ENHANCING THE CLINICAL UTILITY OF THE MMPI-3 EATING CONCERNS SCALE

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ABSTRACT

ENHANCING THE CLINICAL UTILITY OF THE MMPI-3 EATING CONCERNS SCALE

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Maladaptive eating behaviors are prevalent and are typically associated with significant impairment in functioning. The Minnesota Multiphasic Personality Inventory (MMPI) is a commonly administered psychological assessment of personality and psychopathology. A new version, the MMPI-3, features a new Eating Concerns (EAT) scale that aims to assess problematic eating behaviors. The current study seeks to replicate correlates reported from the college validation sample during EAT scale development and explore external correlates of this new scale in a college student sample. Results indicated that the EAT scale is associated with symptom dimensions of eating pathology including binging, vomiting, restricting, and concerns about weight and shape. Additionally, the EAT scale demonstrates associations with constructs of suicide risk in our sample. The results of this study identified personality, psychopathology, and suicide risk constructs relevant to maladaptive eating behaviors in a college student sample. Future directions and implications are discussed.

INTRODUCTION

Maladaptive eating behaviors have been evident throughout human history, with formal diagnoses of eating pathology (eating "disorders"; EDs) recognized in the first edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM; American Psychiatric Association, 1952). In the United States, clinically diagnosed EDs impact the lives of approximately 30 million individuals (Deloitte Access Economics, 2020; Galmiche et al., 2018; Le Grange et al., 2012). Additionally, research has found that maladaptive eating behaviors are present in a significant percentage of U.S. college students, as 40.2% reported that they had engaged in at least one binge eating episode and 30.2% reported engaging in at least one compensatory behavior in the past month (Lipson & Sonneville, 2017). Not only is dysfunctional eating prevalent, the *Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition* (DSM-5; American Psychiatric Association, 2013) indicates that EDs have the highest mortality rates of any other mental illness and are associated with elevated suicide risk (American Psychiatric Association, 2013). Furthermore, maladaptive eating behaviors involve multiple functions that are associated with internalizing, externalizing, and somatic dysfunction (De Bolle et al., 2011; Forbush et al. 2018; Hudson et al., 2007; Martin-Fernandez & Ben-Porath, 2019), and relate to an individual's core sense of identity (Mortimer, 2019; Tan et al., 2003).

Current conceptualizations of maladaptive eating continue to utilize the categorical model described in the DSM to organize maladaptive eating behaviors into separate categorical diagnoses that are assigned based on the distinct combination of an individual's most recent (last 3 months) eating behaviors. The DSM-5 dominant categorical diagnoses of eating pathology are: anorexia nervosa (AN) further separated into restricting or binge-purge subtypes, bulimia

nervosa (BN), binge eating disorder (BED), other specified feeding or eating disorder (OSFED), and unspecified feeding or eating disorder, which are not strong predictors of future clinical outcomes (Raykos et al., 2013; Thompson-Brenner et al., 2015). Limitations of this model include arbitrary diagnostic cut offs, overlapping symptoms, and changing symptoms over time (Castellini et al., 2011; Fairweather-Schmidt & Wade, 2014; Forbush et al., 2018).

As with many of the psychiatric disorders, the category of "other specified" disorders is used quite often. In a systematic review of ED literature, Galmiche and colleagues (2018) discovered that the OSFED has the highest prevalence of ED diagnoses. Additionally, two studies that used DSM-5 criteria to diagnose found that half of their sample met the criteria for OSFEDs (Fairweather-Schmidt & Wade, 2014; Machado, Gonçalves, & Hoek, 2013). The prevalence of this heterogenous category suggests that the categorical approach to eating pathology does not capture all naturally occurring symptom combinations. Furthermore, research has shown that risk factors and levels of impairment are similar between fully exhibited and sub-threshold EDs (Fairweather-Schmidt & Wade, 2014), suggesting that diagnostic labels do not provide much clinically relevant information.

Another concern with categorical ED diagnoses is high levels of diagnostic crossover. Maladaptive eating behaviors such as binge eating, restricting, and compensatory behaviors can be found across categorical diagnoses. For instance, binge eating is a common feature shared by AN binge-purge type, BN, and BED. Additionally, compensatory behaviors such as self-induced vomiting is a common feature in both BN and AN binge-purge type (American Psychiatric Association, 2013). Due to shared features between diagnostic categories a change in a single symptom (i.e., weight) or behavior may result in shifting diagnosis. Research indicates that diagnostic crossover is quite common among EDs and may be a result of arbitrary diagnostic

thresholds rather than a significant change in psychopathology (Castellini et al., 2011; Forbush et al., 2018).

Maladaptive eating continues to be difficult to treat effectively, potentially as a result of poor diagnostic accuracy of the categorical EDs. Recently, dimensional approaches to general forms of psychopathology have begun to emerge and are being used to create more accurate models of dysfunctional eating in an effort to improve diagnosis and treatment (Forbush et al., 2018; Luo et al., 2016; Solomon-Krakus, et al., 2020). For instance, Forbush and colleagues (2018) found that a hierarchical-dimensional model of internalizing dimensions for eating pathology provided more clinically useful information in regard in symptoms, impairment, and course of maladaptive eating behaviors compared to DMS-5 diagnoses.

Personality, Psychopathology, and Maladaptive Eating Behaviors

Research has demonstrated that a substantial number of individuals who engage in maladaptive eating behaviors have co-occurring psychological dysfunction in other domains as well. In a national survey, Hudson and colleagues (2007) found that 56.2 – 94.5% of individuals diagnosed with an ED met criteria for at least one other core DSM diagnosis (i.e., mood, anxiety, impulse control, and substance use). Personality dysfunction has also been associated with maladaptive eating behaviors, and research has demonstrated that approximately half (44% - 54%) of individuals diagnosed with AN, BN or BED meet criteria for a personality disorder - the most common co-occurrences with borderline, obsessive-compulsive, and avoidant personality disorders (Becker & Grilo, 2015; De Bolle et al., 2011; Martinussen et al., 2016). The relationship between dysfunctional eating behaviors and personality pathology has explained some (17.1%) of the variance in individual's global functioning, with significant impairments

evident among individuals with dysfunctional eating who also experience co-occurring internalizing or externalizing personality pathology (De Bolle et al., 2011).

Furthermore, suicide risk is also a major source of concern for those who engage in maladaptive eating behaviors, with risk transcending categorical diagnosis (American Psychiatric Association, 2013). While suicidality is associated across all EDs, individuals with co-occurring mood, anxiety, and/or personality pathology have significantly higher odds of suicide attempts (Udo et al., 2019). Purging behaviors are of particular concern, with studies revealing that this maladaptive eating behavior is significantly associated with suicide attempts relative to non-purging, while restricting behaviors seem to be more strongly associated with suicidal ideation (Forrest et al., 2016; Lipson & Sonneville; 2019; Udo et al., 2019).

Personality traits have received significant attention among individuals with dysfunctional eating, and research is aimed toward determining personality differences that may provide predictive information regarding risk for developing EDs, treatment targets and prognosis. With recent research indicating that eating behaviors may be best understood utilizing a dimensional approach (Forbush et al., 2018; Lou et al., 2016), it is not surprising that literature focusing on the relationships between categorical ED diagnoses and personality traits have yielded some inconsistent results. However, regardless of categorical diagnosis, literature consistently demonstrates that perfectionism, negative emotionality/neuroticism, obsessive-compulsiveness, and impulsivity are associated with eating pathology (Cassin & von Ranson, 2005; Culbert et al., 2015; Farstad et al., 2016). A review of sociocultural, psychological, and biological origins of EDs revealed that elevated scores on measures of perfectionism and negative-emotionality/neuroticism are characteristic of individuals across the diagnostic spectrum of eating behaviors (Culbert et al., 2015). Additionally, negative urgency, a facet of

impulsivity, is elevated cross individuals who engage in maladaptive eating behaviors (Farstad et al., 2016). EDs characterized by binging and/or purging report higher scores on other facets of impulsiveness - lack of planning, sensation seeking, and difficulty persisting on tasks - than those diagnosed with an ED that is characterized by restricting behaviors (Farstad et al., 2016). In a study that evaluated the relationship between personality and specific eating behaviors, as opposed to a categorical diagnosis, Solomon-Krakus and colleagues (2020) found that rigid perfectionism was uniquely significantly associated with restricting behaviors, whereas high anxiousness and high impulsivity were significantly associated with binge-eating.

Assessment of Maladaptive Eating Behaviors

Eating Disorder Examination-Questionnaire

Eating pathology questionnaires provide clinically relevant information to treating clinician and practitioners. Nonetheless, these questionnaires can take be costly to administer and be personally intrusive to ask individuals to share what may be perceived as embarrassing eating behaviors (Fairburn & Beglin, 1994); thus, self-report questionnaires are often used to gather information about eating behaviors relevant to monitor treatment progress and research eating pathology. One widely used measure of eating behavior is the Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994). The EDE-Q is a self-report version of the Eating Disorder Examination (EDE; Cooper et al.,1989; Fairburn et al., 2008), the latter being the preferred empirically supported assessment of eating pathology among clinicians (Berg et al., 2012). The development of the EDE was, to some extent, an attempt to overcome the DSM categorical approach. Items were considered for the interview by breaking down the behavioral and attitudinal features of AN and BN to create items, administering the items to clinical and control groups, and factor analyzing the data to find meaningful characteristics of eating

pathology (Cooper & Fairburn 1987); however, the information gathered from this interview are then used to generate DSM diagnoses (Fairburn et al., 2008).

The EDE-Q generates two types of data. First, it provides frequency data on maladaptive eating behaviors within the past 28 days in terms of the number of times the individual engaged in a behavior and on how many days that behavior occurred. Second, the EDE-Q measures constructs associated with disordered eating behavior that generate four subscale scores, intended to reflect severity of aspects that relate to EDs. The subscales are: Restraint, Eating Concern, Weight Concern, and Shape concern. It should be noted that the factor structure is not universally accepted as valid, as it fails to replicate itself, with studies finding anywhere from 1 to 4 factors that are not necessarily the original 4 factors (see, for examples, Berg et al, 2012; Rand-Giovannetti et al., 2020).

