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Drive for Thinness Provides an Alternative, More Meaningful, Severity Indicator than the DSM-5 Severity Indices for Eating Disorders

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HIGHLIGHTS

- This study assessed an alternative transdiagnostic drive for thinness (DT) severity category for all eating disorder (ED) subtypes, and then compared this to the Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-5) severity indices for EDs.
- ED symptoms, general psychopathology, personality, and impulsive behaviours were assessed using both classifications in a total of 2,811 female patients diagnosed with EDs.
- Clinically significant findings were stronger for the DT than the DSM-5 severity category (medium-to-large effect sizes); there was differentiation of the Anorexia Nervosa (AN) patients into mainly “low” DT, and Bulimia Nervosa (BN) spectrum patients into mainly “high” DT, vs most patients were clustered in the “mild-to-moderate” DSM-5 categories.
- Our findings provide initial support for an alternative transdiagnostic DT severity category that may be more clinically meaningful than the DSM-5 severity indices for EDs.

Drive for Thinness Provides an Alternative, More Meaningful, Severity Indicator than the DSM-5 Severity Indices for Eating Disorders

ABSTRACT

Objective: To assess an alternative transdiagnostic indicator for severity based on drive for thinness (DT) for Anorexia Nervosa (AN), Bulimia Nervosa (BN), Binge Eating Disorder (BED), and Other Specified Feeding or Eating Disorder (OSFED), and to compare this new approach to the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) severity categories for EDs. **Method:** 2811 ED [428 AN-Restrictive (AN-R), 313 AN-Binge Purging (AN-BP), 1340 BN, 329 BED, 154 OSFED/Atypical AN (AT), and 223 OSFED/Purging Disorder (PD)] patients were classified using: a.) the DSM-5 severity categories and b.) a DT categorisation. These severity classifications were then compared based on ED symptoms, general psychopathology, personality, and impulsive behaviours. **Results:** For the DSM-5 categories, most ED patients fell into the "mild" to "moderate" categories. Using the DT categories, AN patients were mainly represented in the "low" DT category, and

BN, OSFED/AT, and PD in the "high" DT category. The clinically significant findings were stronger for the DT than the DSM-5 severity approach (medium-to-large effect sizes). AN-BP and AN-R provided the most pronounced effects. **Conclusion:** Our findings question the clinical value of the DSM-5 severity categorisation, and provide initial support for an alternative DT severity approach for AN.

KEYWORDS*:* DSM-5, severity indicators, drive for thinness, classification

1 INTRODUCTION

In trying to improve the diagnosis and treatment of eating disorders (EDs), efforts have been made to develop better severity measures for clinical practice. The fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; APA, 2013) introduced three ED severity specifiers based on body mass index (BMI) for anorexia nervosa (AN), frequency of weekly inappropriate compensatory behaviours for bulimia nervosa (BN), and weekly binge-eating episodes for binge-eating disorder (BED). These three severity indices create the basis for four categories, "mild", "moderate", "severe", and "extreme", for classifying patients. Severity categories are intended to allow clinicians to determine gradients of disorder severity in terms of the level of impairment, their ED-related attitudes, behaviours, and prognosis. It has been suggested that the current DSM-5 ED severity categories have limitations in their utility for clinicians (e.g. Gianini, *et al*., 2017; Lydecker, Ivezaj, & Grilo, 2020; Regier, Kuhl,

& Kupfer, 2013), and that a more robust severity classification is needed as a better basis for clinical practice.

1. 1 The validity and utility of current DSM-5 severity specifiers and categories

Studies have found only limited support for the utility of the DSM-5 ED severity categories (APA, 2013). For AN, community-based studies support the validity of the severity index regarding disorder detection, but not for prognosis (e.g. Mustelin, Lehtokari, & Keski-Rahkonen, 2016; Smink, van Hoeken, Oldehinkel, & Hoek, 2014). Accordingly, research assessing clinical AN has shown that the number of hospitalizations was related to higher severity levels (Gianini, *et al*., 2017). However, a range of clinically based studies have found no significant differences between DSM-5 AN severity categories in regard to psychiatric comorbidity, distress, bulimic symptoms, and some other attitudinal (i.e. weight/shape concerns) ED symptoms (e.g. Dalle Grave, Sartirana, El Ghoch, & Calugi, 2018; Machado, Grilo, & Crosby, 2017). Other studies have found inconsistent results. Patients in the "mild"-"moderate" categories engaged in more bulimic behaviours compared to the "severe"-"extreme" AN categories (Dalle Grave, *et al.*, 2018), while patients in the "severe" AN categories exhibited more overall ED symptoms (Dakanalis, Timko, Colmegna, Riva, & Clerici, 2018).

