Tabachnick & Fidell, 2007). Separate item pools for the undercontrol and overcontrol scales were developed based on the emotion regulation variables most predictive of personality disorders and traits associated with undercontrol (i.e., BPD, ASPD) and personality disorders and traits associated with overcontrol (i.e., AVPD, OCPD). Emotion regulation variables that demonstrated poor prediction of personality psychopathology in the discriminant function analyses were not included in these item pools. Additionally, items with extremely poor internal consistency and/or test-retest reliability (e.g., the reappraisal scale of the ERQ) were not included in the resulting item pools.

Undercontrol scale. The initial item pool for the undercontrol scale was comprised of 55 items in total. These 55 items were included from scales and subscales that were the strongest predictors of BPD, ASPD, self-harm, aggression, impulsivity, disinhibition, mistrust, eccentric perceptions, and manipulativeness. Among these items were the AAQ-II (10 items), the appraisal subscale of the DTS (six items), the absorption subscale of the DTS (three items), the impulsivity subscale of the DERS (six items), the

strategies subscale of the DERS (eight items), the goals subscale of the DERS (five items), the suppression subscale of the ERQ (four items), the difficulty identifying feelings subscale of the TAS-20 (six items), and the impulsivity subscale of the EU (seven items).

Overcontrol scale. For the overcontrol scale, the initial item pool contained 60 items. These 60 items were generated from the scales and subscales that were the strongest predictors of AVPD, OCPD, detachment, manipulativeness, propriety, and workaholism. Among these items were those from the difficulty describing feelings subscale of the TAS-20 (seven items), the difficulty identifying feelings subscale of the TAS-20 (six items), the impulsivity subscale of the EU (seven items), the AAQ-II (10 items), the clarity subscale of the DERS (five items), the strategies subscale of the DERS (eight items), the goals subscale of the DERS (five items), the nonacceptance subscale of the DERS (six items), and the repair subscale of the TMMS (11 items).

Primary Analyses

Prior to factor analyses the normality, linearity, absence of outliers, absence of multicollinearity and singularity, and factorability of *R* were assessed. There were no violations of statistical assumptions. Additionally, per the correlation table and description of correlation procedures, most factors that did not initially correlate at a level of .30 or greater were removed from inclusion in the item pool prior to factor analysis. The resulting moderate correlations suggest the factorability of *R* within each item pool (Tabachnick & Fidell, 2007).

Exploratory Factor Analyses

Exploratory factor analysis (EFA) was selected as the method of dimension reduction for measure development in the current study. As Osborne (2014) indicates, EFA is preferable to Principal Components Analysis (PCA) as PCA does not account for the underlying structure of the latent variables (Osborne, 2014; Osborne & Costello, 2004). Instead PCA emphasizes the measured variables included in the analysis rather than hypothetical latent constructs. Additionally, EFA only accounts for shared variance among factors in the solution rather than shared variance and unique variance, both of which are included in PCA. Because EFA only includes shared variance among factors, the results of EFA are less likely to be inflated and thus, less error prone than PCA (Osborne, 2014).

Principal axis factoring (PAF) and Promax rotation were used on both scales to determine the optimal factor structures within the EFAs. The results of the initial EFAs for each scale using PAF extraction were compared to the maximum likelihood extraction method. Because PAF yielded similar results to maximum likelihood, the results from PAF were reported, as this extraction method is considered more conservative and less sensitive to error (Osborne, 2014). As it was hypothesized and observed that emotion regulation variables should correlate with each other, an oblique rotation method (Promax) was selected as this rotation technique allows for correlation among variables (Osborne, 2014; Thompson, 2004). In the EFAs for each scale, after determining the number of factors to be extracted, separate EFAs were run with one factor less than and one factor greater than the hypothesized structure. These EFA's were conducted to ensure the optimal factor structure for each scale was selected.

Undercontrol Scale. Given the variables to be included in the factor analysis, we hypothesized that a total of seven factors would emerge. This number was generated from variables that we believed would comprise separate factors and those we believed would load onto the same factor. Specifically, we hypothesized one factor would be related to emotional suppression (ERQ), one factor would be related to impulsivity (DERS/EU), one factor would be related to distress intolerance (DTS), one factor would be related to emotional identification (TAS-20/DERS clarity subscale), one factor would be related to experiential avoidance (AAQ-II), one factor would be related to goal directed behavior when distressed (DERS) and one factor would be related to lack of access to emotion regulation strategies (DERS).

The initial EFA for the undercontrol scale yielded 13 factors, which accounted for 56% of the total variance in the analysis (see Table 23 and Table 24). Seven of these factors demonstrated eignenvalues greater than 1.0. As demonstrated in Figure 1, the scree plot indicated a leveling after four factors and again after seven factors. Based on best practice in EFA, parallel analysis was implemented to create eigenvalues that accounted for the sampling error inherent in the data (Osborne, 2014; Thompson, 2004). The eigenvalues generated from the parallel analysis also indicated a 7-factor solution (see Figure 2). Based on these results, a second factor analysis was conducted using PAF and Promax rotation specifying seven factors to be extracted.

Table 23

Total Variance Explained for the Initial Undercontrolled Factor Analysis

Factor	Eigenvalue	Percent of Variance	Cumulative Percent
1	16.07	29.21	29.21
2	2.70	4.90	34.12
3	2.17	3.94	38.06
4	1.65	3.00	41.10
5	1.52	2.78	43.82
6	1.41	2.57	46.39
7	1.23	2.24	48.64
8	.87	1.58	50.22
9	.76	1.37	51.59
10	.63	1.14	52.73
11	.59	1.07	53.80
12	.53	.96	54.76
13	.50	.91	55.67

Table 24

Initial EFA for Emotion Undercontrol Scale: Factors 1-13

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
AAQ 8: It seems like most people are handling their lives better than I am.	.83	.04	-.05	.002	-.05	.14	.10
AAQ 7: Emotions cause problems in my life.	.83	.08	-.01	-.08	-.03	-.01	.04
AAQ 9: Worries get in the way of my success.	.83	.001	-.05	.13	-.06	-.06	.08
AAQ 5: My painful memories prevent me from having a fulfilling life.	.77	-.03	-.08	.03	.10	-.04	-.04
AAQ 2: My painful experiences and memories make it difficult for me to life a life I would value.	.67	-.02	-.02	-.07	.06	.02	-.03
AAQ 4: I worry about not being able to control my worries and feelings.	.64	-.02	.02	.04	-.03	-.13	.06
AAQ 3: I'm afraid of my feelings.	.62	-.05	-.01	-.01	.05	.08	.006
AAQ 6: I am in control of my life.	-.60	.05	-.10	-.05	-.005	-.06	.18
AAQ 10: My thoughts and feelings do not get in the way of how I want to live my life.	-.56	.05	.02	-.004	.08	.09	.08
DTS 4ab: My feelings of distress are so intense that they completely take over.	.08	-.83	-.12	-.05	-.008	-.03	-.08
DTS 10ap: Being distressed or upset is always a major ordeal for me.	-.07	-.81	.03	.04	-.01	.06	.03

Table 24—Continued

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
DTS 15ab: When I feel distressed or upset, I cannot help but concentrate on how bad the distress actually feels.	.14	-.71	.07	.05	.07	.09	-.09
DTS 2ab: When I feel distressed or upset, all I can think about is how bad I feel.	.10	-.71	.12	-.06	-.02	.05	-.03
DTS 9ap: Other people seem to be able to tolerate feeling distressed or upset better than I can.	-.25	-.65	-.02	.007	-.02	-.02	-.01
DTS 12ap: My feelings of distress or being upset scare me.	-.22	-.48	-.12	.07	-.03	-.03	.06
DTS 11ap: I a ashamed of myself when I feel distressed or upset.	-.01	-.47	.02	.01	-.09	-.03	.05
DTS 7ap: My feelings of distress or being upset are not acceptable.	-.09	-.36	-.22	-.11	-.02	-.20	.10
DERS 14i: When I'm upset, I become out of control.	-.06	.04	.88	.03	.05	.01	.04
DERS 32i: When I'm upset, I lose control over my behaviors.	-.007	-.04	.83	-.02	.03	-.03	.03
DERS 19i: When I'm upset, I feel out of control.	-.004	-.03	.82	-.006	-.04	.004	-.16
DERS 27i: When I'm upset, I have difficulty controlling my behaviors.	-.05	-.05	.79	.003	.00	.04	.15
DERS 3i: I experience my emotions as overwhelming and out of control.	.17	.26	.40	-.04	-.06	-.05	.005

Table 24—Continued

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
DERS 18g: When I'm upset, I have difficulty focusing on other things.	.01	-.04	-.15	.89	.04	-.03	.02
DERS 13g: When I'm upset, I have difficulty getting work done.	.009	-.04	.13	.81	-.04	.08	.02
DERS 26g: When I'm upset, I have difficulty concentrating.	.05	.04	.08	.72	-.002	-.01	-.02
DERS 33g: When I'm upset, I have difficulty thinking about anything else.	.07	.08	.05	.46	.02	-.04	.03
EU 8i: People consider me a spontaneous, devil-may-care person.	-.09	-.10	-.10	.07	.79	-.03	.08
EU 10i: I have been known to do unusual things on a dare.	-.003	-.13	.09	-.08	.71	.04	-.01
EU 6i: When I get bored, I like to stir up some excitement.	-.08	.11	.01	.10	.55	-.02	.05
EU 3i: I often say and do things on the spur of the moment, without stopping to think.	.06	.19	.04	-.06	.54	-.04	-.02
EU 18i: I like to flirt.	.13	.02	.09	.04	.51	-.18	.05
ERQ 2s: I keep my emotions to myself.	-.02	-.02	.10	.009	-.07	.79	-.007
ERQ 6s: I control my emotions by *not expressing them.*	.02	-.08	-.02	-.06	.07	.76	.12

Table 24—Continued

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
ERQ 9s: When I am feeling *negative* emotions, I make sure not to express them.	-.006	-.04	-.05	.11	-.04	.66	-.08
ERQ 4s: When I am feeling *positive* emotions, I am careful not to express them.	-.01	.07	-.01	-.13	-.02	.36	.09
TAS20 6i: When I am upset, I don’t know if I am sad, frightened, or angry.	-.16	.20	-.03	.03	.08	.07	.84
TAS20 14i: I often don't know why I am angry.	.20	-.14	.14	.03	.10	-.06	.62
TAS20 1i: I am often confused about what emotion I am feeling.	.10	-.05	.07	-.006	-.03	-.03	.53
TAS20 9i: I have feelings that I can't quite identify.	.05	.08	-.13	-.04	-.10	.12	.47
DERS 30s: When I’m upset, I start to feel very bad about myself.	.12	.04	.01	.04	-.04	.05	-.07
DERS 31s: When I’m upset, I believe that wallowing in it is all I can do.	.13	.009	.15	-.05	.006	.03	-.10
DERS 35s: When I’m upset, it takes me a long time to feel better.	-.09	.10	-.05	.16	.03	.15	-.007
DERS 28s: When I’m upset, I believe there is nothing I can do to make myself feel better.	.04	.02	.18	-.03	-.005	.04	.14
DERS 36s: When I’m upset, my emotions feel overwhelming.	-.03	.16	.10	.14	-.07	-.13	-.03

Table 24—Continued

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
DERS 15s: When I'm upset, I believe that I will remain that way for a long time.	.13	.03	.18	.09	.05	.10	-.02
TAS20 11i: I am often puzzled by sensations in my body.	-.05	-.02	-.008	.03	.02	-.05	.05
TAS20 3i: I have physical sensations that even doctors don't understand.	-.02	-.05	.16	.07	.03	-.07	-.05
TAS20 13i: I don't know what's going on inside me.	.19	-.05	.12	-.001	-.06	-.07	.30
DERS 24i: When I'm upset, I feel like I can remain in control of my behaviors.	.005	.01	-.22	.09	-.08	.08	-.11
DERS 22s: When I'm upset, I know that I can find a way to eventually feel better.	-.21	-.01	.13	-.06	-.02	-.03	-.02
DERS 20g: When I'm upset, I can still get things done.	.14	.16	-.08	-.01	-.01	.02	-.02
AAQ 1: It's OK if I remember something unpleasant	-.12	-.07	.07	-.009	.02	.06	-.03
EU 14i: Sometimes I rather enjoy going against the rules and doing things I am not supposed to.	.06	-.06	-.06	-.02	.60	.13	-.04
EU 15i: At times, I am tempted to do or say something that others would think inappropriate.	-.07	.08	-.02	-.05	.42	-.01	-.07
DTS 6ap: I can tolerate being distressed or upset as well as most people.	.02	-.15	.20	-.04	-.03	.002	-.06