Minnesota Multiphasic Personality Inventory

The Minnesota Multiphasic Personality Inventory-3 (MMPI-3; Ben-Porath & Tellegen, 2020) is a commonly administered psychological assessment of personality and psychopathology. The MMPI-3 is a relatively comprehensive, broadband measure consistent with contemporary, hierarchical-dimensional models of psychopathology.

Historically, the MMPI instruments provided inadequate clinical information relevant to maladaptive eating as there were no scales or item content that directly assess eating concerns. Due to the absence of eating related content, researchers interested in eating pathology were limited to using the MMPI and MMPI-2 to explore the differences in Clinical scale elevations between ED diagnoses. The goal of these researchers was to identify a profile that would characterize an individual with a specific ED. Some studies that used the original MMPI found some distinctions between eating diagnoses. For instance, Norman and Herzog (1983) found that

scales elevated to a clinical level could distinguish between ED diagnosis, where individuals diagnosed with AN-Restricting subtype (AN-R) only clinically elevated scale 2 (Depression) and those with AN-Binge Purge (AN-BP) or BN clinically elevated scale 4 (Psychopathic Deviate). Additionally, AN-R had a 3 point code consisting of scale 2, 8 (Schizophrenia), and 7 (Psychasthenia) whereas AN-BP and BN both had a three point code consisting of scales 2, 4, and 8. Results from this study indicated that AN-BP and BN (characterized by binging and purging) may have more personality features in common than the two subtypes of AN, suggesting that the eating behaviors themselves may be conveyed in different scale elevation more so than categorical diagnosis. Even so, this study revealed that overall MMPI constellation of personality factors were similar among the ED groups. Likewise, Scott and Baroffio (1986) found overall profiles between individuals diagnosed with AN, BN and morbid obesity to be similar to one another but all ED groups were significantly different from the control group. Researchers utilizing the MMPI-2 found that the newer version also struggled to significantly differentiate categorical ED diagnoses and subtypes. The most common findings were elevations on scale 2 and 7, suggesting that individuals engaging in maladaptive eating behaviors across diagnostic category experience elevated emotional distress and depression (Cumella et al., 2000; Exterkate et al., 2007; Norman & Herzog, 1983; Pryor & Wiederman, 1996).

In sum, the early MMPI instruments did not prove to provide specific, clinically relevant information to researchers or practicing professionals about pathology specific to particular eating diagnoses. In fact, these studies emphasize the striking similarities across the diagnostic spectrum of ED diagnoses more than differences. However, the MMPI instruments encountered many criticisms regarding high inter-scale correlations with other diagnostic groups as well. This was thought to be a consequence of item overlap and over-inclusion of item content related to

demoralization likely a result of the empirical keying method employed to develop the original Clinical scales.

The restructuring of the MMPI began with the Restructured Clinical (RC) scales in 2003. These scales were developed by extracting demoralization, a common feature across psychiatric diagnoses, from all the original Clinical scales and identifying major, distinct core constructs that remained of each Clinical scale. The process of RC scale development utilized advanced factor analytic techniques to create scales that where psychometrically sound and had better discriminant validity. Where the original Clinical scales were constructed with an emphasis on categorical diagnoses, the RC scales were intended to capture a full range of clinical phenomena. The restructuring process resulted in the MMPI-2-RF (Restructured Form; Ben-Porath & Tellegen, 2008/2011). This MMPI instrument utilizes a hierarchical-dimensional approach which emphasizes symptoms and maladaptive traits that are transdiagnostic in nature. In this framework, personality traits and clinical symptoms are examined in broad domains consisting of narrow, more focused and unidimensional scales so as to capture distinct trait and symptom components (Ben-Porath, 2012).

Many researchers focused on disordered eating shifted their focus from trying to use the MMPI to differentiate diagnostic ED groups to examining empirical correlates and associated symptoms relevant to eating pathology. For instance, in a sample that included mood, anxiety, substance use, personality, and eating diagnoses, Anestis and colleagues (2014) found that higher scores on MMPI-2-RF validity scales at intake, as well as lower scores on measures of global functioning increased risk of premature treatment termination. This is particularly of interest for practitioners working with individuals who engage in maladaptive eating behaviors, as those

diagnosed with EDs had significantly higher rates of early treatment termination (Anestis et al., 2014).

Other studies have looked at associations between maladaptive eating behaviors and MMPI-2-RF scale scores. For instance, in a study that examined eating attitudes and behaviors in college students, Martin-Fernandez and Ben-Porath (2019) found that binge eating was associated with higher scores on MMPI-2-RF substantive scales measuring dysfunctional negative emotions, inefficacy, anxiety, behavior restricting fears, and negative emotionality/neuroticism. On the other hand, compensatory behaviors were only significantly associated with the anxiety scale. While some differences in scale elevations were present between specific eating behaviors, all presentations of maladaptive eating behaviors and attitudes were associated with variations of emotional/internalizing dysfunction (Martin-Fernandez & Ben-Porath, 2019). Similarly, in a study of bariatric candidates, those who engaged in clinically diagnosable levels of binge eating tended to experience more emotional dysfunction, in addition to engaging in more impulsive behavior than Body Mass Index matched controls (Marek, Ben-Porath, Ashton, et al., 2014). Likewise, higher scores on presurgical MMPI-2-RF in emotional/internalizing domain were predictive of maladaptive eating behaviors among postoperative bariatric candidates at 1- and 3-month follow-up (Marek, Ben-Porath, Merrell, et al., 2014). Overall, the MMPI-2-RF provided more clinically relevant information regarding maladaptive eating behavior than did its predecessors.

The MMPI-3 (Ben-Porath & Tellegen, 2020), newly developed and normed, features a new Eating Concerns scale (EAT). The new EAT scale is not tied to categorical models of diagnoses, such as the traditional AN or BN, and measures general types of problematic eating behavior. The EAT scale contains five items related to binge eating, loss of control over eating,

vomiting as a means to control weight, and restricting calories to control weight. An elevation on this scale indicates a person is engaging in problematic eating behaviors, and that a treating clinician should further examine the etiology of this behavior to develop appropriate treatment plans. The EAT scale was validated in part through correlating it with the total score and subscales of the EDE-Q. To date, two peer-reviewed studies have been published concerning the new EAT scale. Marek and colleagues (2020) examined convergent validity of the EAT scale in a postoperative bariatric surgery sample. In this sample of 38 patients, the EAT scale score had significant correlations with EDE-Q Eating Concerns (r = .67), Shape Concerns (r = .54), and Global Index (r = .39). Moderate correlations were found between EDE-Q Restraint (r = .31) and Weight Concerns (r = .39). Additionally, EAT scale scores were associated with a higher percentage of weight regain 5 years post-surgery (r = .37). Marek and colleagues (2020) concluded that the new EAT scale demonstrates clinical utility when assessing dimensions of eating pathology within a postoperative bariatric population. The second study to be published concerning the EAT scale sought to evaluate the criterion and incremental validity of the scale in a college sample by examining correlations between the new EAT scale and other well validated measures of eating pathology, including the EDE-Q (Vaňousová et al., 2021). In this sample of 399 undergraduate students in New Zealand, Spearman Rank correlations were calculated and the EAT scale score significantly correlated with EDE-Q Eating Concerns (p = .63), Global Index (p = .56), Binge Eating (p = .54), Shape Concerns (p = .53), and Restraint (p = .50). Moderate correlations were reported for EDE-Q Compensatory Behaviors (p = .42). Vaňousová and colleagues (2021) concluded that the new EAT scale scores have an association with symptom dimensions of eating pathology used to diagnose eating disorders but the EAT scale

does not capture all symptom dimensions of eating pathology (i.e., excessive exercising or muscle building).

With a significant percentage of college students reporting that they engage in maladaptive eating behavior (Lipson & Sonneville, 2017), college students constitute a significant population for eating research. Therefore, the current study seeks to replicate the correlational analyses between the EAT scale and the EDE-Q, as well as further examine the EAT scale and item level correlates with additional internal and external criteria.

HYPOTHESES

Hypothesis 1: We expect to find a pattern of correlations similar to those found by Ben-Porath and Tellegen (2020) in the validation sample.

1a.) For women, we expect to find strong correlations ($\geq$ .50) between EAT scale and EDE-Q Global Index and Eating Concern subscale.

1b.) For women, we expect to find moderate correlations ($\geq$ .30) between EAT scale and EDE-Q Restraint, Shape Concern, and Weight Concern subscales.

1c.) For men, we expect to find moderate correlations ($\geq$ .30) between EAT scale and the EDE-Q Global Index, Eating Concern, Shape Concern, and Weight Concern subscales.

1d.) For men, we expect to find a small correlation ($\geq$ .10) between EAT scale and the EDE-Q Restraint subscale.

Hypothesis 2: Based on previous research (Martin-Fernandez & Ben-Porath, 2019; Marek, Ben-Porath, Ashton, et al., 2014; Solomon-Krakus et al., 2020), we expect individuals who endorse EAT item content related to specific eating behaviors to score significantly higher on scales measuring constructs related to internalizing dysfunction.

2a.) EAT items with content related to binge eating will be significantly positively correlated with MMPI-3 scales RC7, NFC, ARX, NEGE, and IMP.

2b.) EAT items with content related to compensatory behaviors will be significantly positively correlated with ARX.

Hypothesis 3: Based on previous research (Forrest et al., 2016), we expect the EAT scale and specific items to be significantly positively associated with external measures of constructs associated with suicide risk.

3a.) EAT items with content related to restricting to be significantly positively correlated with perceived burdensomeness, as measured by the Interpersonal Needs Questionnaire (INQ; Van Orden et al., 2012)

3b.) EAT items with content related to binge eating to be significantly positively correlated with perceived burdensomeness.