Due to the relatively small AN sample sizes, only one study to date (Nakai, *et al.*, 2017) has been able to provide frequency distributions for the different BMI severity categories for the AN-Restrictive (AN-R) and the AN-Binge Purging (AN-BP) subtypes separately. However, the study did not assess whether the severity categories for the two AN subtypes

differed in ED symptomatology and other associated psychopathologies. This differentiation would be of special interest, given that a categorical boundary between AN-BP and BN has not always been supported in classification studies (e.g. Keel, Crosby, Hildebrandt, Haedt-Matt, & Gravener, 2013). Future research, therefore, needs to carefully examine whether BMI alone is (or is not) an ideal severity-of-illness indicator for AN-BP patients.

For BN, the research so far has only provided partial support for the utility of the DSM-5 severity index. Some clinically-based studies found that patients in the more severe BN categories had significantly higher psychiatric comorbidity, functional impairments, putative maintenance factors (e.g., perfectionism), ED body-related attitudes and behaviours, than those in the "mild" and "moderate" categories (e.g. Dakanalis, Bartoli, *et al.*, 2017; Dakanalis, Clerici, Riva, & Carrà, 2017; Dakanalis, Colmegna, *et al.*, 2018). Other studies found minimal or no differences for these variables across the different BN severity categories (e.g. Gianini, *et al.*, 2017; Nakai, *et al.*, 2017; Smith, *et al.*, 2017). A study by Zayas et al. (2018) supported the utility of the BN severity index regarding ED psychopathology, but only for females, not for males. In terms of community studies, Grilo et al.'s (2015c) found differences between the severity categories in depressive symptoms, restraint, and eating concerns, but the size of the effect was small, offering only modest evidence that the severity specifiers detect differences on the assessed measures. It is also worth noting that only a few BN individuals fell into the "severe" or "extreme" categories, raising questions about the demarcation between these categories (Grilo, *et al.*, 2015c; Jenkins, Luck, Cardy, & Staniford, 2016).

Regarding BED, the majority of clinical studies provide weak or no support for the BED severity index in terms of psychiatric comorbidity, ED body-related attitude, or predicting

prognosis between severity categories (e.g., Grilo, Ivezaj, & White, 2015a, 2015b; Lydecker, *et al.*, 2020). Only a few studies have shown significant differences between the categories in terms of BMI, ED features, comorbidity (anxiety, mood, and personality disorders), and other distress and impairment variables (e.g. Dakanalis, Riva, Serino, Colmegna, & Clerici, 2017). Similar to BN, the validity of the BED severity index has been further questioned when various studies were unable to classify individuals into either the "severe" or "extreme" categories (e.g. Gianini, *et al.*, 2017; Lydecker, *et al.*, 2020).

Overall, the utility of all three ED severity indices and their categories are inconclusive, which could be due to small sample sizes assessed in these studies or to measurement issues. Until today, research has mainly assessed the severity index separately for the different ED subtypes, but has not assessed all ED subtypes concurrently in the same study (Gianini, *et al.*, 2017; Nakai, *et al.*, 2017; Smith, *et al.*, 2017). Given the limited scope of studies assessing the utility of the DSM-5 severity indices in more than one ED subtype, future studies are needed to assess the different severity indices and categories in various ED subtypes concurrently in the same study.

1.2 Drive for thinness: An alternative transdiagnostic severity approach

The weaknesses in research support for the DSM-5 ED severity categories has led researchers to look at alternative approaches to assess severity in EDs, based on the number of purging methods (Gianini, *et al.*, 2017), and overvaluation of weight and shapes, a transdiagnostic feature of EDs (Gianini, *et al.*, 2017; Grilo, *et al.*, 2015b, 2015c). Overall, there has been a strong research-based support for these alternative severity categories. The study by Gianini et al., 2017 assessed AN, BN, and BED concurrently in their study, but the weight and shape

concern alternative approach was only assessed in their BED sample, and transdiagnostically for the overall ED sample. It is not clear why the shape and weight categories were not assessed separately also for AN and BN. Future studies, should, therefore, assess transdiagnostic severity indicators in all ED subtypes.