Table 24—Continued

Item Source, Subscale, and Content	Factor 8	Factor 9	Factor 10	Factor 11	Factor 12	Factor 13
AAQ 8: It seems like most people are handling their lives better than I am.	.02	-.20	-.06	-.15	.07	-.01
AAQ 7: Emotions cause problems in my life.	.06	.09	.02	-.11	.08	.10
AAQ 9: Worries get in the way of my success.	-.12	-.04	-.12	-.06	-.03	-.05
AAQ 5: My painful memories prevent me from having a fulfilling life.	.02	.008	.15	.23	-.07	.04
AAQ 2: My painful experiences and memories make it difficult for me to life a life I would value.	.08	.06	.15	.10	-.13	-.09
AAQ 4: I worry about not being able to control my worries and feelings.	.03	.14	.03	.03	-.06	.13
AAQ 3: I'm afraid of my feelings.	.11	.02	.09	.09	-.08	.24
AAQ 6: I am in control of my life.	.03	-.02	.08	-.06	-.05	.10
AAQ 10: My thoughts and feelings do not get in the way of how I want to live my life.	.04	-.06	.08	-.08	-.22	.12
DTS 4ab: My feelings of distress are so intense that they completely take over.	.10	.04	-.14	-.02	-.06	-.11
DTS 10ap: Being distressed or upset is always a major ordeal for me.	.06	-.07	-.02	-.05	-.12	.06

Table 24—Continued

Item Source, Subscale, and Content	Factor 8	Factor 9	Factor 10	Factor 11	Factor 12	Factor 13
DTS 15ab: When I feel distressed or upset, I cannot help but concentrate on how bad the distress actually feels.	-.29	-.04	-.12	-.02	.03	.15
DTS 2ab: When I feel distressed or upset, all I can think about is how bad I feel.	-.27	.19	.007	-.04	.001	.04
DTS 9ap: Other people seem to be able to tolerate feeling distressed or upset better than I can.	.08	.16	.12	-.01	-.09	.23
DTS 12ap: My feelings of distress or being upset scare me.	.10	-.28	.08	.14	.17	-.09
DTS 11ap: I am ashamed of myself when I feel distressed or upset.	-.19	-.20	.03	.03	.15	-.005
DTS 7ap: My feelings of distress or being upset are not acceptable.	.25	-.13	.01	-.14	.007	.03
DERS 14i: When I'm upset, I become out of control	-.02	-.03	.05	-.07	.06	.02
DERS 32i: When I'm upset, I lose control over my behaviors.	.09	-.08	-.10	.02	-.11	.21
DERS 19i: When I'm upset, I feel out of control.	.13	.17	-.03	-.17	.03	.06
DERS 27i: When I'm upset, I have difficulty controlling my behaviors.	-.02	-.06	-.16	.07	-.11	.04

Table 24—Continued

Item Source, Subscale, and Content	Factor 8	Factor 9	Factor 10	Factor 11	Factor 12	Factor 13
DERS 3i: I experience my emotions as overwhelming and out of control.	.05	.02	.04	.07	.11	.04
DERS 18g: When I'm upset, I have difficulty focusing on other things.	.05	.10	.03	.009	-.05	-.007
DERS 13g: When I'm upset, I have difficulty getting work done.	-.04	.07	.09	-.05	-.05	-.09
DERS 26g: When I'm upset, I have difficulty concentrating.	.03	-.03	-.05	-.01	-.02	.003
DERS 33g: When I'm upset, I have difficulty thinking about anything else.	.25	-.12	-.05	.07	.08	.04
EU 8i: People consider me a spontaneous, devil-may-care person.	.03	-.11	-.14	-.15	.10	.10
EU 10i: I have been known to do unusual things on a dare.	.06	-.04	-.10	-.11	.19	-.04
EU 6i: When I get bored, I like to stir up some excitement.	-.19	-.04	.04	-.06	.07	-.07
EU 3i: I often say and do things on the spur of the moment, without stopping to think.	.08	-.13	.02	.02	.22	.05
EU 18i: I like to flirt.	-.06	-.15	.13	-.29	.08	-.02
ERQ 2s: I keep my emotions to myself.	.008	-.08	.09	-.05	.06	.09

Table 24—Continued

Item Source, Subscale, and Content	Factor 8	Factor 9	Factor 10	Factor 11	Factor 12	Factor 13
ERQ 6s: I control my emotions by *not expressing them.*	.14	-.12	.06	.03	.09	.04
ERQ 9s: When I am feeling *negative* emotions, I make sure not to express them.	.15	-.04	-.07	-.11	-.10	-.10
ERQ 4s: When I am feeling *positive* emotions, I am careful not to express them.	-.13	.15	-.01	.28	-.001	-.12
TAS20 6i: When I am upset, I don't know if I am sad, frightened, or angry.	-.11	-.08	-.07	.05	-.16	-.02
TAS20 14i: I often don't know why I am angry.	-.02	-.01	.04	.09	-.04	-.11
TAS20 1i: I am often confused about what emotion I am feeling.	.02	.13	.13	-.02	.08	.007
TAS20 9i: I have feelings that I can't quite identify.	.02	.46	-.05	-.16	.04	.04
DERS 30s: When I'm upset, I start to feel very bad about myself.	.69	.04	-.20	-.03	-.08	-.15
DERS 31s: When I'm upset, I believe that wallowing in it is all I can do.	.65	-.02	-.06	.07	-.05	-.11
DERS 35s: When I'm upset, it takes me a long time to feel better.	.64	-.02	.07	.05	.13	.06
DERS 28s: When I'm upset, I believe there is nothing I can do to make myself feel better.	.55	.01	.08	.04	-.16	-.15
DERS 36s: When I'm upset, my emotions feel overwhelming.	.50	.15	-.006	.03	.12	.09

Table 24—Continued

Item Source, Subscale, and Content	Factor 8	Factor 9	Factor 10	Factor 11	Factor 12	Factor 13
DERS 15s: When I'm upset, I believe that I will remain that way for a long time.	.46	-.04	.10	.002	.09	-.05
TAS20 11i: I am often puzzled by sensations in my body.	.03	.75	-.03	-.10	.12	-.06
TAS20 3i: I have physical sensations that even doctors don't understand.	-.02	.52	-.02	.19	.15	-.07
TAS20 13i: I don't know what's going on inside me.	.05	.39	.13	.003	.16	-.05
DERS 24i: When I'm upset, I feel like I can remain in control of my behaviors.	-.05	-.007	.57	-.07	-.02	.15
DERS 22s: When I'm upset, I know that I can find a way to eventually feel better.	-.02	.04	.39	.17	-.04	-.03
DERS 20g: When I'm upset, I can still get things done.	-.02	-.10	.33	.04	.07	.16
AAQ 1: It's OK if I remember something unpleasant.	-.09	.08	.07	-.50	.09	.09
EU 14i: Sometimes I rather enjoy going against the rules and doing things I am not supposed to.	-.02	.21	.02	-.14	.65	-.09
EU 15i: At times, I am tempted to do or say something that others would think inappropriate.	.06	.14	.02	-.05	.47	-.04
DTS 6ap: I can tolerate being distressed or upset as well as most people.	-.15	-.09	.17	-.10	-.09	.51

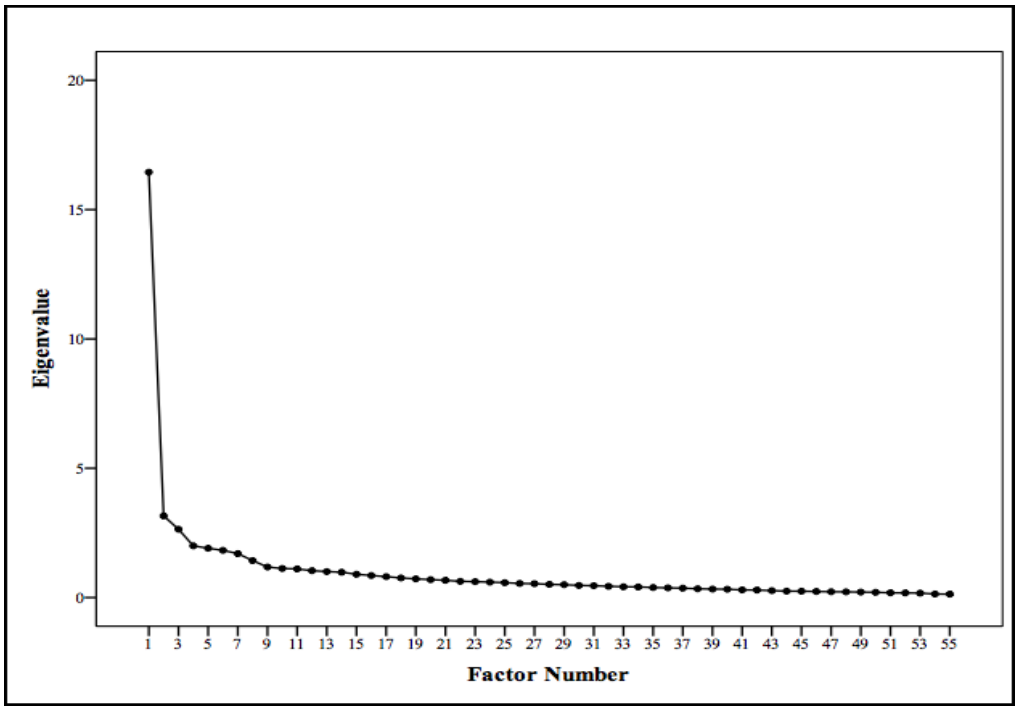

Figure 1. Scree plot indicating the possible number of factors in the emotion undercontrol scale.

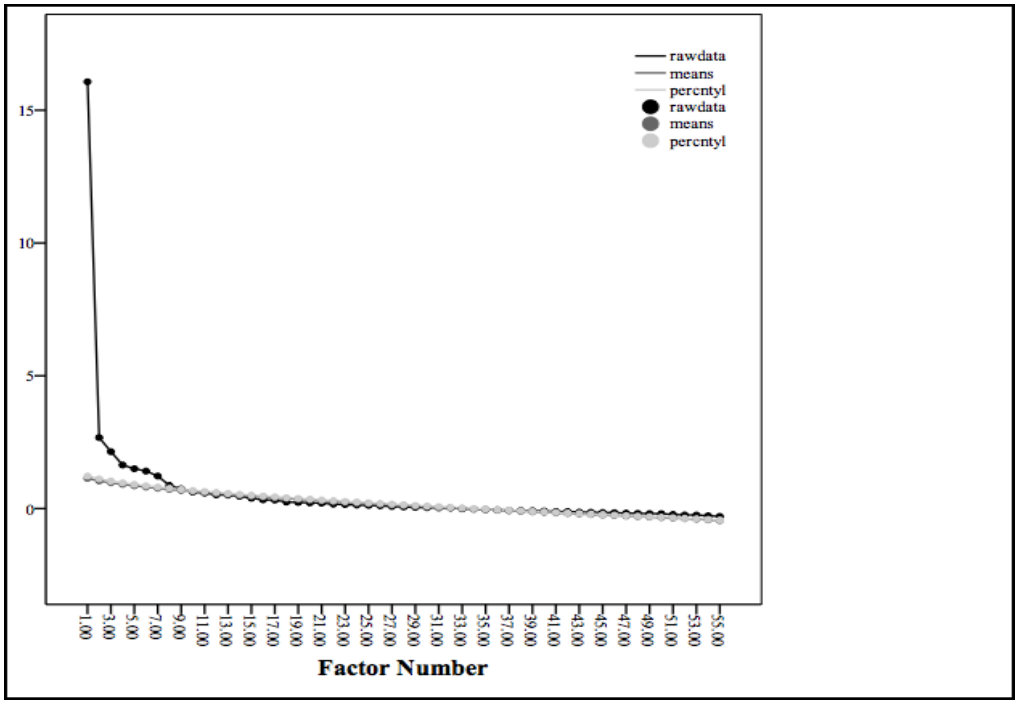

Figure 2. Parallel analysis demonstrating the number of factors in the emotion undercontrol scale.