For exploratory purposes, the EAT Total Score and each EAT item will be correlated with all MMPI scales and be broken down by gender. Additionally, EAT total scale and EAT individual items will be correlated with external measures of suicide risk. Of particular interest are EAT item level correlations with MMPI-3 SUI and BXD scales, as well as item level correlates with perceived burdensomeness, thwarted belongingness, and suicidal ideation as measured by the INQ and Depressive Symptom Index-Suicidality Subscale. (DSI-SS; Joiner et al., 2002). Further exploratory analyses include assessing the EAT scale score combined with gender predict frequency counts of disordered eating behaviors in the past 28 days.

METHODS

Participants

Participants were 188 undergraduate students aged 18 and older who consented to participate in a broader study at Western Carolina University. Students received partial credit toward overall General Psychology course requirements in exchange for completing a large number of measures, including the ones used in this study. The sample consisted of 115 females (61.2%), and 73 males (38.8%). The mean age of the participants was 18.91 (SD = 1.86), ranging from 18 to 37. 86.2% were White, 9.6% were Hispanic or Latinx, 8% were Black or African American, 4.3% were American Indian or Alaska Native, 0.5% were Asian, 0.5% were Native Hawaiian or Other Pacific Islander, and 0.5% were of another ethnicity. The vast majority of participants (98.9%) had never married.

Measures

Minnesota Multiphasic Personality Inventory – 3 (MMPI-3)

The MMPI-3 contains 335 true/false items that compose 10 validity scales and 42 substantive scales that are consistent with contemporary hierarchical dimensional models of psychopathology. The MMPI is normed based on projected 2020 consensus demographics. The MMPI-3 takes 25-50 (computerized administration) minutes to complete. The MMPI-3 exhibits excellent psychometric properties that are extensively documented in the *MMPI-3 Technical Manual* (Ben-Porath & Tellegen, 2020).

Eating Disorder Examination- Questionnaire (EDE-Q)

The EDE-Q (6.0; Fairburn, 2008) is a 28-item self-report measure that assesses attitudes, feelings, and behaviors associated with eating pathology in the past 28 days (Fairburn & Beglin,

1994). The EDE-Q is scored using a 7-point rating scale (0-6) with higher scores indicative of greater symptom severity. Twenty-two items are scored on four subscales: Restraint (Cronbach's alpha = .76), Eating Concern (Cronbach's alpha = .87), Shape Concern (Cronbach's alpha = .93), and Weight Concern (Cronbach's alpha = .88), as well as a Global score (Cronbach's alpha = .91) that is the average of the four subscales. The remaining six items are behavioral frequency questions regarding binge eating and compensatory behaviors over the past 28 days. Adequate reliability and validity have been established for the EDE-Q in non-clinical samples (Luce & Crowther, 1999; Martin-Fernandez & Ben-Porath, 2019; Mond et al., 2004).

Interpersonal Needs Questionnaire (INQ-15)

The INQ-15 (Van Orden et al., 2012) is a 15-item self-report assessment of thwarted belongingness (9 items; Cronbach's alpha = .88),) and perceived burdensomeness (6 items; Cronbach's alpha = .91). Each item provides descriptions of thwarted belongingness or burdensomeness and individuals prove a response to each item on a 7-point Likert-type scale with 1 (*not at all true for me*) to 7 (*very true for me*). Item responses are averaged together for a total score on thwarted belongingness and perceived burdensomeness, where higher scores indicate greater severity. The INQ has demonstrated strong psychometric properties (Van Orden et al., 2012).

Depressive Symptom Index-Suicidality Subscale (DSI-SS)

The DSI-SS (Joiner et al., 2002) is a four-item self-report assessment developed to evaluate the extent to which an individual is experiencing suicidal thoughts,. This measure assesses the frequency and intensity of suicidal ideation and impulses in the past 2 weeks. Items are scored from 0 to 3. Scores on the 4 items are added together to get a total score with higher scores indicating greater severity. In the validation study, the scale demonstrated good internal

consistency and construct validity (Joiner et al., 2002). Reliability in our sample was good (Cronbach's alpha = .86).

Procedure

Participants were scheduled for individual session via Zoom, an online communication platform. Upon arrival, participants were informed that participation was voluntary and could be discontinued at any time. After electronic informed consent was obtained, participants were asked to complete a series of questionnaires that included the MMPI-3, EDE-Q, INQ-15, and DSI-SS via Qualtrics, an online data collection platform, under the supervision of a research assistant. After completing the study, participants received course credit through the research participation platform at Western Carolina University. Data collection began on September 2, 2020 and is ongoing.

Statistical analyses

Hypotheses 1a, b, and c were tested using Pearson bivariate correlation coefficients. Strong effect size of .50, moderate effect size of .30, and small effect size of .10 are based on Cohen (1992). Similarly, Hypotheses 2a, and b, and Hypothesis 3a and b, were tested using Pearson point-biserial correlations. Given the large number of correlations involved, to counter the risk of Type 1 error we established $p \leq .001$ as the threshold level for interpretation. Specifically, bivariate correlations were computed between MMPI-3 EAT scale total score and the EDE-Q scale scores in an effort to replicate the correlations from the EAT scale development validation sample (Ben-Porath & Tellegen, 2020). To examine EAT item-level correlates, point-biserial correlations were computed between each EAT item and the MMPI-3 scale scores, the INQ scores for thwarted belonginess and perceived burdensomeness, and DSI-SS scores. Finally,

a linear regression analysis was conducted to examine the ability of the EAT scale and gender to predict frequency counts on EDE-Q frequency items.

RESULTS

To facilitate comparison with other research, we will report findings characterized by Cohen's (1992) effect size labeling. However, given the number of correlations presented, the risk of type one error becomes significant at lower levels of effect sizes. Thus, correlations with individual *p* values > .001 will not be interpreted as meaningful.

Pearson's bivariate correlations were calculated between the MMPI-3 EAT scale and the EDE-Q Global Index and subscale scores for men and women (see Appendix D). In support of H1a, we found strong correlations ($\geq$ .50) between the EAT scale and EDE-Q Global Index (r = .52) and Eating Concerns subscale (r = .73). Additionally, we found stronger correlations than hypothesized between the EAT scale and Weight Concerns (r = .64), Shape Concerns (r = .62), and Restraint (r = .53). subscales. For men, we found stronger correlations than expected between the EAT scale and EDE-Q Eating Concerns subscale (r = .66). Moderate correlations ($\geq$ .30) were found with the EAT scale and EDE-Q Weight Concern (r = .32) and Global Index (r = .37). The EAT scale showed a small correlation ($\geq$ .10) with EDE-Q Shape Concern (r = .26).

Item level correlations were conducted between EAT items and all 42 MMPI-3 Substantive scales (see Appendix E). In partial support of H2a, the EAT item regarding weekly binge eating was significant positively correlated with RC7 (r = .27), NFC (r = .27), ARX (r = .23), NEGE (r = .21),and IMP (r = .26). While statistically significant, these correlations showed small effect sizes. In support of H2b, the EAT item regarding vomiting to control weight was moderately correlated with ARX (r = .35). and the EAT item regarding vomiting after eating exhibited a small correlation with ARX (r = .24). When women and men were examined independently (see Appendix F and G), the EAT item regarding vomiting to control weight was moderately correlated with ARX among women in our sample (r = .31).

The associations between the EAT items and EAT scale total score with thwarted belongingness, perceived burdensomeness, and suicidal ideation were examined. For exploratory purposes men and women were assessed together and then independently. In support of H3a, the EAT item with content regarding restricting calories was significantly associated with perceived burdensomeness, demonstrating moderate effects sizes (r = .39). When assessing women and men independently, a correlation of moderate effect size was found between restricting behavior and perceived burdensomeness among women in our sample (r = .48). In partial support of H3b, the EAT item regarding weekly binge eating demonstrated a correlation of small effect size with perceived burdensomeness (r = .26). When assessing women and men independently, a correlation of moderate effect size was demonstrated between binging and perceived burdensomeness among the women in our sample (r = .36).

For exploratory hypothesis, point-biserial correlations were conducted between all EAT items and thwarted belongingness, perceived burdensomeness, suicidal ideation as measured by the DSI-SS, and the MMPI-3 Suicidal/Death Ideation (SUI) scale. Perceived burdensomeness demonstrated a strong correlation with the EAT item regarding vomiting after eating (r = .51), and moderate correlations with EAT scale total score (r = .44), EAT item regarding restricting (r = .39), and vomiting to control weight (r = .37). When men and women were assessed separately, perceived burdensomeness scores demonstrated strong correlations with the EAT scale total score (r = .55) and the EAT item assessing vomiting after eating (r = .59) for women. Medium-sized correlations were shown between perceived burdensomeness and the EAT item related to weekly binges (r = .36), vomiting to control weight (r = .40), and restricting (r = .48) among the women in our sample.

Thwarted belongingness demonstrated a moderate correlation with the EAT item regarding weekly binges (r = .30), and small correlations with the EAT scale total score (r = .28) and the EAT item regarding restricting (r = .28). When men and women were assessed separately, thwarted belongingness scores demonstrated moderate correlations with EAT scale total score (r = .33), the EAT item assessing weekly binges (r = .36), and the EAT item assessing restricting (r = .35) among the women in our sample.

DSI-SS suicidal ideation scores demonstrated moderate correlations with the EAT scale total score (r = .36), the EAT item regarding vomiting after eating (r = .37), and the EAT item regarding restricting (r = .35). Small correlations were demonstrated between EAT item regarding vomiting to control weight (r = .25) and weekly binge eating (r = .25). For women in our sample, DSI-SS suicidal ideation scores had large effect size correlations with EAT scale total score (r = .57), the EAT item assessing vomiting after eating (r = .54), and the EAT item regarding restricting (r = .53). Medium-sized correlations were demonstrated between DSI-SS scores and the EAT item regarding weekly binges (r = .43), and vomiting to control weight (r = .34) for women in our sample.

MMPI-3 SUI scale scores showed moderate correlations with the EAT scale total score (r = .47), the EAT item regarding vomiting to control weight (r = .45), vomiting after eating (r = .41), and restricting (r = .45). Small correlations were demonstrated between the MMPI-3 SUI scale and the EAT item regarding loss of control over eating (r = .25). Men and women were then assessed independently. MMPI-3 SUI scale scores showed large effect size correlations with EAT Scale total Score (r = .59), the EAT item regarding vomiting to control weight (r = .50), and restricting (r = .55) among the women in our sample. MMPI-3 SUI scale showed medium-sized correlations with the EAT item regarding vomiting after eating (r = .47), and loss

of control over eating (r = .35), and small effect sizes with the EAT item regarding weekly binges (r = .29) among women.

Finally, we conducted a linear regression analysis to determine the predictive value of the EAT scale score and gender on frequency of eating behaviors in the past 28 days, as indicated by the EDE-Q frequency items. The results are shown in Appendix J. The overall model examining binge eating was significant, predicting 14% of the variance on the EDE-Q binge eating item, $F(2, 185) = 15.14$, $p < .001$. The model examining loss of control over eating was significant, predicting 39% of the variance on EDE-Q loss of control item, $F(2, 56) = 17.75$, $p < .001$. The model examining number of days binge eating episodes occurred was significant, predicting 37% of the variance on EDE-Q days of binge eating item, $F(2, 185) = 55.16$, $p < .001$. The model examining self-induced vomiting was significant, predicting 6% of the variance on EDE-Q vomiting item, $F(2, 185) = 6.12$, $p < .001$. The model examining laxative use was not significant at predicting EDE-Q laxative use item, $R^2 = .01$, $F(2, 185) = .595$, $p = .55$. The model examining over exercising was significant, predicting 8% of the variance on EDE-Q frequency item, $F(2, 185) = 8.04$, $p < .001$.

DISCUSSION

The current study aimed to examine the new MMPI-3 EAT scale by replicating correlations between scores on this scale and the EDE-Q Global Index and subscales scores, as well as further examine the EAT scale and item level correlates with additional internal and external criteria. The findings generally supported our hypotheses. While there are different patterns of correlates between genders, the EAT scale generally demonstrates moderate to large correlations with symptom dimensions of eating pathology that include restricting, eating concerns, shape concerns, and weight concerns. The moderate and strong correlates between the EAT scale, and EDE-Q Shape Concerns and Weight Concerns is particularly interesting given that the EAT scale does not directly assess body checking or weight concerns. However, weight and shape concerns are thought to be an underlying dimension of eating pathology (Fairburn, 2008). Some differences between the pattern of correlations reported in the MMPI-3 technical manual were demonstrated. For instance, the EAT scale performed better in our sample, with strong correlations between EAT scale scores and EDE-Q Eating Concerns among men in our sample. This difference could be due to sample characteristics, or may be a result of our sample taking the MMPI-3 whereas correlates reported in the Technical Manual were scored from the MMPI-2-RF-EX. Overall, the results reveal that EAT scale scores show mostly moderate to strong correlates with eating pathology as measured by the EDE-Q.

Based on previous research, we expected individuals who endorsed EAT items to score significantly higher on MMPI-3 emotional/internalizing scales. As hypothesized, all EAT items demonstrated moderate to strong correlations with emotional/internalizing dysfunction, demoralization, dysfunctional negative emotions, self-doubt, worry, and anxiety related

experiences. Differences were noted between the different type of disordered eating behaviors and internalizing domains. For instance, restricting, vomiting after eating, and binge eating were significantly associated with low positive emotions whereas vomiting to control weight and loss of control over eating did not reach significance. This may have implications for treatment approaches to specific symptoms of eating pathology, as low positive emotions may interfere with client's engagement in treatment (Ben-Porath & Tellegen, 2020). Overall, EAT scale items and EAT total score are consistent with previous research concluding that individuals struggling with eating pathology have higher internalizing dysfunction (Cassion & Von Ranson, 2005; De Bolle et al., 2011; Farstad et al., 2016). When examining behavioral/externalizing domains, impulsivity demonstrated small to moderate effect sizes with EAT item content related to binging, vomiting to control weight, and loss of control overeating. This may have implications for treatment targets. For example, it is theorized that binge eating is often followed by feelings of negative affect and it is possible that an individual may make an impulsive decision to alleviate this negative affect with food. While this action may alleviate negative affect at the time, it may also not align with the individuals long term weight or body goals; thus increasing the likelihood of vomiting to compensate for the food consumed. Following this reasoning, it may be useful to target impulsivity and distress tolerance in treatment. Additionally, EAT scale total scores demonstrated a pattern of small to moderate positive correlations with behavioral externalizing dysfunction, antisocial behavior, family problems, juvenile conduct problems, hypomanic activation, aggression, and disconstraint. There were differences noted between specific eating behaviors at the item level. For instance, EAT item content related to restricting was only significantly associated with one externalizing scale, family problems, demonstrating a moderate effect size. One the other hand, EAT item content regarding vomiting to control weight

was associated with family problems, conduct problems, impulsivity, and aggression. Treatment is often tailored to focus on an individual's needs and these findings highlight the significance of internalizing dysfunction to all symptoms of eating pathology. Additionally, these findings suggest that externalizing dimensions are significant to specific symptoms of dysfunctional eating, such as vomiting to control weight, and clients may need to be evaluated for externalizing disorders that may further inform case conceptualization.

Regarding suicide risk components, EAT item content related to restricting was moderately correlated with perceived burdensomeness. As explained in Van Orden and colleagues (2010) components of perceived burdensomeness include self-hatred, self-blame, and shame. Individuals who struggle with symptoms of eating pathology that include restricting calories to control weight and shape often hold negative beliefs about themselves and their self-worth (APA, 2013). These negative feelings toward self may facilitate further self-hatred and guilt thus influencing their feelings of burdensomeness. As hypothesized, EAT item content related to binge eating demonstrated small positive correlations with perceived burdensomeness. Similar to other symptoms of eating pathology binge eating is associated with negative self-evaluation and binge eating is theorized to occur following negative affect (APA, 2013). Therefore, it is possible that binge eating and burdensomeness both drive and are consequences of each other.

Interestingly, small correlations were found between thwarted belongingness and EAT scale total score. As previously mentioned, scores on the EAT scale are associated with symptom dimension of eating pathology including weight and shape concerns. Individuals who struggle with eating pathology often compare themselves to others (Fairburn, 2008) and their perceived discrepancies, between themselves and others, may influence feelings of belongingness. Specific

disordered eating symptoms including restricting and weekly binge eating demonstrated small to moderate effect sizes with thwarted belongingness. Additionally, we found a pattern of positive correlations between all eating behaviors (except for loss over control over eating) with perceived burdensomeness, and small to moderate effect sizes we found with measures of suicidal ideation. According to the ITS, experiencing thwarted belongingness and perceived burdensomeness simultaneously can result in passive suicidal ideation (Van Orden et al., 2010). Our results are consistent with the ITS theory, indicating that eating pathology has significant small to moderate correlations with constructs of the ITS that influence passive suicidal ideation. Regarding clinical utility, treatment interventions that are intended to improve perceived burdensomeness (including interventions focused on self-acceptance) and interpersonal relationships may be helpful in alleviating suicidal ideation among those experiencing eating pathology. Furthermore, these data provide evidence that suicide risk should be assessed among individuals who present with symptoms across the spectrum of eating dysfunction.

The linear regression analyses demonstrate the ability of the EAT scale score to predict the frequency of disordered eating behaviors over the past 28 days. In almost every instance, the EAT scale score was a significant predictor of EDE-Q frequency counts (i.e., binge eating episodes, number of days binge eating occurred, loss of control over eating, vomiting, and overexercising). However, EAT scale scores were not significant in predicting laxative use in our sample and gender was not significant in this model. It is possible that there are small effect sizes for these associations and our sample was not adequately powered to detect small effect sizes. Interestingly, gender began to approach significance on the EDE-Q item regarding over exercising, a feature of eating pathology that is more often reported by men (Quick et al., 2013). The lack of significant findings for the EAT scale to predict laxative use is likely due to the low

overall prevalence of this behavior in our sample. Additionally, gender differences were noted in eating behaviors. For instance, no males in our sample reported vomiting in the past 28 days.

Limitations

There are several limitations and suggestions for future research based on the current study. First, while college students are a focal group regarding dysfunctional eating, the use of a college student sample limits the generalizability of the findings. Most of our participants were White, college educated, females approximately 18 years of age. Future studies should look at more diverse samples, including community samples, outpatient treatment samples, and samples with a higher male-to-female ratio. EAT item level correlations for males in our sample were not interpreted because of little to no variation among men on EAT items (only one item had over 10% endorsement rate by men). While this may just reflect characteristics of our sample, it may also reflect differences in eating pathology between men and women. Because the EAT scale was validated with eating pathology measures (such as the EDE-Q) that were validated among females, it is possible that the EAT scale may primarily capture eating behaviors typically associated with female eating pathology. Gender differences were noted in eating behaviors among men and women. For instance, no males in our sample reported vomiting in the past 28 days. Future studies may look at other types of eating behaviors further associated with eating pathology among males (i.e., supplement use, muscle building) to determine if the EAT scale may need to include more eating content areas.

Conclusions

The new MMPI-3 EAT scale provides good clinical utility in assessing problematic eating behaviors. An elevation on this scale indicates that an individual is struggling with eating behaviors that should be further explored. An elevation on this scale may also indicate that an

individual is experiencing other symptom dimensions associated with eating pathology, such as concerns over one's weight and shape. Furthermore, the findings of this study suggest that some eating behaviors are more strongly associated that others with suicidal ideation. Thus, continually monitoring suicide risk among clients across the spectrum of eating pathology is of utmost importance, especially given the high prevalence of symptom change among individuals in this population. Overall, the new EAT scale shows promise in detecting aspects of eating pathology that may need to be further explored by a treating clinician.