A 7-factor solution was generated from this analysis, which accounted for 48% of the variance. Items with minimum factor loadings of .39 or less were removed from the item pool (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Osborne, 2014). Additionally, items that loaded onto multiple factors with a difference between the primary factor loading and other factor loadings of .20 or less were also removed from the item pool (Baer et al., 2006). Three additional EFA's were run to facilitate a final factor solution where all items predominantly loaded onto one factor each, at a level of .40 or greater. The final EFA contained 41 items and accounted for 53% of the variance in the model (see Table 25 and Table 26). Preexisting measures of emotion regulation and related constructs account for similar levels of variance in the respective samples that these measures were validated within, ranging from 31% of the total variance for the TAS-20 to 56% of the total variance for the DERS (Bagby et al., 1994; Gratz & Roemer, 2004).

Of the seven factors representing the emotion undercontrol scale, factor one was comprised of items from the AAQ-II. While the AAQ-II measures "experiential avoidance," in the context of the current measure, experiential avoidance functions as a means of emotional avoidance. Thus, factor one was named "emotional avoidance." Factor two was labeled "emotional tolerance" as it is representative of items from the absorption and appraisal subscales of the DTS. Factor three was associated with difficulties engaging in goal directed behavior when distressed and lack of access to emotion regulation strategies from the DERS. Because these items largely relate to attention that is consumed by emotion to the degree that it interferes with functioning, factor three was named "emotional interference." Factor four was made up of items from

the impulsivity subscale of the DERS, which is representative of emotional reactivity when upset among undercontrolled individuals, and thus was labeled as the "emotional reactivity" subscale. The difficulty identifying feelings subscale of the TAS-20 comprised the fifth factor, which was labeled "emotional identification" on the current scale. The impulsivity subscale of the emotion undercontrol scale reflected lack of emotional control on the undercontrol scale and thus the sixth factor was named the "emotional control" subscale. Composed of items from the suppression subscale of the ERQ, factor seven was labeled "emotional expressivity" (see Appendix C for complete undercontrol scale). Of note, two factors were related to impulsivity, one factor was related to emotional dyscontrol and one was associated with emotional reactivity. The resulting two unique factors associated with impulsivity suggest that "impulsivity" itself may be a multifaceted construct.

Overall, strong to moderate correlations were demonstrated between most factors in the final solution (see Table 27). In particular, emotional avoidance appeared to be most strongly correlated with other factors including emotional tolerance (r = .64) and emotional identification (r = .64). Emotional control and emotional expressivity were relatively weakly correlated with the other factors, suggesting uniqueness of these constructs in the assessment of emotion undercontrol.

Table 25

Total Variance Explained for the Final, 7-factor Emotion Undercontrol EFA

Factor	Eigenvalue	% of Variance	Cumulative %
1	12.17	29.68	29.68
2	2.45	5.97	35.64
3	1.86	4.53	40.18
4	1.47	3.58	43.75
5	1.33	3.25	47.00
6	1.30	3.17	50.17
7	1.02	2.50	52.66

Table 26

Final 7-factor Solution for the Emotion Undercontrol Scale Using PAF with Promax

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
Factor 1 (Emotional Avoidance)							
AAQ 5: My painful memories prevent me from having a fulfilling life.	**.85**	.008	-.03	.04	-.13	.04	.06
AAQ 7: Emotions cause problems in my life.	**.78**	.09	-.001	-.09	.06	-.03	-.03
AAQ 2: My painful experiences and memories make it difficult for me to life a life I would value.	**.74**	.02	-.13	.11	-.14	.04	.11
AAQ 9: Worries get in the way of my success.	**.74**	.01	.14	-.10	.07	-.04	-.13
AAQ 8: It seems like most people are handling their lives better than I am.	**.71**	.05	.11	-.19	.07	-.03	.08
AAQ 4: I worry about not being able to control my worries and feelings.	**.68**	.01	.004	.08	.14	-.06	-.10
AAQ 3: I'm afraid of my feelings.	**.65**	-.01	-.03	.07	.04	-.03	.13
AAQ 6: I am in control of my life.	**-.58**	.05	-.05	-.09	.13	-.04	-.04
AAQ 10: My thoughts and feelings do not get in the way of how I want to live my life.	**-.53**	.07	-.07	.09	-.07	.01	.14

Table 26—Continued

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
Factor 2 (Emotional Tolerance)							
DTS 4ab: My feelings of distress are so intense that they completely take over.	.06	**-.79**	.04	-.13	-.005	.06	-.05
DTS 10ap: Being distressed or upset is always a major ordeal for me.	-.08	**-.77**	.05	.05	-.03	-.03	.07
DTS 2ab: When I feel distressed or upset, all I can think about is how bad I feel.	.09	**-.75**	-.23	.15	.04	.00	-.02
DTS 15ab: When I feel distressed or upset, I cannot help but concentrate on how bad the distress actually feels.	.08	**-.73**	-.05	.008	-.10	.05	.02
DTS 9ap: Other people seem to be able to tolerate feeling distressed or upset better than I can.	-.19	**-.62**	-.06	.08	.05	-.05	.03
DTS 11ap: I am ashamed of myself when I feel distressed or upset.	-.05	**-.52**	.05	-.13	-.05	-.09	-.03
DTS 12ap: My feelings of distress or being upset scare me.	-.21	**-.51**	.23	-.23	-.05	-.02	.01
Factor 3 (Emotional Interference)							
DERS 18g: When I'm upset, I have difficulty focusing on other things.	.02	-.01	**.85**	-.04	-.01	.04	-.03
DERS 26g: When I'm upset, I have difficulty concentrating.	.02	.05	**.77**	.11	-.07	-.004	-.04

Table 26—Continued

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
DERS 13g: When I'm upset, I have difficulty getting work done.	.01	-.06	**.73**	.19	-.04	-.03	.06
DERS 35s: When I'm upset, it takes me a long time to feel better.	.03	.16	**.41**	-.01	-.04	.04	.20
DERS 33g: When I'm upset, I have difficulty thinking about anything else.	.10	.10	**.63**	.03	-.005	.006	-.01
Factor 4 (Emotional Reactivity)							
DERS 14i: When I'm upset, I become out of control.	-.05	.007	.07	**.81**	.03	.04	.001
DERS 19i: When I'm upset, I feel out of control.	.02	-.03	.06	**.79**	.13	.009	-.03
DERS 32i: When I'm upset, I lose control over my behaviors.	.01	.02	.07	**.79**	.03	-.03	-.02
DERS 27i: When I'm upset, I have difficulty controlling my behaviors.	-.05	-.008	.05	**.77**	.10	-.04	.03
Factor 5 (Emotional Identification)							
TAS20 9i: I have feelings that I can't quite identify.	.01	.09	-.10	-.06	**.80**	-.05	.06

Table 26—Continued

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
TAS20 1i: I am often confused about what emotion I am feeling.	.04	-.05	.08	.01	**.71**	-.008	-.08
TAS20 6i: When I am upset, I don't know if I am sad, frightened, or angry.	-.20	.21	.01	-.002	**.63**	.01	.05
TAS20 13i: I don't know what's going on inside me.	.22	-.06	-.03	.18	**.54**	-.01	-.03
TAS20 14i: I often don't know why I am angry.	.18	.14	.05	.14	**.52**	-.01	-.03
TAS20 11i: I am often puzzled by sensations in my body.	.02	.03	-.10	.14	**.44**	.11	-.05
Factor 6 (Emotional Control)							
EU 8i: People consider me a spontaneous, devil-may-care person.	-.06	-.02	.01	.03	.07	**.69**	.004
EU 10i: I have been known to do unusual things on a dare.	.03	-.10	-.05	.13	-.08	**.67**	.07
EU 14i: Sometimes I rather enjoy going against the rules and doing things I am not supposed to.	.03	-.12	.03	-.18	.22	**.65**	.07
EU 6i: When I get bored, I like to stir up some excitement.	-.10	.10	-.002	.03	-.12	**.50**	-.04
EU 3i: I often say and do things on the spur of the moment, without stopping to think.	.09	.18	.01	.03	-.11	**.49**	-.005

Table 26—Continued

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
EU 15i: At times, I am tempted to do or say something that others would think inappropriate.	-.08	.03	.03	-.12	.17	**.46**	-.03
EU 18i: I like to flirt.	.06	-.02	.02	-.05	-.14	**.45**	-.17
Factor 7 (Emotional Expressivity)							
ERQ 6s: I control my emotions by *not expressing them.*	.03	-.05	-.02	-.08	.09	.04	**.81**
ERQ 2s: I keep my emotions to myself.	-.03	-.03	-.04	.05	-.03	-.09	**.79**
ERQ 9s: When I am feeling *negative* emotions, I make sure not to express them.	.008	.04	.08	.003	-.08	-.008	**.62**

Note. The highest factor loading in each row is bolded.

Table 27

Correlations Between Factors for the Final Version of the Emotion Undercontrol Scale

Factor	1	2	3	4	5	6	7
1: Emotional avoidance	1.00	.64	.49	.58	.64	.14	.33
2: Emotional tolerance	.64	1.00	.49	.53	.56	.14	.24
3: Emotional interference	.49	.49	1.00	.38	.38	-.02	.12
4: Emotional reactivity	.58	.53	.38	1.00	.53	.21	.30
5: Emotional identification	.64	.56	.38	.53	1.00	.18	.37
6: Emotional control	.14	.14	-.02	.21	.18	1.00	.11
7: Emotional expressivity	.33	.24	.12	.30	.37	.11	1.00

Overcontrol Scale. Given the variables to be included in the overcontrol factor analysis, we hypothesized that a total of seven factors would emerge. This number was generated from variables that we believed would comprise separate factors and those we believed would load onto the same factor. Specifically, one factor would be related to experiential avoidance (AAQ-II), one factor would be related to lack of impulsivity (EU), one factor would be related to inability to repair emotions (TMMS), one factor would be related to emotional identification (TAS-20/DERS clarity subscale), one factor would be related to nonacceptance of emotions (DERS), one factor would be related to goal directed behavior when distressed (DERS), and one factor would be related to lack of access to emotion regulation strategies when distressed (DERS).

The initial EFA for the overcontrol scale yielded 12 factors, which accounted for 53% of the total variance in the analysis (see Table 28 and Table 29). Of these factors, seven factors demonstrated eignenvalues greater than 1.0. As demonstrated in Figure 3, the scree plot demonstrated a leveling after four factors and again after six factors. Best

practice in EFA indicates the use parallel analysis to create eigenvalues that account for the sampling error inherent in the data (Bruce, 2004; Osborne, 2014). The eigenvalues generated from the parallel analysis indicated a 7-factor solution (Figure 4). Based on these results, a second factor analysis was conducted using PAF and Promax rotation specifying seven factors to be extracted.

Table 28

Total Variance Explained for the Initial Overcontrolled Factor Analysis

Factor	Eigenvalue	Percent of Variance	Cumulative Percent
1	16.35	27.70	27.70
2	2.87	4.87	32.57
3	2.43	4.12	36.69
4	2.14	3.62	40.31
5	1.53	2.59	42.90
6	1.42	2.40	45.31
7	1.11	1.87	47.18
8	.92	1.56	48.74
9	.75	1.27	50.01
10	.71	1.21	51.21
11	.60	1.02	52.23
12	.52	.88	53.11

Table 29

Initial EFA for the Emotion Overcontrol Scale: Factors 1 to 12

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
AAQ 5: My painful memories prevent me from having a fulfilling life.	.94	-.14	.01	-.02	.001	.05	-.03
AAQ 2: My painful experiences and memories make it difficult for me to life a life I would value.	.78	-.03	-.05	-.01	.006	.04	.10
AAQ 4: I worry about not being able to control my worries and feelings.	.67	.02	-.01	.07	-.06	-.05	-.13
AAQ 7: Emotions cause problems in my life.	.66	.02	-.07	.06	-.03	-.002	-.04
AAQ 3: AAQ 3: I'm afraid of my feelings.	.61	.06	-.07	.12	-.02	-.008	.06
AAQ 9: Worries get in the way of my success.	.59	.13	.13	-.12	.006	-.04	-.04
AAQ 8: It seems like most people are handling their lives better than I am.	.57	.06	.07	.20	.12	-.003	.03
AAQ 6: I am in control of my life.	-.52	-.09	-.14	-.003	-.10	-.01	-.05
DERS 21n: When I'm upset, I feel ashamed with myself for feeling that way.	.03	.90	-.09	.04	-.07	-.007	.005
DERS 25n: When I'm upset, I feel guilty for feeling that way.	.10	.80	-.11	.01	-.12	.04	-.02

Table 29—Continued

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
DERS 12n: When I'm upset, I become embarrassed for feeling that way.	-.12	.77	.08	.005	-.09	-.06	.20
DERS 11n: When I'm upset, I become angry with myself for feeling that way.	-.04	.65	-.09	.09	.17	-.05	-.04
DERS 29n: When I'm upset, I become irritated with myself for feeling that way.	.006	.55	.16	.10	.05	.06	-.003
DERS 30s: When I'm upset, I start to feel very bad about myself.	.00	.44	.18	-.03	.003	.01	-.06
DERS 18g: When I'm upset, I have difficulty focusing on other things.	-.01	-.11	.91	.02	-.06	-.01	-.05
DERS 13g: When I'm upset, I have difficulty getting work done.	-.02	-.03	.90	-.03	-.01	-.06	.16
DERS 26g: When I'm upset, I have difficulty concentrating.	.05	.08	.81	-.007	-.04	-.02	-.09
DERS 33g: When I'm upset, I have difficulty thinking about anything else.	.05	-.03	.58	.04	.006	.009	-.02
DERS 23n: When I'm upset, I feel like I am weak.	.11	.30	.39	.007	-.04	.10	.04

Table 29—Continued

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
DERS 9c: I am confused about how I feel.	.08	.02	.01	.93	.08	-.05	-.18
DERS 4c: I have no idea how I am feeling.	-.08	.13	-.02	.87	.14	-.04	.008
DERS 5c: I have difficulty making sense out of my feelings.	.05	-.02	.05	.87	.002	.02	.07
TAS20 1i: I am often confused about what emotion I am feeling.	.06	.03	.005	.59	-.14	.02	-.08
TAS20 9i: I have feelings that I can't quite identify.	.04	.07	-.11	.43	-.10	-.03	.09
TAS20 2d: It is difficult for me to find the right words for my feelings.	.00	-.09	.13	.36	-.10	.02	.23
TMMS 23r: When I become upset I remind myself of all the pleasures in life.	-.03	.09	.04	.01	-.67	.03	-.20
TMMS 16r: Although I am sometimes sad, I have a mostly optimistic outlook.	.02	.03	.06	.04	-.67	.06	.04
TMMS 43r: No matter how badly I feel, I try to think about pleasant things.	.04	-.06	-.04	.03	-.63	-.05	-.04

Table 29—Continued

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
TMMS 2r: I try to think good thoughts no matter how badly I feel.	-.12	-.01	.03	-.03	-.59	-.07	.04
TMMS 32r: Although I am sometimes happy, I have a mostly pessimistic outlook.	.02	.10	-.02	-.10	-.46	-.01	.02
EU 8i: People consider me a spontaneous, devil-may-care person.	.02	.02	-.03	-.05	-.12	.71	.03
EU 10i: I have been known to do unusual things on a dare.	.04	.08	-.06	-.10	-.10	.67	.17
EU 14i: Sometimes I rather enjoy going against the rules and doing things I am not supposed to.	-.13	-.04	-.03	.15	.18	.62	.04
EU 3i: I often say and do things on the spur of the moment, without stopping to think.	.13	-.10	-.02	-.02	.09	.54	-.02
EU 6i: When I get bored, I like to stir up some excitement.	-.06	.08	.04	-.05	-.009	.50	-.06
EU 18i: I like to flirt.	.11	-.09	.09	-.06	-.13	.48	-.08
EU 15i: At times, I am tempted to do or say something that others would think inappropriate.	-.11	-.05	.003	.11	.21	.45	-.14

Table 29—Continued

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
TAS20 17d: It is difficult for me to reveal my innermost feelings, even to close friends.	.02	.07	.04	-.06	.09	-.03	.78
TAS20 12d: People tell me to describe my feelings more.	-.03	.02	-.08	.02	.03	.10	.57
TAS20 4d: I am able to describe my feelings easily.	.009	-.04	-.12	-.26	.02	.03	-.42
DERS 7c: I know exactly how I am feeling.	-.01	.001	-.05	-.11	-.08	.01	.17
DERS 1c: I am clear about my feelings.	.12	.14	-.04	-.003	-.11	.005	-.12
TMMS 17r: When I am upset I realize that the “good things in life” are illusions.	-.08	-.09	.03	.07	-.29	-.05	-.04
DERS 20g: When I’m upset, I can still get things done.	.16	-.17	-.03	.12	-.02	-.03	.14
TAS20 11i: I am often puzzled by sensations in my body.	-.03	.08	-.11	.04	-.10	.03	-.01
TAS20 3i: I have physical sensations that even doctors don't understand.	.17	.10	.001	-.03	-.02	.007	.02

Table 29—Continued

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
TAS20 13i: I don't know what's going on inside me.	.17	-.19	.05	.24	.01	-.04	.11
DERS 28s: When I'm upset, I believe there is nothing I can do to make myself feel better.	.01	.25	.07	.01	.09	.01	-.01
DERS 16s: When I'm upset, I believe that I'll end up feeling very depressed.	.13	.12	.10	-.07	.10	-.09	-.02
TAS20 6i: When I am upset, I don't know if I am sad, frightened, or angry.	.07	.05	-.05	.40	-.09	-.07	.07
TAS20 14i: I often don't know why I am angry.	.13	-.08	.05	.16	-.03	.01	.11
DERS 15s: When I'm upset, I believe that I will remain that way for a long time.	-.02	.12	.19	-.03	.14	-.09	.07
TAS20 7d: I find it hard to describe how I feel about people.	.08	.03	-.23	.15	-.008	.07	.27
DERS 31s: When I'm upset, I believe that wallowing in it is all I can do.	.15	.16	.13	.02	.07	.01	-.06
AAQ 1: It's OK if I remember something unpleasant.	-.16	-.14	.03	.18	-.13	.10	.03

Table 29—Continued

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
DERS 36s: When I'm upset, my emotions feel overwhelming.	-.03	-.09	.26	.03	-.08	-.02	-.09
DERS 22s: When I'm upset, I know that I can find a way to eventually feel better.	-.09	-.04	-.02	.17	-.05	-.03	-.03
DERS 35s: When I'm upset, it takes me a long time to feel better.	-.14	.01	.28	.14	.07	.06	.02
AAQ 10: My thoughts and feelings do not get in the way of how I want to live my life.	-.27	.002	-.06	.16	-.18	.05	-.03

Item Source, Subscale, and Content	Factor 8	Factor 9	Factor 10	Factor 11	Factor 12
AAQ 5: My painful memories prevent me from having a fulfilling life.	-.04	.02	.07	-.06	-.11
AAQ 2: My painful experiences and memories make it difficult for me to life a life I would value.	.05	.02	.13	.19	-.10
AAQ 4: I worry about not being able to control my worries and feelings.	-.007	.12	.03	.08	.15
AAQ 7: Emotions cause problems in my life.	.11	-.04	.03	.15	.36

Table 29—Continued

Item Source, Subscale, and Content	Factor 8	Factor 9	Factor 10	Factor 11	Factor 12
AAQ 3: AAQ 3: I'm afraid of my feelings.	.08	-.01	.04	.06	.05
AAQ 9: Worries get in the way of my success.	-.11	-.04	-.02	.05	.44
AAQ 8: It seems like most people are handling their lives better than I am.	.04	-.16	-.10	.05	.24
AAQ 6: I am in control of my life.	-.03	-.08	.26	.05	-.03
DERS 21n: When I'm upset, I feel ashamed with myself for feeling that way.	-.04	-.04	.02	.04	-.02
DERS 25n: When I'm upset, I feel guilty for feeling that way.	-.01	.04	-.05	.14	.01
DERS 12n: When I'm upset, I become embarrassed for feeling that way.	.10	.09	-.02	-.04	.05
DERS 11n: When I'm upset, I become angry with myself for feeling that way.	.04	.05	.24	-.23	.08
DERS 29n: When I'm upset, I become irritated with myself for feeling that way.	-.05	-.02	.15	-.14	.03

Table 29—Continued

Item Source, Subscale, and Content	Factor 8	Factor 9	Factor 10	Factor 11	Factor 12
DERS 30s: When I'm upset, I start to feel very bad about myself.	-.01	.007	.19	.25	.02
DERS 18g: When I'm upset, I have difficulty focusing on other things.	.005	-.008	-.01	-.006	.03
DERS 13g: When I'm upset, I have difficulty getting work done.	-.003	-.01	.02	-.14	.03
DERS 26g: When I'm upset, I have difficulty concentrating.	-.13	-.08	-.07	.05	.07
DERS 33g: When I'm upset, I have difficulty thinking about anything else.	-.006	-.07	.06	.24	.04
DERS 23n: When I'm upset, I feel like I am weak.	.09	-.01	-.02	.04	-.03
DERS 9c: I am confused about how I feel.	.15	-.07	.02	-.11	-.13
DERS 4c: I have no idea how I am feeling.	-.19	-.02	-.03	-.18	-.13
DERS 5c: I have difficulty making sense out of my feelings.	-.16	.02	-.11	-.08	-.02

Table 29—Continued

Item Source, Subscale, and Content	Factor 8	Factor 9	Factor 10	Factor 11	Factor 12
TAS20 1i: I am often confused about what emotion I am feeling.	-.26	-.04	.11	.10	.06
TAS20 9i: I have feelings that I can't quite identify.	-.007	.14	.11	.15	.11
TAS20 2d: It is difficult for me to find the right words for my feelings.	.05	.09	.06	.11	-.14
TMMS 23r: When I become upset I remind myself of all the pleasures in life.	.07	.22	.02	-.09	-.03
TMMS 16r: Although I am sometimes sad, I have a mostly optimistic outlook.	.15	.003	-.33	.06	.02
TMMS 43r: No matter how badly I feel, I try to think about pleasant things.	.02	.06	.006	-.18	-.07
TMMS 2r: I try to think good thoughts no matter how badly I feel.	.01	-.07	.11	-.006	-.01
TMMS 32r: Although I am sometimes happy, I have a mostly pessimistic outlook.	.12	-.04	-.15	.13	-.05
EU 8i: People consider me a spontaneous, devil-may-care person.	-.10	.007	-.006	.07	-.10

Table 29—Continued

Item Source, Subscale, and Content	Factor 8	Factor 9	Factor 10	Factor 11	Factor 12
EU 10i: I have been known to do unusual things on a dare.	.04	-.01	-.05	-.004	-.07
EU 14i: Sometimes I rather enjoy going against the rules and doing things I am not supposed to.	.01	.16	-.23	.04	.08
EU 3i: I often say and do things on the spur of the moment, without stopping to think.	.03	-.10	.10	.07	.01
EU 6i: When I get bored, I like to stir up some excitement.	.03	-.05	.15	-.34	.004
EU 18i: I like to flirt.	.14	-.09	.17	-.33	.16
EU 15i: At times, I am tempted to do or say something that others would think inappropriate.	-.09	.14	-.12	.03	.006
TAS20 17d: It is difficult for me to reveal my innermost feelings, even to close friends.	.18	-.05	-.005	.07	-.04
DERS 1c: I am clear about my feelings.	.45	.02	-.02	-.26	-.18
DERS 7c: I know exactly how I am feeling.	.70	.08	.07	-.16	.02

Table 29—Continued

Item Source, Subscale, and Content	Factor 8	Factor 9	Factor 10	Factor 11	Factor 12
TMMS 17r: When I am upset I realize that the “good things in life” are illusions.	.32	-.05	-.02	-.004	-.07
DERS 20g: When I’m upset, I can still get things done.	.25	-.11	.01	.006	.009
TAS20 11i: I am often puzzled by sensations in my body.	.06	.70	-.001	.08	.08
TAS20 3i: I have physical sensations that even doctors don't understand.	-.03	.55	-.10	.08	-.10
TAS20 2d: It is difficult for me to find the right words for my feelings.	.05	.09	.06	.11	-.14
TAS20 13i: I don't know what's going on inside me.	.09	.47	.18	-.04	.07
DERS 28s: When I’m upset, I believe there is nothing I can do to make myself feel better.	.10	-.003	.63	-.10	-.07
DERS 16s: When I’m upset, I believe that I’ll end up feeling very depressed.	.11	.03	.48	.13	-.06
TAS20 6i: When I am upset, I don’t know if I am sad, frightened, or angry.	-.15	-.15	.45	-.07	.06