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APPENDIX A: EATING DISORDER EXAMINATION QUESTIONNAIRE (FAIRBURN & BEGLIN, 2008)

Instructions: The following questions are concerned with the past four weeks (28 days) only. Please read each question carefully. Please answer all of the questions. Please only choose one answer for each question. Thank you.

0 = No days
1 = 1-5 days
2 = 6-12 days
3 = 13-15 days
4 = 16-22 days
5 = 23-27 days
6 = Every day

Questions 1 to 12: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days) only.

On how many of the past 28 days…

1. 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)?
2. Have you gone for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight?
3. Have you tried to exclude from your diet any foods that you like in order to influence your shape or weight (whether or not you have succeeded)?
4. Have you tried to follow definite rules regarding your eating (for example, a calorie limit) in order to influence your shape or weight (whether or not you have succeeded)?
5. Have you had a definite desire to have an empty stomach with the aim of influencing your shape or weight?
6. Have you had a definite desire to have a totally flat stomach?
7. Has thinking about food, eating, or calories made it difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?
8. Has thinking about shape of weight made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?
9. Have you had a definite fear of losing control over eating?
10. Have you had a definite feat that you might gain weight?
11. Have you felt fat?
12. Have you had a strong desire to loose weight?

Questions 13-18: Please fill in the appropriate number in the boxes on the right. Remember that the questions only refer to the past four weeks (28 days).

Over the past four weeks (28 days)…

13. Over the past 28 days, how many times have you eaten what other people would regard as an unusually large amount of food (given the circumstances)?
14. ….On how many of these times did you have a sense of having lost control over your eating (at the time that you were eating)?
15. Over the past 28 days, on how many **DAYS** have such episodes of overeating occurred (i.e. you have eaten an unusually large amount of food and have had a sense of loss of control at the time)?
16. Over the past 28 days, how many times have you made yourself sick (vomit) as a means of controlling your shape or weight?
17. Over the past 28 days, how many times have you taken laxatives as a means of controlling your shape or weight?
18. Over the past 28 days, how many times have you exercised in a "driven" or "compulsive" way as a means of controlling your weight, shape or amount of fat or to burn off calories?

Questions 19-21: Please circle the appropriate number. Please note that for these questions the term "binge eating" means eating what others would regard as an unusually large amount of food for the circumstances, accompanied by a sense of having lost control over eating.

19. Over the past 28 days, on how many days have you eaten in secret (i.e., furtively)?...Do not count episodes of binge eating.
20. On what proportion of the times that you have eaten have you felt guilty (felt that you've done wrong) because of its effect on your shape or weight?... Do not count episodes of being eating.
21. Over the past 28 days, how concerned have you been about other people seeing you eat?... Do not count episodes of binge eating

Questions 22-28: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days) (0 = Not at all, 6 = Markedly)

On how many of the past 28 days…

22. Has your weight influenced how you thing about (judge) yourself as a person?
23. Has your shape influenced how you think about (judge) yourself as a person?
24. How much would it have upset you if you had been asked to weigh yourself once a week (no more, or less, often) for the next four weeks?
25. How dissatisfied have you been with your weight?
26. How dissatisfied have you been with your shape?

27. How uncomfortable have you felt seeing your body (for example, seeing your shape in the mirror, in a shop window reflection, while undressing or taking a bath or shower)?
28. How uncomfortable have you felt about others seeing your shape or figure (for example, in communal changing rooms, when swimming, or wearing tight clothes)?

What is your weight at present? (Please give your best estimate).
What is your height? (Please give your best estimate).
If female: Over the past three-to-four months have you missed any menstrual periods?
If so, how many?
Have you been taking the "pill"?

APPENDIX B: INTERPERSONAL NEEDS QUESTIONNAIRE-15 (VAN ORDEN ET AL., 2012)

1 = Not at all true for me
4 = Somewhat true for me
7 = Very true for me

1. These days, the people in my life would be better off if I were gone.
2. These days, the people in my life would be happier without me.
3. These days, I think I am a burden on society.
4. These days, I think my death would be a relief to the people in my life.
5. These days, I think the people in my life wish they could be rid of me,
6. These days, I think I make things worse for the people in my life.
7. These days, other people care about me.
8. These days, I feel like I belong.
9. These days, I rarely interact with people who care about me.
10. These days, I am fortunate to have many caring and supportive friends.
11. These days, I feel disconnected from other people.
12. These days, I often feel like an outside in social gatherings.
13. These days, I feel that there are people I can turn to in times of need.
14. These days, I am close to other people.
15. These days, I have at least one satisfying interaction every day.

APPENDIX C: DEPRESSION SYMPTON INDEX-SUICIDALITY SUBSCALE

INDIVIDUAL ITEMS (JOINER ET AL., 2002)

A.
0. I do not have thought of killing myself.
1. Sometimes I have thoughts of killing myself.
2. Most of the time I have thoughts of killing myself.
3. I always have thoughts of killing myself.

B.
0. I am not having thoughts about suicide.
1. I am having thought about suicide but have not formulated any plans.
2. I am having thought about suicide and am considering a possible way of doing it.
3. I am having thought about suicide and have formulated a definite plan.

C.
0. I am not having thoughts about suicide.
1. I am having thought about suicide but these thoughts are completely under my control.
2. I am having thought about suicide but these thoughts are somewhat under my control.
3. I am having thoughts of suicide but have little of not control over these thoughts.

D.
0. I am not having impulses to kill myself.
1. In some situation I have impulses to kill myself.
2. In most situation I have impulses to kill myself.
3. In all situation I have impulses to kill myself.

APPENDIX D: CORRELATIONS BETWEEN MMPI-3 EAT SCALE AND EDE-Q

Correlations between MMPI-3 EAT Scale and EDE-Q for females

		Restraint Sub-Scale (EDE-Q6)	Eating Concern Sub-Scale (EDE-Q6)	Weight Concern Sub-Scale (EDE-Q6)	Shape Concern Sub-Scale (EDE-Q6)	Global EDE-Q Score (EDE-Q6)
MMPI-3 Raw Eating Concerns	Pearson Correlation	.524**	.731**	.642**	.620**	.688**
	Sig. (2-tailed)	.000	.000	.000	.000	.000

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations between MMPI-3 EAT Scale and EDE-Q Scales for males

		Restraint Sub-Scale (EDE-Q)	Eating Concern Sub-Scale (EDE-Q)	Weight Concern Sub-Scale (EDE-Q)	Shape Concern Sub-Scale (EDE-Q)	Global EDE-Q Score (EDE-Q)
MMPI-3 Raw Eating Concerns	Pearson Correlation	.082	.658**	.318**	.257*	.368**
	Sig. (2-tailed)	.493	.000	.006	.028	.001

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

APPENDIX E: CORRELATES BETWEEN MMPI-3 EAT ITEMS AND 42 MMPI-3 SUBSTANTIVE SCALES FOR FEMALES AND MALES.

		MMPI-3 Raw Neurological Complaints	MMPI-3 Raw Cognitive Complaints	MMPI-3 Raw Suicidal/Death Ideation	MMPI-3 Raw Helplessness/ Hopelessness	MMPI-3 Raw Self Doubt	MMPI-3 Raw Inefficacy
Weekly binge eating	Pearson Correlation	.267**	.286**	.215**	.249**	.267**	.266**
	Sig. (2-tailed)	.000	.000	.003	.001	.000	.000
Vomiting to control weight	Pearson Correlation	.307**	.276**	.451**	.207**	.295**	.188**
	Sig. (2-tailed)	.000	.000	.000	.004	.000	.010
Loss of control over eating	Pearson Correlation	.438**	.310**	.251**	.194**	.230**	.222**
	Sig. (2-tailed)	.000	.000	.001	.008	.001	.002
Vomiting after eating (no mention of weight control)	Pearson Correlation	.136	.153*	.408**	.268**	.318**	.195**
	Sig. (2-tailed)	.063	.036	.000	.000	.000	.007
Restricting to control weight	Pearson Correlation	.333**	.373**	.448**	.390**	.460**	.370**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
MMPI-3 Raw Eating Concerns	Pearson Correlation	.439**	.404**	.473**	.359**	.429**	.350**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000

		MMPI-3 Raw Stress	MMPI-3 Raw Worry	MMPI-3 Raw Compulsivity	MMPI-3 Raw Anxiety Related Experiences	MMPI-3 Raw Anger Proneness	MMPI-3 Raw Behavior Restricting Fears
Weekly binge eating	Pearson Correlation	.099	.271**	.054	.233**	.270**	.175*
	Sig. (2-tailed)	.176	.000	.465	.001	.000	.016
Vomiting to control weight	Pearson Correlation	.194**	.277**	.062	.349**	.294**	.192**
	Sig. (2-tailed)	.008	.000	.400	.000	.000	.008
Loss of control over eating	Pearson Correlation	.176*	.267**	.108	.313**	.201**	.179*
	Sig. (2-tailed)	.016	.000	.142	.000	.006	.014
Vomiting after eating (no mention of weight control)	Pearson Correlation	.145*	.243**	.061	.239**	.168*	.087
	Sig. (2-tailed)	.046	.001	.404	.001	.021	.233
Restricting to control weight	Pearson Correlation	.298**	.398**	.154*	.421**	.113	.191**
	Sig. (2-tailed)	.000	.000	.035	.000	.122	.009
MMPI-3 Raw Eating Concerns	Pearson Correlation	.256**	.407**	.127	.438**	.289**	.237**
	Sig. (2-tailed)	.000	.000	.082	.000	.000	.001