Table 29—Continued

Item Source, Subscale, and Content	Factor 8	Factor 9	Factor 10	Factor 11	Factor 12
TAS20 14i: I often don't know why I am angry.	-.04	.06	.42	-.11	.15
DERS 15s: When I'm upset, I believe that I will remain that way for a long time.	.21	.04	.40	.10	.02
TAS20 7d: I find it hard to describe how I feel about people.	-.18	-.14	.33	.20	-.04
DERS 31s: When I'm upset, I believe that wallowing in it is all I can do.	.06	.08	.23	.17	-.13
AAQ 1: It's OK if I remember something unpleasant.	.10	-.08	-.19	-.06	.02
DERS 36s: When I'm upset, my emotions feel overwhelming.	.02	.17	.28	.50	.02
DERS 22s: When I'm upset, I know that I can find a way to eventually feel better.	.24	-.03	.08	-.46	-.12
DERS 35s: When I'm upset, it takes me a long time to feel better.	.08	-.07	.32	.33	-.08
AAQ 10: My thoughts and feelings do not get in the way of how I want to live my life.	.06	-.15	.09	-.13	-.29

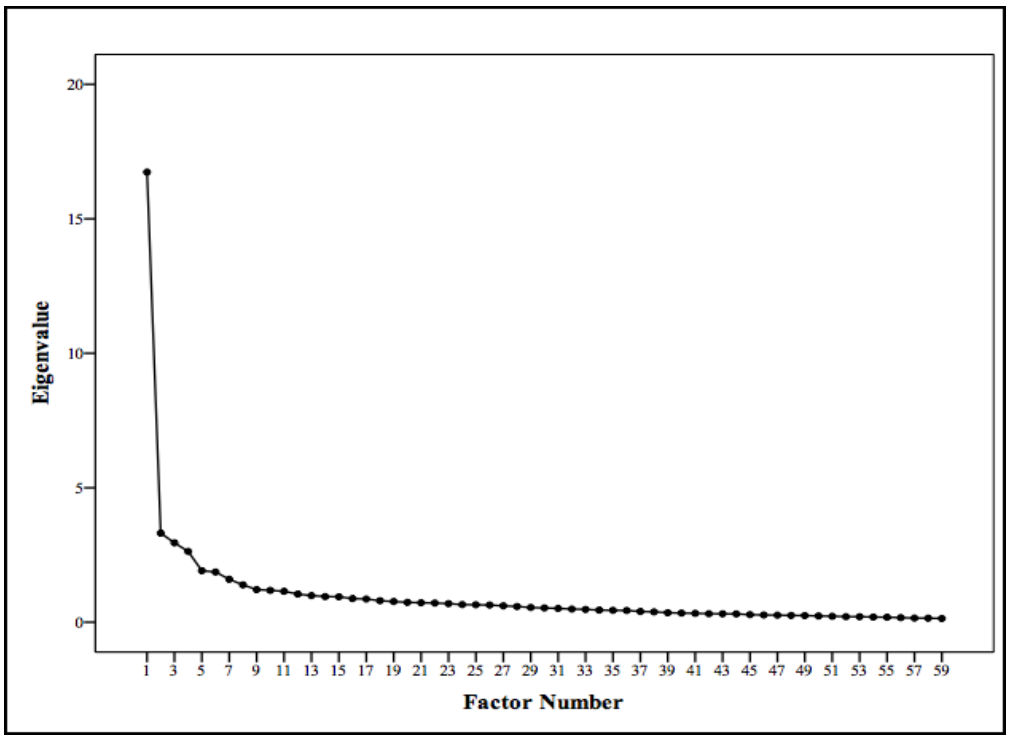

Figure 3. Scree plot indicating the possible number of factors in the emotion overcontrol scale.

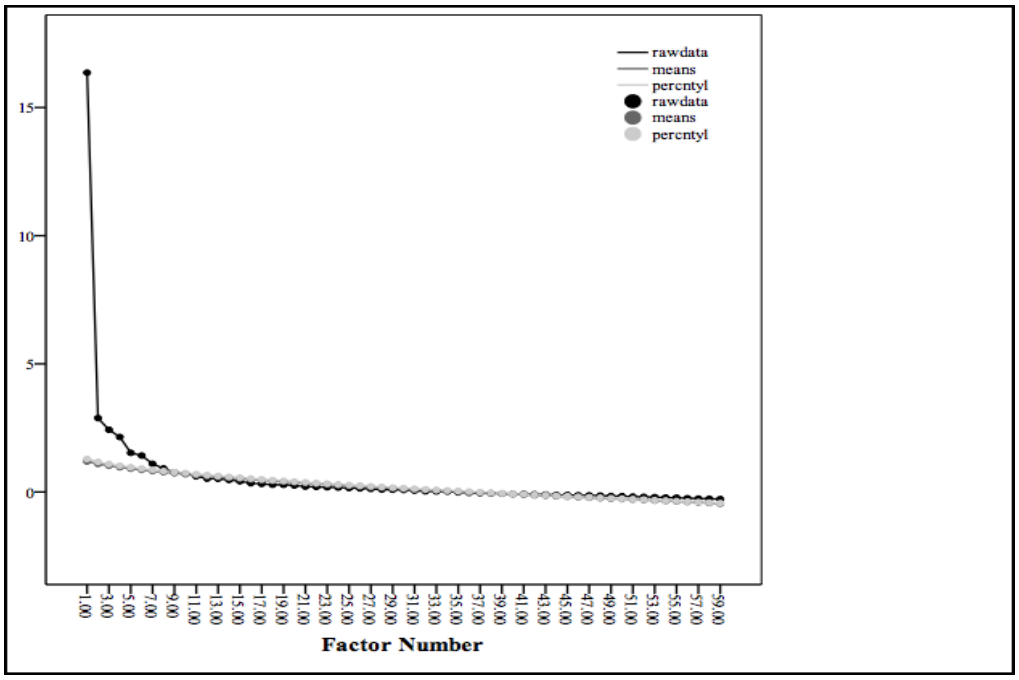

Figure 4. Parallel analysis demonstrating the number of factors in the emotion overcontrol scale.

A 7-factor solution was generated following the parallel analysis, which accounted for 46% of the variance in the model. Items with minimum factor loadings of .39 or less were removed from the item pool (Baer et al., 2006; Osborne, 2014). Additionally, items that loaded on multiple factors with a difference between the primary factor loading and other factor loadings of .20 or less were also removed from the item pool (Baer et al., 2006). Because of the stipulations that items must load at .40 or greater on one factor, and two of the item loadings on the seventh factor were less than .39, only two items remained in factor seven. Because each factor requires three or more items to be considered stable, the 7-factor solution was not appropriate for the final factor solution (Costello & Osborne, 2005).

Based on these results, an EFA with six factors extracted was analyzed. The 6-factor EFA accounted for 45% of the total variance in the model. Three additional EFA's were run to facilitate a final factor solution where items predominantly loaded onto one factor at a level of .40 or greater. The final EFA contained 41 items and 51% of the variance in emotion regulation was explained through this factor solution (see Table 30 and Table 31). This is representative of a comparable level of variance demonstrated in factor analyses for the TAS-20 (31%), ERQ (50%), and the DERS (56%).

Table 30

Total Variance Explained for the Final, 6-factor Emotion Overcontrol EFA

Factor	Eigenvalue	Percent of Variance	Cumulative Percent
1	11.84	28.89	28.89
2	2.39	5.83	34.71
3	2.07	5.04	39.76
4	1.86	4.53	44.29
5	1.35	3.29	47.57
6	1.26	3.07	50.64

Table 31

Final 6-Factor Solution for the Emotion Overcontrol Scale using PAF with Promax

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Factor 1 (Emotional Identification)						
TAS20 1i: I am often confused about what emotion I am feeling.	**.77**	.03	.07	-.02	.01	.13
TAS20 9i: I have feelings that I can't quite identify.	**.76**	.09	-.08	.04	-.02	.07
TAS20 2d: It is difficult for me to find the right words for my feelings.	**.75**	-.03	.02	-.03	.02	.12
DERS 4c: I have no idea how I am feeling.	**.72**	-.13	-.04	.09	.00	-.12
DERS 5c: I have difficulty making sense out of my feelings.	**.72**	.01	.07	-.06	.06	-.04
DERS 9c: I am confused about how I feel.	**.66**	.001	.06	.009	-.03	-.09
TAS20 4d: I am able to describe my feelings easily.	**-.63**	.001	.05	-.05	.03	-.06
TAS20 6i: When I am upset, I don’t know if I am sad, frightened, or angry.	**.61**	.009	-.001	.06	.04	.11
TAS20 7d: I find it hard to describe how I feel about people.	**.53**	.16	-.22	.08	-.09	.00

Table 31—Continued

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
TAS20 13i: I don't know what's going on inside me.	**.52**	.31	.05	-.12	.05	.02
DERS 1c: I am clear about my feelings.	**-.44**	.12	.006	.15	.05	.07
Factor 2 (Emotional Avoidance)						
AAQ 5: My painful memories prevent me from having a fulfilling life.	-.06	**.93**	-.04	-.06	.04	.03
AAQ 2: My painful experiences and memories make it difficult for me to life a life I would value.	.006	**.81**	-.16	.03	.04	.03
AAQ 7: Emotions cause problems in my life.	.03	**.75**	.05	-.04	-.02	-.06
AAQ 4: I worry about not being able to control my worries and feelings.	.06	**.74**	.06	.007	-.04	.03
AAQ 3: I'm afraid of my feelings.	.09	**.69**	-.05	.06	-.02	-.009
AAQ 9: Worries get in the way of my success.	-.04	**.62**	.16	.05	-.06	-.03
AAQ 8: It seems like most people are handling their lives better than I am.	.08	**.57**	.09	-.03	-.04	-.18
AAQ 6: I am in control of my life.	.08	**-.48**	-.06	-.08	-.03	.08

Table 31—Continued

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Factor 3 (Emotional Interference)						
DERS 18g: When I'm upset, I have difficulty focusing on other things.	-.09	-.05	**.97**	-.08	.01	.09
DERS 26g: When I'm upset, I have difficulty concentrating.	-.10	-.02	**.85**	.08	-.02	.05
DERS 13g: When I'm upset, I have difficulty getting work done.	.001	.003	**.78**	.02	-.04	.07
DERS 33g: When I'm upset, I have difficulty thinking about anything else.	.02	.05	**.71**	.008	.002	-.06
DERS 36s: When I'm upset, my emotions feel overwhelming.	.22	.11	**.49**	.01	-.009	-.04
DERS 35s: When I'm upset, it takes me a long time to feel better.	.18	-.02	**.44**	.11	.04	-.14
Factor 4 (Emotional Judgment)						
DERS 21n: When I'm upset, I feel ashamed with myself for feeling that way.	-.05	.01	-.03	**.93**	-.02	.02
DERS 25n: When I'm upset, I feel guilty for feeling that way.	-.06	.10	-.006	**.83**	.04	.04
DERS 12n: When I'm upset, I become embarrassed for feeling that way.	.04	-.09	.07	**.80**	-.03	.06

Table 31—Continued

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
DERS 11n: When I'm upset, I become angry with myself for feeling that way.	.05	.04	-.06	**.63**	-.01	-.15
DERS 29n: When I'm upset, I become irritated with myself for feeling that way.	.07	.04	.16	**.55**	.07	-.04
Factor 5 (Emotional Control)						
EU 8i: People consider me a spontaneous, devil-may-care person.	.04	-.004	-.02	.08	**.68**	.11
EU 10i: I have been known to do unusual things on a dare.	-.03	.05	-.11	.12	**.65**	.10
EU 14i: Sometimes I rather enjoy going against the rules and doing things I am not supposed to.	.18	-.14	-.03	-.08	**.64**	-.19
EU 3i: I often say and do things on the spur of the moment, without stopping to think.	-.09	.17	.06	-.07	**.51**	-.13
EU 6i: When I get bored, I like to stir up some excitement.	-.13	-.04	-.01	.08	**.49**	.09
EU 15i: At times, I am tempted to do or say something that others would think inappropriate.	.12	-.14	.03	-.09	**.48**	-.18
EU 18i: I like to flirt.	-.20	.19	.09	-.12	**.47**	.19

Table 31—Continued

Item Source, Subscale, and Content	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Factor 6 (Emotional Reappraisal)						
TMMS 43r: No matter how badly I feel, I try to think about pleasant things.	-.07	.04	-.08	-.06	-.03	**.75**
TMMS 23r: When I become upset I remind myself of all the pleasures in life.	.07	-.04	.09	.08	.07	**.72**
TMMS 2r: I try to think good thoughts no matter how badly I feel.	.10	-.09	.06	-.02	-.09	**.66**
TMMS 16r: Although I am sometimes sad, I have a mostly optimistic outlook.	-.04	-.05	.05	-.03	.05	**.58**

Note. Highest loading items in each row are in bold.

In the 6-factor solution, factor one is comprised of items from the difficulties describing feelings and difficulties identifying feelings subscales of the TAS-20, and the clarity subscale of the DERS. This factor is representative of difficulty identifying emotions and as such was labeled “emotional identification.” Factor two represents items from the AAQ-II. Based on this factor analysis, experiential avoidance can be understood as an emotional avoidance strategy. Hence, “experiential avoidance” was renamed “emotional avoidance” to better illustrate the regulatory function implicit in factor three. Difficulties accessing emotion regulation strategies and engaging in goal direct behavior when distressed from the DERS are representative of “emotional interference,” the description of factor four. Factor five is made up of the impulsivity subscale of the EU, items which reflect “emotional control” difficulties. Finally, factor six was called “emotional reappraisal” as it consists of items from the repair subscale of the TMMS, a subscale measuring the ability to repair one’s mood (see Appendix D for complete emotion overcontrol scale).

Overall, strong to moderate correlations were demonstrated between most factors in the final factor solution (see Table 32). In particular, emotional avoidance appeared to be most strongly correlated with other factors including emotional identification (r = .62). Emotional control was relatively weakly correlated with the other factors, suggesting uniqueness of this construct in the assessment of emotion overcontrol.

Table 32

Correlation Between Factors for the Final Version of the Emotion Overcontrol Scale

Factor	1	2	3	4	5	6
1: Emotional identification	1.00	.62	.48	.57	.15	-.38
2: Emotional avoidance	.62	1.00	.59	.58	.15	-.45
3: Emotional interference	.48	.59	1.00	.52	.05	-.33
4: Emotional judgment	.57	.58	.52	1.00	.20	-.31
5: Emotional control	.15	.15	.05	.20	1.00	-.06
6: Emotional reappraisal	-.38	-.45	-.33	-.31	-.06	1.00

Summary

In the development of two scales via EFAs, overlapping factors emerged in the measurement of emotion undercontrol and emotion overcontrol. These overlapping factors include emotional identification, emotional avoidance, emotional interference, and emotional control, which resulted from both sets of factor analyses. The EFAs for the emotion undercontrol scale identified emotional reactivity, emotional expressivity, and emotional tolerance as factors unique to emotion undercontrol. Regarding emotion overcontrol, the factors specifically relevant to this scale included emotional judgment and emotional reappraisal.

To understand how the scores on the new measures differed between groups with BPD, ASPD, AVPD, OCPD, and no PDs, a MANOVA on the undercontrol scale and a MANOVA on the overcontrol scale was performed (see Tables 33 and 34). The results of these MANOVAs indicated that individuals with BPD reported significantly heightened emotional avoidance, emotional intolerance, emotional interference, emotional reactivity, emotional identification difficulties, and lack of emotional control when compared to

individuals without BPD. In areas unique to the overcontrol scale, individuals who met criteria for BPD demonstrated significantly greater emotional judgment and difficulties with emotional reappraisal. Individuals meeting criteria for BPD reported the most elevated emotion dysregulation on the emotion undercontrol and emotion overcontrol scales. Of those who met criteria for ASPD, these individuals endorsed significantly greater emotional avoidance, emotional reactivity, lack of emotional control, and difficulties in emotional expressivity than individuals without ASPD. On the overcontrol scale, individuals meeting criteria for ASPD demonstrated significantly more difficulties in emotional reappraisal in addition to areas that overlapped with the undercontrol scale. Relative to the other personality disorders including BPD, individuals meeting criteria for ASPD reported significantly greater emotional dyscontrol and emotional expressivity difficulties.

Those who met criteria for AVPD reported significantly greater problems with emotional identification, emotional avoidance, emotional interference, emotional judgment, emotional overcontrol, and emotional repair on the emotion overcontrol scale. Specific to the undercontrol scale these individuals also reported significantly more difficulty expressing emotions. With regard to OCPD, these individuals endorsed significantly greater difficulties with emotional identification, emotional avoidance, emotional interference, emotional judgment and emotional overcontrol compared to individuals without a personality disorder.

Table 33

MANOVA Reflecting the Difference Between Means on the Undercontrol Subscales Among Individuals with and without PDs

Emotion Undercontrol Subscale	No PD Mean (SE)	ASPD	BPD	AVPD	OCPD	*F*	Partial Eta Squared
Emo. Avoidance	30.84 (.66)	32.56 (2.93)	43.29 (1.92)	38.50 (1.88)	37.20 (1.37)	14.17***	.18
Emo. Tolerance	16.81 (.48)	17.00 (2.12)	24.52 (1.39)	21.05 (1.36)	20.56 (.99)	9.85***	.13
Emo. Interference	13.22 (.34)	11.00 (1.50)	17.76 (.98)	16.32 (.96)	16.39 (.70)	10.25***	.13
Emo. Reactivity	5.78 (.24)	8.67 (1.05)	10.38 (.69)	7.00 (.67)	7.76 (.49)	12.87***	.16
Emo. Identification	12.39 (.36)	12.22 (1.59)	17.62 (1.04)	15.09 (1.02)	15.68 (.74)	9.27***	.12
Emo. Control	16.50 (.28)	22.22 (1.25)	18.48 (.82)	15.36 (.80)	15.73 (.59)	7.56***	.10
Emo. Expressivity	10.59 (.33)	15.00 (1.45)	11.81 (.95)	12.46 (.92)	11.51 (.68)	3.19*	.05

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

Table 34

MANOVA Reflecting the Difference Between Means on the Overcontrol Subscales Among Individuals with and without PDs

Emotion Undercontrol Subscale	No PD Mean (SE)	ASPD	BPD	AVPD	OCPD	*F*	Partial Eta Squared
Emo. Identification	30.77 (.56)	31.89 (2.48)	39.09 (1.59)	34.25 (1.52)	35.19 (1.14)	8.44***	.11
Emo. Avoidance	26.29 (.70)	28.67 (3.11)	40.23 (1.99)	35.71 (1.91)	32.93 (1.42)	16.61***	.19
Emo. Interference	15.44 (.40)	13.11 (1.79)	21.64 (1.14)	19.08 (1.10)	19.42 (.82)	12.06***	.15
Emo. Judgment	11.81 (.42)	13.22 (1.88)	16.14 (1.20)	16.21 (1.15)	13.93 (.86)	5.94***	.08
Emo. Control	16.52 (.36)	22.22 (1.59)	18.77 (1.04)	15.33 (1.02)	15.65 (.74)	8.34***	.11
Emo. Repair	15.28 (.24)	12.89 (1.05)	12.41 (.67)	13.13 (.64)	14.07 (.48)	7.00***	.09

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

Reliability Analyses

Reliability for Undercontrol Scale

Internal consistency. As a preliminary means of establishing reliability, internal consistency was calculated for each subscale of the undercontrol scale using the sample previously discussed. All factors of the emotion undercontrol scale demonstrated excellent to acceptable internal consistency as evidenced by the following alpha coefficients for each subscale: emotional avoidance $\alpha = .72$, emotional tolerance, $\alpha = .88$, emotional interference, $\alpha = .87$, emotional reactivity, $\alpha = .90$, emotional identification, $\alpha = .84$, emotional control $\alpha = .75$, and emotional expressivity $\alpha = .77$.

Test-retest reliability. Test-retest reliability could not be calculated for factors two (emotional tolerance) and five (emotional identification) as the measures representative of these factors, the DTS and TAS-20, were not administered during session three. Test-retest reliability from session two to session three, approximately one week after session two, ranged from acceptable to excellent with the regard emotional avoidance ($r = .73$), emotional interference ($r = .87$), emotional reactivity ($r = .88$), emotional control ($r = .85$), and emotional expressivity ($r = .90$) in the current sample.

Reliability for Overcontrol Scale

Internal consistency. Internal consistency for the overcontrol scale ranged from good to acceptable as evidenced by Cronbach's alpha calculations for emotional identification ($\alpha = .80$), emotional avoidance ($\alpha = .82$), emotional interference ($\alpha = .88$), emotional judgment ($\alpha = .89$), emotional control ($\alpha = .75$), and emotional reappraisal ($\alpha = .77$).

Test-retest reliability. Test-retest reliability could not be calculated for the emotional identification factor as the TAS-20 was not administered during the third session of this study. The emotional avoidance (r = .78), emotional interference (r = .89), emotional judgment (r = .84), and emotional control (r = .85) factors all demonstrated good to acceptable ratings of test-retest reliability. The emotional reappraisal factor demonstrated questionable test-retest reliability (r = .60).

Validity Analyses

The ACS, BSI, COPE, EDE-Q, CECS, and the S-DERS were included as preliminary assessments of the validity of the newly developed undercontrol and overcontrol scales.

Validity for Undercontrol Scale

The ACS and CECS were included as an assessment of validity as affective dyscontrol was hypothesized as related to the factors of the emotion undercontrol scale. Related to the BSI, it was hypothesized that individuals who scored high on the undercontrol scale would also score high on the BSI, indicative of more psychological distress. As for the COPE, difficulty accessing coping strategies, particularly substance abuse, has been associated with impulsivity. While denial and behavioral disengagement on the COPE were hypothesized as strong predictors of overcontrol, we also included these variables as validity indices of the undercontrol scale given the overlap between the two measures. The EDE-Q was included as a measure of validity as impulsivity has been associated with facets of eating disorders (e.g., binge eating).

Construct validity. Construct validity was calculated to establish scope of the emotion undercontrol scale in the context of other measures of related constructs, which

were not included in the development of this scale. Correlations were calculated measuring the degree to which the undercontrol scale and outside measures were related. The ACS (r = .74) and BSI (r = .70) demonstrated strong statistically significant (p < .001) correlations with the undercontrol scale. The COPE substance abuse subscale (r = .33, p < .001), COPE denial subscale (r = .43, p < .001), COPE behavioral disengagement subscale (r = .35, p < .001), the EDE-Q (r = .36, p < .001), and the CECS (r = .41, p < .001) demonstrated moderate correlations with the new scale.

The new emotion undercontrol scale was predictive of state emotion regulation as measured by the state version of the DERS administered during the same session as the trait scales. Through multiple linear regressions, the new trait scale of emotion undercontrol was found to be predictive of a state scale of dysregulation, the S-DERS, following the completion of a mood induction task. In fact, 28% of the variance in state dysregulation was predicted by the new emotion undercontrol scale, $F(7, 289) = 16.06$, p <.001. While the new scale is a trait scale of emotion undercontrol, this reflects the validity of the new scale in predicting state emotion dysregulation.

Incremental validity. To determine if the subscales of the new scale hypothesized as most predictive of BPD were in fact most predictive in the context of the measures used to develop the undercontrol scale, discriminant function analyses were employed. These analyses included the most robust measures of emotion regulation used in the current study (i.e., the DERS, TAS-20, AAQ-II) in addition to the newly developed emotion undercontrol scale. The emotional reactivity subscale of the new measure emerged as most predictive of BPD (r = .71), followed by the impulsivity subscale of the DERS (r = .70), the AAQ-II (r = .65), the emotional avoidance factor of the new scale

(r = .65), the strategies subscale of the DERS (r = .61), the goals subscale of the DERS (r = .60), the emotional interference subscale of the new measure (r = .58), the difficulty identifying feelings subscale of the TAS-20 (r = .58), the emotional identification subscale of the new measure (r = .56), the clarity subscale of the DERS (r = .47), the nonacceptance subscale of the DERS (r = .37), the difficulty describing feelings subscale of the TAS-20 (r = .35), the emotional control subscale of the new measure (r = .35), the emotional expressivity subscale of the new measure (r = .15), the externally oriented thinking subscale of the TAS-20 (r = -.10), the DERS awareness factor (r = .07), and the emotional intolerance subscale of the new measure (r = -.04).