		MMPI-3 Raw Family Problems	MMPI-3 Raw Juvenile Conduct Problems	MMPI-3 Raw Substance Abuse	MMPI-3 Raw Impulsivity	MMPI-3 Raw Activation	MMPI-3 Raw Aggression
Weekly binge eating	Pearson Correlation	.080	.097	.184*	.258**	.217**	.177*
	Sig. (2-tailed)	.273	.187	.012	.000	.003	.015
Vomiting to control weight	Pearson Correlation	.255**	.267**	.148*	.317**	.208**	.347**
	Sig. (2-tailed)	.000	.000	.042	.000	.004	.000
Loss of control over eating	Pearson Correlation	.160*	.223**	.194**	.285**	.341**	.248**
	Sig. (2-tailed)	.028	.002	.008	.000	.000	.001
Vomiting after eating (no mention of weight control)	Pearson Correlation	.254**	.127	.000	.174*	.024	.152*
	Sig. (2-tailed)	.000	.082	1.000	.017	.742	.038
Restricting to control weight	Pearson Correlation	.309**	.217**	.177*	.205**	.152*	.091
	Sig. (2-tailed)	.000	.003	.015	.005	.037	.212
MMPI-3 Raw Eating Concerns	Pearson Correlation	.283**	.264**	.214**	.351**	.290**	.284**
	Sig. (2-tailed)	.000	.000	.003	.000	.000	.000

		MMPI-3 Raw Cynicism	MMPI-3 Raw Self-Importance	MMPI-3 Raw Dominance	MMPI-3 Raw Disaffiliativeness	MMPI-3 Raw Social Avoidance	MMPI-3 Raw Shyness
Weekly binge eating	Pearson Correlation	.090	-0.189	-.098	.059	.052	.157*
	Sig. (2-tailed)	.218	.009	.179	.424	.479	.032
Vomiting to control weight	Pearson Correlation	.253**	-.140	.002	.115	.011	.112
	Sig. (2-tailed)	.000	.056	.979	.115	.883	.126
Loss of control over eating	Pearson Correlation	.152*	-.094	.007	.053	-.034	.113
	Sig. (2-tailed)	.038	.199	.924	.471	.644	.123
Vomiting after eating (no mention of weight control)	Pearson Correlation	.170*	-0.16	-.098	.095	.108	.150*
	Sig. (2-tailed)	.019	.028	.181	.196	.139	.040
Restricting to control weight	Pearson Correlation	.163*	-0.298	-0.152	.162*	.190**	.239**
	Sig. (2-tailed)	.026	.000	.037	.026	.009	.001
MMPI-3 Raw Eating Concerns	Pearson Correlation	.224**	-.241**	-.088	.130	.081	.212**
	Sig. (2-tailed)	.002	.001	.231	.074	.269	.003

		MMPI-3 Raw Aggressiveness	MMPI-3 Raw Psychoticism	MMPI-3 Raw Disconstraint	MMPI-3 Raw Negative Emotionality/Neuroticism	MMPI-3 Raw Introversion/Low Positive Emotionality
Weekly binge eating	Pearson Correlation	-.026	.309**	.200**	.209**	.092
	Sig. (2-tailed)	.727	.000	.006	.004	.209
Vomiting to control weight	Pearson Correlation	.117	.316**	.305**	.292**	.038
	Sig. (2-tailed)	.109	.000	.000	.000	.601
Loss of control over eating	Pearson Correlation	.087	.445**	.271**	.283**	-.013
	Sig. (2-tailed)	.236	.000	.000	.000	.863
Vomiting after eating (no mention of weight control)	Pearson Correlation	-.055	.190**	.118	.225**	.144*
	Sig. (2-tailed)	.450	.009	.107	.002	.048
Restricting to control weight	Pearson Correlation	-.113	.271**	.203**	.370**	.227**
	Sig. (2-tailed)	.122	.000	.005	.000	.002
MMPI-3 Raw Eating Concerns	Pearson Correlation	.011	.447**	.316**	.388**	.125
	Sig. (2-tailed)	.885	.000	.000	.000	.089

APPENDIX F: CORRELATES BETWEEN MMPI-3 EAT ITEMS AND 42 MMPI-3 SUBSTANTIVE SCALES FOR FEMALES

What is your gender?			MMPI-3 Raw Emotional/Internalizing Dysfunction	MMPI-3 Raw Thought Dysfunction	MMPI-3 Raw Behavioral/Externalizing Dysfunction	MMPI-3 Raw Demoralization	MMPI-3 Raw Somatic Complaints	MMPI-3 Raw Low Positive Emotions
Female	Weekly binge eating	Pearson Correlation	.380**	.218*	.167	.413**	.328**	.342**
		Sig. (2-tailed)	.000	.020	.074	.000	.000	.000
	Vomiting to control weight	Pearson Correlation	.280**	.313**	.459**	.335**	.335**	.169
		Sig. (2-tailed)	.002	.001	.000	.000	.000	.071
	Loss of control over eating	Pearson Correlation	.251**	.423**	.301**	.312**	.449**	.165
		Sig. (2-tailed)	.007	.000	.001	.001	.000	.077
	Vomiting after eating (no mention of weight control)	Pearson Correlation	.358**	.132	.176	.393**	.198*	.339**
		Sig. (2-tailed)	.000	.161	.059	.000	.034	.000
	Restricting to control weight	Pearson Correlation	.555**	.247**	.295**	.607**	.462**	.435**
		Sig. (2-tailed)	.000	.008	.001	.000	.000	.000
	MMPI-3 Raw Eating Concerns	Pearson Correlation	.502**	.391**	.396**	.569**	.514**	.392**
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.000

What is your gender?			MMPI-3 Raw Antisocial Behavior	MMPI-3 Raw Ideas of Persecution	MMPI-3 Raw Dysfunctional Negative Emotions	MMPI-3 Raw Aberrant Experiences	MMPI-3 Raw Hypomanic Activation	MMPI-3 Raw Malaise
Female	Weekly binge eating	Pearson Correlation	.121	.050	.228*	.313**	.223*	.302**
		Sig. (2-tailed)	.196	.592	.014	.001	.016	.001
	Vomiting to control weight	Pearson Correlation	.429**	.351**	.296**	.307**	.367**	.257**
		Sig. (2-tailed)	.000	.000	.001	.001	.000	.006
	Loss of control over eating	Pearson Correlation	.266**	.265**	.231*	.499**	.372**	.339**
		Sig. (2-tailed)	.004	.004	.013	.000	.000	.000
	Vomiting after eating (no mention of weight control)	Pearson Correlation	.201*	.216*	.193*	.131	-.007	.270**
		Sig. (2-tailed)	.032	.020	.039	.163	.937	.004
	Restricting to control weight	Pearson Correlation	.342**	.190*	.451**	.344**	.211*	.387**
		Sig. (2-tailed)	.000	.042	.000	.000	.024	.000
	MMPI-3 Raw Eating Concerns	Pearson Correlation	.382**	.298**	.395**	.471**	.352**	.437**
		Sig. (2-tailed)	.000	.001	.000	.000	.000	.000

What is your gender?			MMPI-3 Raw Neurological Complaints	MMPI-3 Raw Cognitive Complaints	MMPI-3 Raw Suicidal/Death Ideation	MMPI-3 Raw Helplessness/ Hopelessness	MMPI-3 Raw Self Doubt	MMPI-3 Raw Inefficacy
Female	Weekly binge eating	Pearson Correlation	.302**	.352**	.293**	.343**	.370**	.285**
		Sig. (2-tailed)	.001	.000	.001	.000	.000	.002
	Vomiting to control weight	Pearson Correlation	.265**	.252**	.503**	.234*	.285**	.125
		Sig. (2-tailed)	.004	.007	.000	.012	.002	.184
	Loss of control over eating	Pearson Correlation	.471**	.325**	.345**	.267**	.235*	.215*
		Sig. (2-tailed)	.000	.000	.000	.004	.012	.021
	Vomiting after eating (no mention of weight control)	Pearson Correlation	.076	.105	.469**	.340**	.329**	.157
		Sig. (2-tailed)	.422	.264	.000	.000	.000	.093
	Restricting to control weight	Pearson Correlation	.340**	.435**	.554**	.457**	.549**	.459**
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	MMPI-3 Raw Eating Concerns	Pearson Correlation	.436**	.429**	.591**	.452**	.488**	.355**
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.000

What is your gender?			MMPI-3 Raw Stress	MMPI-3 Raw Worry	MMPI-3 Raw Compulsivity	MMPI-3 Raw Anxiety Related Experiences	MMPI-3 Raw Anger Proneness	MMPI-3 Raw Behavior Restricting Fears
Female	Weekly binge eating	Pearson Correlation	.043	.213*	-.052	.231*	.246**	.115
		Sig. (2-tailed)	.649	.022	.581	.013	.008	.223
	Vomiting to control weight	Pearson Correlation	.121	.251**	.006	.312**	.303**	.090
		Sig. (2-tailed)	.198	.007	.952	.001	.001	.338
	Loss of control over eating	Pearson Correlation	.085	.179	.044	.302**	.201*	.119
		Sig. (2-tailed)	.365	.055	.638	.001	.031	.206
	Vomiting after eating (no mention of weight control)	Pearson Correlation	.092	.229*	.028	.192*	.127	-.025
		Sig. (2-tailed)	.327	.014	.763	.040	.175	.793
	Restricting to control weight	Pearson Correlation	.277**	.455**	.130	.468**	.175	.132
		Sig. (2-tailed)	.003	.000	.166	.000	.061	.160
	MMPI-3 Raw Eating Concerns	Pearson Correlation	.175	.369**	.047	.430**	.296**	.133
		Sig. (2-tailed)	.061	.000	.614	.000	.001	.158