Multiple linear regressions were used to compare the amount of variance the DERS accounted for in BPD to the newly developed undercontrol scale. The DERS accounted for 23.9% of the variance in BPD symptoms, $F(6, 204) = 10.69$, $p < .001$. The newly developed emotion overcontrol scale accounted for more variance in BPD symptoms. The newly developed scale accounted for 27.7% of the variance in BPD symptoms, $F(7, 197) = 10.79$, $p < .001$.

Validity for Overcontrol Scale

The ACS and CECS were included as an assessment of validity as affective overregulation was hypothesized as related to the factors of the emotion overcontrol scale. Related to the BSI, it was hypothesized that Veterans who score high on the overcontrol scale would also score high on the BSI because emotion overcontrol suggests greater psychological distress. Related to the COPE, denial and behavioral disengagement were hypothesized as strong predictors of overcontrol as these were hypothesized as related to emotional judgment and suppression. The EDE-Q was

included as a measure of validity as overcontrol has been associated with facets of eating disorders (e.g., restriction of eating).

Construct validity. Construct validity was calculated to establish scope of the emotion overcontrol scale in the context of related measures not included in scale development. Correlations were calculated measuring the degree to which the overcontrol scale and outside measures were related. The ACS (r = .78) and BSI (r = .74) demonstrated strong statistically significant (p < .001) correlations with the newly developed overcontrol scale. The COPE substance abuse subscale (r = .34, p < .001), COPE denial subscale (r = .44, p < .001), COPE behavioral disengagement subscale (r = .36, p < .001), the EDE-Q (r = .40, p < .001), and the CECS (r = .36, p < .001) demonstrated moderate correlations with the new scale.

The new emotion overcontrol scale's predictive capacity of state emotion regulation as measured by the S-DERS at the same point in time as the trait measures was assessed. Through multiple linear regressions, the new trait scale of emotion overcontrol was found to be predictive of a state scale of dysregulation following the completion of a mood induction task. In fact, 31% of the variance in state dysregulation was predicted by the new emotion overcontrol scale, $F(6, 297) = 21.85$, p <.001. This reflects the validity of the new scale in predicting emotion dysregulation in the moment.

Incremental validity. To determine if the subscales hypothesized as most predictive of AVPD were in fact most predictive, discriminant function analyses were employed. These analyses included the strongest measures of emotion regulation in the present study, the DERS, TAS-20, AAQ-II, and the new measure of overcontrol. Emotional avoidance from the new scale emerged as most predictive (r = .48) of AVPD,

followed by the strategies subscale of the DERS (r = .47), the emotional judgment subscale of the new scale (r = .47), the difficulty describing feelings subscale of the TAS-20 (r = .47), the nonacceptance subscale of the DERS (r = .46), the AAQ-II (r = .42), the emotional interference subscale of the new overcontrol scale (r = .40), the difficulty identifying feelings subscale of the TAS-20 (r = .40), the goals subscale of the DERS (r = .37), the emotional identification subscale of the new scale (r = .32), the emotional control subscale of the new measure (r = -.27), the emotional reappraisal subscale of the new measure (r = -.19), the impulsivity subscale of the DERS (r = .17), the awareness subscale of the DERS (r = .09), the externally oriented thinking subscale of the TAS20 (r = -.08), and the DERS clarity subscale (r = .03).

Multiple linear regressions were used to compare the amount of variance the DERS accounts for in AVPD symptoms to the newly developed overcontrol scale. The DERS accounted for 10.8% of the variance in AVPD symptoms, $F(6, 175) = 3.52$, $p < .01$. The newly developed emotion overcontrol scale accounted for more variance in AVPD symptoms than the DERS. The newly developed scale accounted for 19% of the variance in AVPD symptoms, $F(6, 176) = 6.89$, $p < .001$.

To determine if the new subscales of overcontrol were most predictive of OCPD in the context of other measures of emotion regulation, another discriminative function analysis was conducted. This analysis included the strongest measures of emotion regulation in the present study, the DERS, TAS-20, AAQ, and the new measure of overcontrol. Emotional interference from the new scale emerged as most predictive (r = .64), followed by difficulty engaging in goal directed behavior on the DERS (r = .64), the TAS-20 difficulty identifying feelings scale (r = .47), the strategies subscale

of the DERS (r = .47), the emotional avoidance subscale of the new measure (r = .46), the emotional identification subscale of the new scale (r = .45), the AAQ-II (r = .45), the difficulty describing feelings subscale of the TAS-20 (r = .43), the impulsivity subscale of the DERS (r = .39), the emotional control subscale of the new scale (r = -.39), the nonacceptance subscale of the DERS (r = .27), the emotional judgment scale of the new scale (.24), the emotional reappraisal subscale of the new scale (-.20), the clarity subscale of the DERS (r = .18), the awareness subscale of the DERS (r = .15), and the externally oriented thinking subscale of the TAS-20 (r = .02).

Multiple linear regressions were used to compare the amount of variance the DERS accounts for in OCPD symptoms to the newly developed overcontrol scale. The DERS accounted for 4.9% of the variance in OCPD symptoms, $F(6, 258) = 2.21$, $p < .05$. The newly developed emotion overcontrol scale accounted for more variance in OCPD symptoms than the DERS. The newly developed scale accounted for 9.4% of the variance in OCPD symptoms, $F(6, 259) = 4.50$, $p < .001$.

Reliability and Validity Summary

Overall, the undercontrol scale and the overcontrol scale demonstrated acceptable to excellent internal consistency. Test-retest reliability was strong for both scales, with the exception of the emotional reappraisal subscale of the overcontrol scale (r = .60). Preliminary construct validity for both the emotion undercontrol and emotion overcontrol scales was supported. Both scales demonstrated strong and significant relationships with the BSI and ACS, both of which were excluded from measure development. Additionally the undercontrol and overcontrol scales demonstrated moderate correlations with relevant subscales of the COPE, and the EDE-Q and CECS. The undercontrol and overcontrol

scales were predictive of state emotion dysregulation that occurred during the same session as the trait scales were administered. Incremental validity was also demonstrated for the undercontrol and overcontrol scales. Both scales demonstrated a greater degree of prediction of symptoms of personality psychopathology than the DERS (i.e., BPD, AVPD, and OCPD).

DISCUSSION

Summary

This study establishes the undercontrol scale and overcontrol scale as viable measures of emotion regulation in the context of preexisting scales of emotion regulation difficulties. Both scales account for more variance in symptoms of disorders of undercontrol (i.e., BPD) and overcontrol (i.e., AVPD and OCPD) than previously existing measures like the DERS. The undercontrol and overcontrol scales demonstrate preliminary reliability and validity, which facilitates the first step in validating these measures for use across psychological disorders. Significantly contributing to the research on emotion regulation, this is the first study to establish a measure specifically targeting overcontrol of emotions while taking into account previously validated measures of emotion regulation (i.e., TAS-20) and psychopathology (i.e., SNAP-2 in assessing AVPD and OCPD) related to overregulation.

Consistent with our hypotheses, in the development of the overcontrol and undercontrol scales, factors emerged that were specific to emotion overcontrol and emotion undercontrol. Emotional reactivity, emotional expressivity, and emotional tolerance appear to be facets of the undercontrol scale that are uniquely associated with disorders of underregulation. Unique to the emotion overcontrol scale, emotional judgment and emotional reappraisal emerged as factors. Individuals meeting criteria for AVPD reported heightened emotional judgment while individuals meeting criteria for OCPD did not report as great of an elevation. While emotional repair, which later

comprised the emotional reappraisal scale, was initially predictive of AVPD, individuals meeting criteria for ASPD and BPD appeared to struggle more with emotional reappraisal than individuals meeting criteria for AVPD or OCPD (see Table 34). These factors unique to either the undercontrol or overcontrol scales appear to capture important features of the type of dysregulation apparent in Cluster B and C personality disorders. Individuals meeting criteria for Cluster B disorders are often described as emotionally reactive and distress intolerant while those meeting criteria for Cluster C disorders are often described as nonaccepting of emotions (Linehan, 1993; Lynch et al., 2013).

One unexpected finding was that the majority of the factors on the overcontrol and undercontrol scales overlapped, despite separate discriminant function analyses, multiple regressions, and factor analyses used to construct both scales. We hypothesized that the factors comprising overcontrol and undercontrol would reflect more distinct emotion regulation variables. The factors that emerged across both measures suggest that some emotion regulation difficulties are core features of emotion dysregulation across Cluster B and C personality disorders. Among these factors are emotional identification, emotional avoidance, emotional interference, and emotional control. Across both measures, individuals meeting criteria for personality disorders demonstrated elevated difficulty in emotional identification, emotional avoidance, and emotional interference when compared to individuals without personality disorders. It may be that these factors reflect general emotion regulation difficulties in personality psychopathology. Given the overlap between scales, it also may be the case that the measures included in the current study did not sufficiently capture the construct of overcontrol.

With regard to emotional control specifically, on the overcontrol scale, individuals with Cluster C personality disorders demonstrated significantly less undercontrol of emotions (indicative of greater overcontrol) when compared to individuals who did not meet criteria for a personality disorder. On the undercontrol scale individuals meeting criteria for a Cluster B personality disorder reported significantly greater emotional undercontrol on the emotional control subscale than all other participants. These two subscale scores were negatively correlated, representing the directional difference in scoring between subscales. Given the emergence of the emotional control factor on both scales, this area may be one of the most salient emotion regulation domains to target in the treatment of personality psychopathology.

Factors that were unique to the undercontrol scale were elevated among individuals meeting criteria for Cluster C personality disorders and factors unique to the overcontrolled scale were elevated among participants meeting criteria for Cluster B personality disorders. This suggests the relevance of factors like emotional expressivity and emotional judgment across personality disorders. Additionally, individuals meeting criteria for BPD tended to report the highest levels of dysregulation across both measures, suggesting that emotion dysregulation is most apparent in this diagnostic category. Taken together, the factors from the undercontrol and overcontrol scales represent items from the TAS-20, AAQ-II, DTS, DERS, TMMS, ERQ, and UC indicating the importance of combining these assessments in the development of a transdiagnostic measure of emotion regulation.

In addition to developing these new scales and taking preliminary steps to establish the validity of these scales, this study presents emotion undercontrol and

overcontrol in the context of psychological disorders. Relatively few studies exist that explicitly investigate ASPD, AVPD, and OCPD as disorders of emotion dysregulation. The present study establishes each of these disorders as associated with several facets of emotion dysregulation across undercontrol and overcontrol. Furthermore, the results of this study provide more evidence for emotion regulation as a transdiagnostic construct relevant across different personality disorder diagnoses and predictive of functioning on several measures of distress (e.g., BSI, COPE, EDE-Q, etc.).

Using measures such as the undercontrol and overcontrol scales for the identification and treatment of pervasive emotional distress could have significant clinical implications for the functioning of individuals typically receiving personality disorder diagnoses. Rather than being labeled as meeting criteria for "Borderline Personality Disorder," perhaps in the future measures like these will be used to assess problematic symptoms of emotion regulation. If measures like the undercontrol and overcontrol scales were applied to the assessment of emotion dysregulation in BPD, diagnostic labels may no longer be necessary in the assessment of this psychopathology. Instead, an individual would receive information regarding high or low scores with respect to population norms on the scale facets comprising the undercontrol and overcontrol measures. This information would afford individual and their providers with knowledge about the specific areas of emotion dysregulation to be targeted in treatment. If these domains of overregulation or underregulation were directly emphasized in therapy, a treatment plan could be developed that targets the function of that individual's symptoms. Additionally, the most relevant components of dysregulation could be selected as central mechanisms to that individual's therapy so that treatment is more efficient and effective for that

person. Rather than administering the same treatment package to everyone, studies like this one may help elucidate the skills most important to target in DBT, ACT, and the UP for undercontrol and overcontrol, thus informing evidenced based treatments that target emotion regulation.

This study makes a number of significant contributions to the emotion regulation literature. Not only does the current study provide further evidence that emotion regulation difficulties can be viewed as a transdiagnostic construct with regard to personality psychopathology, but establishes common regulatory dimensions across personality disorders. Additionally, the way in which these measures were developed represents a significant strength of the present study. Rather than creating new measures independently of the extant literature and further fragmenting theories and definitions of emotion regulation, these measures were created in the context of existing measures of emotion regulation. The newly developed overcontrol and undercontrol scales contain the items and factors most relevant to the emotion regulation difficulties presented in BPD, ASPD, AVPD, and OCPD and exclude irrelevant factors. Variables like the awareness factor of the DERS and the externally oriented thinking factor of the TAS-20 have been called into question in previous studies due to poor reliability and validity (Bardeen, Fergus, & Orcutt, 2012; Parker et al., 2003). The statistical procedures implemented in the present study allowed the most relevant variables from preexisting measures to be retained, while excluding variables which have already demonstrated questionable validity.