What is your gender?			MMPI-3 Raw Family Problems	MMPI-3 Raw Juvenile Conduct Problems	MMPI-3 Raw Substance Abuse	MMPI-3 Raw Impulsivity	MMPI-3 Raw Activation	MMPI-3 Raw Aggression
Female	Weekly binge eating	Pearson Correlation	.135	.015	.203*	.262**	.217*	.176
		Sig. (2-tailed)	.149	.872	.030	.005	.020	.060
	Vomiting to control weight	Pearson Correlation	.291**	.359**	.243**	.399**	.222*	.481**
		Sig. (2-tailed)	.002	.000	.009	.000	.017	.000
	Loss of control over eating	Pearson Correlation	.172	.154	.222*	.306**	.371**	.309**
		Sig. (2-tailed)	.066	.100	.017	.001	.000	.001
	Vomiting after eating (no mention of weight control)	Pearson Correlation	.313**	.172	.032	.181	-.052	.179
		Sig. (2-tailed)	.001	.067	.732	.053	.582	.056
	Restricting to control weight	Pearson Correlation	.364**	.282**	.280**	.283**	.198*	.212*
		Sig. (2-tailed)	.000	.002	.002	.002	.034	.023
	MMPI-3 Raw Eating Concerns	Pearson Correlation	.343**	.271**	.289**	.405**	.299**	.383**
		Sig. (2-tailed)	.000	.003	.002	.000	.001	.000

What is your gender?			MMPI-3 Raw Cynicism	MMPI-3 Raw Self-Importance	MMPI-3 Raw Dominance	MMPI-3 Raw Disaffiliativeness	MMPI-3 Raw Social Avoidance	MMPI-3 Raw Shyness
Female	Weekly binge eating	Pearson Correlation	.077	-0.268	-.182	.147	.098	.187*
		Sig. (2-tailed)	.414	.004	.052	.117	.296	.045
	Vomiting to control weight	Pearson Correlation	.320**	-.128	.033	.149	-.008	.054
		Sig. (2-tailed)	.000	.174	.728	.112	.928	.567
	Loss of control over eating	Pearson Correlation	.196*	-.061	-.027	.103	.000	.020
		Sig. (2-tailed)	.035	.518	.771	.275	.998	.833
	Vomiting after eating (no mention of weight control)	Pearson Correlation	.199*	-0.189	-.116	.136	.130	.110
		Sig. (2-tailed)	.033	.043	.218	.148	.166	.243
	Restricting to control weight	Pearson Correlation	.254**	-0.367	-.150	.237*	.252**	.283**
		Sig. (2-tailed)	.006	.000	.110	.011	.007	.002
	MMPI-3 Raw Eating Concerns	Pearson Correlation	.289**	-.275**	-.118	.213*	.125	.179
		Sig. (2-tailed)	.002	.003	.211	.022	.182	.056

What is your gender?			MMPI-3 Raw Aggressiveness	MMPI-3 Raw Psychoticism	MMPI-3 Raw Disconstraint	MMPI-3 Raw Negative Emotionality/Neuroticism	MMPI-3 Raw Introversion/Low Positive Emotionality
Female	Weekly binge eating	Pearson Correlation	-.095	.252**	.175	.178	.147
		Sig. (2-tailed)	.315	.006	.062	.057	.116
	Vomiting to control weight	Pearson Correlation	.218*	.272**	.428**	.247**	.030
		Sig. (2-tailed)	.019	.003	.000	.008	.750
	Loss of control over eating	Pearson Correlation	.113	.462**	.287**	.218*	.005
		Sig. (2-tailed)	.229	.000	.002	.019	.961
	Vomiting after eating (no mention of weight control)	Pearson Correlation	-.046	.089	.161	.189*	.178
		Sig. (2-tailed)	.623	.342	.085	.043	.056
	Restricting to control weight	Pearson Correlation	-.063	.269**	.313**	.400**	.305**
		Sig. (2-tailed)	.505	.004	.001	.000	.001
	MMPI-3 Raw Eating Concerns	Pearson Correlation	.044	.402**	.388**	.347**	.176
		Sig. (2-tailed)	.638	.000	.000	.000	.060

APPENDIX G: CORRELATES BETWEEN MMPI-3 ITEMS AND 42 MMPI-3 SUBSTANTIVE SCALES FOR MALES

What is your gender? - Selected Choice			MMPI-3 Raw Emotional/Internalizing Dysfunction	MMPI-3 Raw Thought Dysfunction	MMPI-3 Raw Behavioral/Externalizing Dysfunction	MMPI-3 Raw Demoralization	MMPI-3 Raw Somatic Complaints	MMPI-3 Raw Low Positive Emotions
Male	Weekly binge eating	Pearson Correlation	.017	.414**	.350**	-.058	.155	-.062
		Sig. (2-tailed)	.883	.000	.002	.623	.189	.605
	Vomiting to control weight	Pearson Correlation	.175	.525**	.108	.169	.387**	-.076
		Sig. (2-tailed)	.140	.000	.363	.153	.001	.523
	Loss of control over eating	Pearson Correlation	.078	.322**	.314**	.058	.182	-.099
		Sig. (2-tailed)	.514	.006	.007	.624	.124	.403
	Vomiting after eating (no mention of weight control)	Pearson Correlation	.175	.525**	.108	.169	.387**	-.076
		Sig. (2-tailed)	.140	.000	.363	.153	.001	.523
	Restricting to control weight	Pearson Correlation	.051	.127	.021	.001	.082	.025
		Sig. (2-tailed)	.671	.283	.861	.995	.493	.830
	MMPI-3 Raw Eating Concerns	Pearson Correlation	.112	.509**	.308**	.059	.289*	-.087
		Sig. (2-tailed)	.344	.000	.008	.618	.013	.463

What is your gender? - Selected Choice			MMPI-3 Raw Antisocial Behavior	MMPI-3 Raw Ideas of Persecution	MMPI-3 Raw Dysfunctional Negative Emotions	MMPI-3 Raw Aberrant Experiences	MMPI-3 Raw Hypomanic Activation	MMPI-3 Raw Malaise
Male	Weekly binge eating	Pearson Correlation	.311**	.274*	.313**	.325**	.296*	.036
		Sig. (2-tailed)	.007	.019	.007	.005	.011	.760
	Vomiting to control weight	Pearson Correlation	-.020	.297*	.358**	.476**	.192	.080
		Sig. (2-tailed)	.869	.011	.002	.000	.103	.502
	Loss of control over eating	Pearson Correlation	.384**	.216	.306**	.266*	.282*	.159
		Sig. (2-tailed)	.001	.067	.009	.023	.016	.179
	Vomiting after eating (no mention of weight control)	Pearson Correlation	-.020	.297*	.358**	.476**	.192	.080
		Sig. (2-tailed)	.869	.011	.002	.000	.103	.502
	Restricting to control weight	Pearson Correlation	.059	.042	.068	.031	-.017	-.166
		Sig. (2-tailed)	.620	.724	.566	.797	.890	.159
	MMPI-3 Raw Eating Concerns	Pearson Correlation	.307**	.311**	.394**	.407**	.301**	.069
		Sig. (2-tailed)	.008	.007	.001	.000	.010	.563

What is your gender? - Selected Choice			MMPI-3 Raw Neurological Complaints	MMPI-3 Raw Cognitive Complaints	MMPI-3 Raw Suicidal/Death Ideation	MMPI-3 Raw Helplessness/ Hopelessness	MMPI-3 Raw Self Doubt	MMPI-3 Raw Inefficacy
Male	Weekly binge eating	Pearson Correlation	.088	.081	-.046	-.026	-.044	.170
		Sig. (2-tailed)	.460	.494	.698	.828	.709	.151
	Vomiting to control weight	Pearson Correlation	.285*	.245*	.107	-.060	.230	.242*
		Sig. (2-tailed)	.014	.037	.368	.616	.051	.039
	Loss of control over eating	Pearson Correlation	.215	.174	-.095	-.068	.122	.108
		Sig. (2-tailed)	.068	.142	.423	.568	.302	.363
	Vomiting after eating (no mention of weight control)	Pearson Correlation	.285*	.245*	.107	-.060	.230	.242*
		Sig. (2-tailed)	.014	.037	.368	.616	.051	.039
	Restricting to control weight	Pearson Correlation	.037	.022	-.076	.069	.026	-.078
		Sig. (2-tailed)	.753	.851	.523	.561	.828	.511
	MMPI-3 Raw Eating Concerns	Pearson Correlation	.235*	.196	-.049	-.042	.121	.170
		Sig. (2-tailed)	.045	.096	.682	.725	.308	.149

What is your gender? - Selected Choice			MMPI-3 Raw Stress	MMPI-3 Raw Worry	MMPI-3 Raw Compulsivity	MMPI-3 Raw Anxiety Related Experiences	MMPI-3 Raw Anger Proneness	MMPI-3 Raw Behavior Restricting Fears
Male	Weekly binge eating	Pearson Correlation	.118	.345**	.214	.166	.300**	.282*
		Sig. (2-tailed)	.321	.003	.070	.159	.010	.016
	Vomiting to control weight	Pearson Correlation	.191	.232*	.076	.321**	.285*	.476**
		Sig. (2-tailed)	.106	.049	.525	.006	.014	.000
	Loss of control over eating	Pearson Correlation	.194	.342**	.135	.197	.153	.175
		Sig. (2-tailed)	.100	.003	.256	.095	.198	.138
	Vomiting after eating (no mention of weight control)	Pearson Correlation	.191	.232*	.076	.321**	.285*	.476**
		Sig. (2-tailed)	.106	.049	.525	.006	.014	.000
	Restricting to control weight	Pearson Correlation	.140	.101	.073	.051	-.171	.115
		Sig. (2-tailed)	.238	.394	.540	.668	.149	.332
	MMPI-3 Raw Eating Concerns	Pearson Correlation	.234*	.392**	.188	.271*	.229	.371**
		Sig. (2-tailed)	.046	.001	.112	.020	.051	.001

What is your gender? - Selected Choice			MMPI-3 Raw Family Problems	MMPI-3 Raw Juvenile Conduct Problems	MMPI-3 Raw Substance Abuse	MMPI-3 Raw Impulsivity	MMPI-3 Raw Activation	MMPI-3 Raw Aggression
Male	Weekly binge eating	Pearson Correlation	-.078	.265*	.172	.272*	.206	.212
		Sig. (2-tailed)	.512	.023	.146	.020	.081	.072
	Vomiting to control weight	Pearson Correlation	.045	.015	-.076	.215	.186	.158
		Sig. (2-tailed)	.706	.901	.525	.068	.114	.182
	Loss of control over eating	Pearson Correlation	.067	.383**	.180	.289*	.274*	.201
		Sig. (2-tailed)	.576	.001	.127	.013	.019	.087
	Vomiting after eating (no mention of weight control)	Pearson Correlation	.045	.015	-.076	.215	.186	.158
		Sig. (2-tailed)	.706	.901	.525	.068	.114	.182
	Restricting to control weight	Pearson Correlation	.079	.078	-.007	.068	-.012	-.141
		Sig. (2-tailed)	.507	.510	.954	.569	.918	.234
	MMPI-3 Raw Eating Concerns	Pearson Correlation	.038	.306**	.124	.325**	.262*	.186
		Sig. (2-tailed)	.752	.008	.298	.005	.025	.114

What is your gender? - Selected Choice			MMPI-3 Raw Cynicism	MMPI-3 Raw Self-Importance	MMPI-3 Raw Dominance	MMPI-3 Raw Disaffiliativeness	MMPI-3 Raw Social Avoidance	MMPI-3 Raw Shyness
Male	Weekly binge eating	Pearson Correlation	.127	.015	.115	-.133	-.065	.049
		Sig. (2-tailed)	.283	.903	.333	.263	.584	.680
	Vomiting to control weight	Pearson Correlation	.124	-.008	0.000	-.042	.025	.236*
		Sig. (2-tailed)	.297	.948	1.000	.726	.834	.044
	Loss of control over eating	Pearson Correlation	.079	-.054	.147	-.077	-.147	.230*
		Sig. (2-tailed)	.507	.653	.215	.519	.216	.050
	Vomiting after eating (no mention of weight control)	Pearson Correlation	.124	-.008	0.000	-.042	.025	.236*
		Sig. (2-tailed)	.297	.948	1.000	.726	.834	.044
	Restricting to control weight	Pearson Correlation	-.065	.010	-.095	-.073	-.023	.002
		Sig. (2-tailed)	.587	.933	.422	.538	.848	.985
	MMPI-3 Raw Eating Concerns	Pearson Correlation	.107	-.019	.086	-.119	-.092	.203
		Sig. (2-tailed)	.368	.870	.467	.316	.440	.086

What is your gender? - Selected Choice			MMPI-3 Raw Aggressiveness	MMPI-3 Raw Psychoticism	MMPI-3 Raw Disconstraint	MMPI-3 Raw Negative Emotionality/Neuroticism	MMPI-3 Raw Introversion/Low Positive Emotionality
Male	Weekly binge eating	Pearson Correlation	.162	.421**	.283*	.210	-.048
		Sig. (2-tailed)	.172	.000	.015	.075	.688
	Vomiting to control weight	Pearson Correlation	-.011	.549**	.046	.256*	.017
		Sig. (2-tailed)	.925	.000	.701	.029	.883
	Loss of control over eating	Pearson Correlation	.142	.362**	.300**	.286*	-.088
		Sig. (2-tailed)	.232	.002	.010	.014	.459
	Vomiting after eating (no mention of weight control)	Pearson Correlation	-.011	.549**	.046	.256*	.017
		Sig. (2-tailed)	.925	.000	.701	.029	.883
	Restricting to control weight	Pearson Correlation	-.139	.205	-.004	.074	-.042
		Sig. (2-tailed)	.240	.082	.975	.536	.723
	MMPI-3 Raw Eating Concerns	Pearson Correlation	.086	.559**	.261*	.315**	-.065
		Sig. (2-tailed)	.469	.000	.026	.007	.583

APPENDIX H: CORRELATES BETWEEN EAT ITEMS, INQ-15, AND DSI-SS

		Perceived Burdensomeness	Thwarted Belongingness	DSI-SS Suicidal Ideation
Weekly binge eating	Pearson Correlation	.263**	.296**	.246**
	Sig. (2-tailed)	.000	.000	.001
Vomiting to control weight	Pearson Correlation	.367**	.103	.246**
	Sig. (2-tailed)	.000	.160	.001
Loss of control over eating	Pearson Correlation	.184*	.147*	.149*
	Sig. (2-tailed)	.012	.044	.042
Vomiting after eating (no mention of weight control)	Pearson Correlation	.510**	.197**	.374**
	Sig. (2-tailed)	.000	.007	.000
Restricting to control weight	Pearson Correlation	.394**	.282**	.353**
	Sig. (2-tailed)	.000	.000	.000
MMPI-3 Raw Eating Concerns	Pearson Correlation	.443**	.284**	.359**
	Sig. (2-tailed)	.000	.000	.000

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

APPENDIX I: CORRELATES BETWEEN EAT ITEMS, INQ-15, AND DSI-SS BY GENDER

What is your gender? - Selected Choice			Perceived Burdensomeness	Thwarted Belongingness	DSI-SS Suicidal Ideation
Male	Weekly binge eating	Pearson Correlation	-.079	.134	-.088
		Sig. (2-tailed)	.507	.257	.457
	Vomiting to control weight	Pearson Correlation	.073	-.009	-.035
		Sig. (2-tailed)	.537	.941	.770
	Loss of control over eating	Pearson Correlation	-.123	.068	-.118
		Sig. (2-tailed)	.301	.565	.322
	Vomiting after eating (no mention of weight control)	Pearson Correlation	.073	-.009	-.035
		Sig. (2-tailed)	.537	.941	.770
	Restricting to control weight	Pearson Correlation	-.091	.008	-.061
		Sig. (2-tailed)	.442	.949	.608
	MMPI-3 Raw Eating Concerns	Pearson Correlation	-.089	.082	-.116
		Sig. (2-tailed)	.455	.491	.327
Female	Weekly binge eating	Pearson Correlation	.361**	.355**	.429**
		Sig. (2-tailed)	.000	.000	.000
	Vomiting to control weight	Pearson Correlation	.396**	.106	.343**
		Sig. (2-tailed)	.000	.261	.000
	Loss of control over eating	Pearson Correlation	.254**	.158	.286**
		Sig. (2-tailed)	.006	.091	.002
	Vomiting after eating (no mention of weight control)	Pearson Correlation	.592**	.247**	.544**
		Sig. (2-tailed)	.000	.008	.000
	Restricting to control weight	Pearson Correlation	.476**	.348**	.528**
		Sig. (2-tailed)	.000	.000	.000
	MMPI-3 Raw Eating Concerns	Pearson Correlation	.548**	.333**	.570**
		Sig. (2-tailed)	.000	.000	.000

**. Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed).

APPENDIX J: REGRESSION COEFFICIENTS EAT SCALE AND GENDER TO PREDICT SCORES ON EDE-Q FREQUENCY ITEMS

Frequency of Binge Eating Episodes

	B	*SE*	β	*t*	*p*
Constant	1.54	0.52		2.93	.004
MMPI EAT scale	1.60	0.29	0.39	5.50	< .001
Gender	-0.98	0.68	-0.10	-1.44	.15

Frequency of Loss of Control Over Eating

	B	*SE*	β	*t*	*p*
Constant	-0.12	0.94		-0.13	.90
MMPI EAT scale	2.19	0.41	0.62	5.30	< .001
Gender	0.17	1.29	0.02	0.13	.90

Number of Days Binge Eating Episode Occurred

	B	*SE*	β	*t*	*p*
Constant	0.10	0.25		0.38	.706
MMPI EAT scale	1.43	0.14	0.61	10.24	< .001
Gender	-0.04	0.33	-0.01	-0.10	.92

Frequency of Self-Induced Vomiting

	B	*SE*	β	*t*	*p*
Constant	-0.10	0.19		-0.54	.591
MMPI EAT scale	0.35	0.10	0.25	3.37	.001
Gender	0.03	0.24	0.01	0.13	.90

Frequency of Laxative Use

	B	*SE*	β	*t*	*p*
Constant	0.07	0.07		1.01	.31
MMPI EAT scale	0.04	0.04	0.08	1.06	.29
Gender	-0.04	0.90	-0.04	-0.48	.63

Frequency of Over Exercising

	B	*SE*	β	*t*	*p*
Constant	2.71	0.68		3.97	<.001
MMPI EAT scale	1.48	0.38	0.28	3.90	<.001
Gender	-1.61	0.89	-0.13	-1.82	.07

APPENDIX K: ALPHA COEFFICIENTS FOR MMPI-3 SUBSTANTIVE SCALES, INQ-15, DSI-SS, AND EDE-Q

Scale	Alpha	N = 188
CRIN	.28	
VRIN	.32	
TRIN	.25	
F	.82	
Fp	.34	
Fs	.79	
FBS	.72	
RBS	.67	
L	.50	
K	.07	
EID	.88	
THD	.77	
BXD	.82	
RCd	.91	
RC1	.86	
RC2	.82	
RC4	.70	
RC6	.78	
RC7	.87	
RC8	.76	
RC9	.79	
MLS	.72	
NUC	.73	
EAT	.75	
COG	.88	
SUI	.67	
HLP	.75	
SFD	.85	
NFC	.82	
STR	.78	
WRY	.83	
CMP	.77	
ARX	.88	
ANP	.87	

BRF	.61
FML	.80
JCP	.68
SUB	.73
IMP	.79
ACT	.68
AGG	.54
CYN	.74
SFI	.84
DOM	.72
DSF	.77
SAV	.90
SHY	.79
AGGR	.73
PSYC	.73
DISC	.83
NEGE	.90
INTR	.89
Burden	.91
Belonging	.88
DSI	.86
Restraint	.76
EatConcerns	.87
LbsConcerns	.88
ShapeConcerns	.93
EDEGlobal	.91