Limitations

While this study presents a number of strengths, some limitations must be noted. First, this study was conducted using an undergraduate sample. Based on the present sample, individuals meeting criteria for Cluster B personality disorders reported more dysregulation on both the undercontrol and the overcontrol scales (see Table 33 and Table 34). Future studies should continue to investigate the emotion regulation variables most relevant to Cluster C personality disorders. Additionally, clinical samples will be particularly important to elucidating emotion regulation difficulties associated with emotion overcontrol. In clinical contexts, individuals may present emotion dysregulation differently with regard to personality psychopathology. Additionally, individuals meeting full diagnostic criteria for eating disorders, anxiety disorders, mood disorders, substance use disorders, and psychotic disorders should be included in subsequent studies.

Expanding the population to be assessed by these measures would begin to establish the role of emotion regulation difficulties across these disorders and identify whether the undercontrol and overcontrol scales are relevant in these populations. Behavioral assessments of emotion regulation should be compared to these self-report scales as individuals meeting criteria for personality disorders in clinical contexts may not have the necessary skills required to tact their emotion regulation difficulties on a self-report inventory. The addition of new variables might also be considered to aid in refining the specificity of these measures in categorizing overcontrol versus undercontrol of emotions. In addition to expanding the clinical diversity of the sample and establishing the behavioral validity of the new measures, steps should be taken to include more demographically diverse participants.

While reliability and validity were assessed for the measures developed in the current study, these calculations were generated from the same sample in which the new measures were developed. Future studies should independently evaluate the reliability and validity of these measures. Additionally, validity should be assessed with respect to additional measures of emotion regulation and psychopathology that were not included in the present study. While the validity analyses demonstrated the strength of the new subscales in predicting symptoms of psychopathology, some of the variables of measures like the DERS and TAS-20 emerged as stronger predictors of personality psychopathology than some of the subscales of the newly developed variables. More research is needed to understand the implications of the newly developed scales and variables in the context of preexisting scales.

Directions for Future Research

The primary goal of the current study was to develop new measures assessing the emotion regulation difficulties underlying diagnoses of emotion undercontrol and emotion overcontrol as evidenced in BPD, ASPD, AVPD, and OCPD. Given the number of factors that overlapped between the measure of undercontrol and the measure of overcontrol and that individuals meeting criteria for BPD demonstrated the highest ratings on both the overcontrol and undercontrol scales, the next step in this line of research is to combine these measures. Through combining these measures and determining the underlying factor structure of the new measure in a new sample, more about the characteristics of emotion dysregulation in personality psychopathology will be understood. For instance, based on the data from this study, it may be that emotional interference is an especially important feature of emotion dysregulation in OCPD and

emotional expressivity is a significant difficulty in ASPD. Additionally, some individuals may present high on some areas of dysregulation and low on others. Another presentation of regulatory difficulties could involve individuals who fluctuate between regulatory extremes on measures such as these, never establishing any middle ground with their emotions. Once an overall measure of emotion regulation is established and validated across clinically diverse samples, steps can be taken to calculate clinical and community norms so that the measure can truly function dimensionally. Additionally, once this measure is applied to new samples including personality disorders, anxiety disorders, substance use disorders, psychotic disorders, mood disorders, and eating disorders, patterns of regulatory difficulties in each of these diagnostic classes can be assessed. Based on the clustering of these patterns of regulatory difficulties, the feasibility of a new classification system rooted in an emotion regulation dimension can continue to be assessed.

As this study suggests, the emotion regulation difficulties presented across BPD, ASPD, AVPD, OCPD are not unique to these diagnoses. Individuals without personality disorders also endorse features of each of these variables (see Table 33 and Table 34). Therefore, it is not the case that individuals without personality disorders do not report the same regulatory strategies and difficulties as individuals meeting criteria for personality disorders. Individuals without personality psychopathology, however, appear to endorse emotion regulation difficulties at a decreased frequency and level of intensity. Additionally, individuals meeting criteria for disorders of emotion dysregulation may be more likely to apply emotion regulation strategies inflexibly (Aldao, Sheppes, & Gross, 2015). The difference between psychopathology and normative emotion regulation may

be at least partially dependent on consideration of the environmental context in selecting an emotion regulation strategy. For example, an individual meeting criteria for OCPD may find that working all day facilitates emotional avoidance. If that person experiences the feeling of distance from their emotions to be reinforcing, they may apply the same strategy to facilitate emotional avoidance at home. While working excessively may be reinforced at work, depending on the individual's home environment, that class of behavior may not be reinforced at home and that individual's personal life could suffer as a result. This example offers one way in which rigidity or inflexibility in regulating emotions could be an important factor in elucidating the difference between clinically significant difficulties in emotion regulation and normative functioning. It may be that individuals without pervasive emotion dysregulation difficulties engage in the same regulatory strategies and perhaps even at the same intensity, but are more sensitive to modulating their choice of regulatory behavior based on environmental cues. The individual's consideration of the environment in selecting and applying emotion regulation strategies should continue to be assessed. Future research on transdiagnostic patterns of emotion regulation, the context in which emotion regulation strategies occur, and methods of assessing these regulatory strategies will only continue to bolster theories and treatment of psychopathology.

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Appendix A

Demographic Questionnaire

The Demographic Questionnaire

Instructions: For each of the questions below either circle the response that best describes you or fill in the appropriate blank.

1. What is your age?_____years

2. Gender

    01 Male

    02 Female

3. What is your relationship status?

    01 Single and not in a dating relationship

    02 Single and currently dating/in a relationship

    03 Engaged

    04 Living with a romantic or sexual partner

    05 Married

    06 Separated/Divorced

    07 Widowed

4. What best describes your race/ethnicity?

    01 Asian

    02 African American

    03 Hispanic

    04 Native American/Alaska Native

    05 Caucasian

    06 Other: _____

5. If you are a student, what is your class standing upon entering this semester?

   01 Freshman

   02 Sophomore

   03 Junior

   04 Senior

   05 Graduate Student/Graduate Special

   06 Non-degree seeking student

6. What is your current yearly income?

   01 $15,000 or less

   02 $15,001 – $25,000

   03 $25,001 – $35,000

   04 $35,001 – $50,000

   05 over $50,000

7. If you are a student, what do you think your family's income was growing up?

   01 $15,000 or less

   02 $15,001 – $25,000

   03 $25,001 – $35,000

   04 $35,001 – $50,000

   05 over $50,000

8. Where do you currently reside?

01 House

02 Apartment

03 Duplex

04 Residence Hall (dormitory)

05 Fraternity or Sorority House

06 Other: _____

Appendix B

Human Subjects Institutional Review Board Letter of Approval

WESTERN MICHIGAN UNIVERSITY

Human Subjects Institutional Review Board

Date: January 28, 2013

To: Amy Naugle, Principal Investigator
Matthew Jameson, Student Investigator for dissertation
Lauren Borges, Student Investigator for thesis

From: Christopher Cheatham, Ph.D., Vice Chair

Re: HSIRB Project Number 13-01-04

This letter will serve as confirmation that your research project titled "The Effects of Two Different Mood Induction Tasks, With an Associated Evaluation of the Interpersonal Effectiveness of Three Different Request Forms" has been **approved** under the **full** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note: This research may **only** be conducted exactly in the form it was approved. You must seek specific board approval for any changes in this project (e.g., ***you must request a post approval change to enroll subjects beyond the number stated in your application under "Number of subjects you want to complete the study***)." Failure to obtain approval for changes will result in a protocol deviation. In addition, if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

Reapproval of the project is required if it extends beyond the termination date stated below.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: January 16, 2014

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Appendix C

Emotion Undercontrol Scale

Emotional avoidance

5. My painful memories prevent me from having a fulfilling life

7. Emotions cause problems in my life

9. Worries get in the way for my success

8. It seems like most people are handling their lives better than I am

2. My painful experiences and memories make it difficult for me to life a life that I would value

4. I worry about not being able to control my worries or feelings

3. I'm afraid of my feelings

6. I am in control of my life

10. My thoughts and feelings do not get in the way of how I want to live my life

Emotional intolerance

4. My feelings of distress are so intense that they completely take over

10. Being distressed or upset is always a major ordeal for me

2. When I feel distressed or upset, all I can think about is how bad I feel

15. When I feel distressed or upset, I cannot help but concentrate on how bad the distress actually feels

9. Other people seem to be able to tolerate feeling distressed or upset better than I can

11. I am ashamed of myself when I feel distressed or upset

12. My feelings of distress or being upset scare me

Emotional Reactivity

14. When I'm upset, I become out of control

19. When I'm upset, I feel out of control

32. When I'm upset, I lose control over my behaviors

27. When I’m upset, I have difficulty controlling my behavior

Emotional Interference

18. When I’m upset, I have difficulty focusing on other things

26. When I’m upset, I have difficulty concentrating

13. When I’m upset, I have difficulty getting work done

33. When I’m upset I have difficulty thinking about anything else

35. When I’m upset it takes me a long time to feel better

Emotional Identification

9. I have feelings that I can't quite identify

1. I am often confused about what emotion I am feeling

6. When I am upset, I don’t know if I am sad, frightened, or angry

14. I often don't know why I am angry

13. I don't know what's going on inside me

11. I am often puzzled by sensations in my body

Emotional Control

4. I can remember ‘‘playing sick’’ to get out of something

13. My way of doing things can be misunderstood or bother others

5. I have often had to take orders from someone who did not know as much as I did

12. I do not always tell the truth

9. I often get involved in things I later wish I could get out of

11. I have sometimes stayed away from another person because I thought I might do or say something that I might regret afterwards

Emotional Expressivity

6. I control my emotions by not expressing them.

2. I keep my emotions to myself

9. When I am feeling negative emotions, I make sure not to express them

Note: As these items originate from a number of different scales and factors, items require rescaling and rewording for the purposes of scale implementation.

Appendix D

Emotion Overcontrol Scale

Emotional Identification

2. It is difficult for me to find the right words for my feelings

9. I have feelings that I can't quite identify

1. I am often confused about what emotion I am feeling

5. I have difficulty making sense out of my feelings

4. I have no idea how I am feeling

9. I am confused about how I feel

4. I am able to describe my feelings easily

6. When I am upset, I don’t know if I am sad, frightened, or angry

13. I don't know what's going on inside me

7. I find it hard to describe how I feel about people

1. I am clear about my feelings

Emotional Avoidance

5. My painful memories prevent me from having a fulfilling life

2. My painful experiences and memories make it difficult for me to life a life that I would value

7. Emotions cause problems in my life

4. I worry about not being able to control my worries or feelings

3. I’m afraid of my feelings

9. Worries get in the way for my success

8. It seems like most people are handling their lives better than I am

6. I am in control of my life

Emotional Interference

18. When I’m upset, I have difficulty focusing on other things

26. When I'm upset, I have difficulty concentrating

13. When I'm upset, I have difficulty getting work done

33. When I'm upset, I have difficulty thinking about anything else

36. When I'm upset, my emotions feel overwhelming

35. When I'm upset, it takes me a long time to feel better

Emotional Judgment

21. When I'm upset, I feel ashamed with myself for feeling that way

25. When I'm upset, I feel guilty for feeling that way

12. When I'm upset, I become embarrassed for feeling that way

11. When I'm upset, I become angry with myself for feeling that way

29. When I'm upset, I become irritated with myself for feeling that way

Emotional Control

8. People consider me a spontaneous, devil-may-care person

10. I have been known to do unusual things on a dare

14. Sometimes I rather enjoy going against the rules and doing things I am not supposed to

3. I often say and do things on the spur of the moment, without stopping to think

6. When I get bored, I like to stir up some excitement

15. At times, I am tempted to do or say something that others would think inappropriate

18. I like to flirt

Emotional Reappraisal

43. No matter how badly I feel, I try to think about pleasant things

23. When I become upset I remind myself of all the pleasures in life

2. I try to think good thoughts no matter how badly I feel

16. Although I am sometimes sad, I have a mostly optimistic outlook

Note: As these items originate from a number of different scales and factors, items require rescaling and rewording for the purposes of scale implementation.