The different ED subtypes share other transdiagnostic factors (e.g. restrictive eating, drive for thinness, self-esteem, perfectionism) that have not previously been assessed (Fairburn, Zafra Cooper, & Shafran, 2003). Drive for Thinness (DT), characterized by an extreme fear of weight gain resulting in disordered eating patterns (mainly restrictive eating), has consistently been suggested as a cardinal feature of EDs (e.g. Chernyak & Lowe, 2010; De Young, *et al.*, 2013; Peñas-Lledó, Bulik, Lichtenstein, Larsson, & Baker, 2015). Evidence has shown that patients with AN, BN and Other Specified Eating or Feeding Disorders (OSFED) that exhibited lower DT had milder attitudinal and behavioural ED features, and lower comorbidity, than patients scoring high on DT (e.g. Abbate-Daga, Pierò, Gramaglia, Gandione, & Fassino, 2007; Penas-Lledo, *et al.*, 2009; Ramacciotti, *et al.*, 2002; Vervaet, Van Heeringen, & Audenaert, 2004). Although the relationship between DT and BED is not widely investigated, research has indicated that individuals with BED were found to have an excessive concern with shape and thinness and were more likely to have higher DT scores compared to non-bingers (e.g. Kuehnel & Wadden, 1994). DT has also been associated with binge eating severity (e.g. De Zwaan, *et al.*, 1994). As an alternative to the DSM-5 severity categories, the above suggests that assessing DT as a transdiagnostic severity indicator for all ED subtypes could be fruitful and would inform future decision-making processes.

1.3 The importance of a severity index for OSFED

Despite the potentially dangerous outcomes for OSFED that increase with severity, DSM-5 has not established severity categories for OSFED subtypes, which could help identify at-risk OSFED patients (e.g. Hammerle, Huss, Ernst, & Bürger, 2016). In the DSM-5 severity classification approach, AN shares similar characteristics with OSFED/Atypical Anorexia (OSFED/AT), except that individuals with OSFED/AT are still within the normal weight range despite significant weight loss. BN and OSFED/Purging Disorder (PD) also share features given the overlap in purging behaviours and weight criteria (APA, 2013). In terms of severity, studies have shown that adolescents with OSFED/AT experienced similar frequency of psychiatric comorbidities and suicidal ideations, but more distress related to eating and body concerns (e.g. Sawyer, Whitelaw, Le Grange, Yeo, & Hughes, 2016), and also were more affected by DT than their AN counter partners (Davenport, Rushford, Soon, & McDermott, 2015). The mortality rate for OSFED/PD has been found to be significantly higher compared to BN (e.g. Koch, Quadflieg, & Fichter, 2014). This research clearly indicates that adverse consequences for OSFED patients increase with severity levels (e.g. Hammerle et al., 2016), yet the DSM-5 has not established severity categories for OSFED subtypes. The DSM-5 AN BMI severity specifier is not useful for OSFED/AT, since most patients would fall into the "mild" category.

Establishing severity categories would help capture the gradients of these disorders. Future studies assessing the DSM-5 severity categories could potentially apply the BN severity index criteria of inappropriate compensatory behaviours to OSFED/PD to see whether such

behaviours can provide clinically significant information. However, it would also be interesting to assess an alternative severity indicator for this based on a DT severity distinction.

1.4 The current study

This study aimed to overcome some of the weaknesses of previous studies and fill in important gaps in the research. This was done by applying all the DSM-5 severity categories for AN, BN, BED, OSFED/AT, and OSFED/PD concurrently in the same study, and by assessing an alternative severity category based on DT, a cardinal transdiagnostic feature amongst EDs (e.g. Fairburn et al., 2003; Peñas-Lledó, *et al.*, 2015). For the first time, we also assessed AN-R and AN-BP subtypes separately, and included OSFED/AT and PD in our analyses. Specifically, using a large all-female sample, the aims of the current study were threefold: 1.) to look at the frequency of ED severity categories based on a.) the DSM-5 indices for AN, BN, BED, and OSFED/PD (for the latter, the BN criteria were applied) and b.) an alternative DT severity categorization for these ED subtypes; 2.) to examine the clinical validity and utility of a.) the DSM-5 severity categories and b.) the DT severity categories in terms of ED-related symptoms, general psychopathology, personality traits, and impulsive behaviours, and 3.) to investigate the clinical usefulness of the DT severity categorization also for OSFED/AT for the assessed variables. Based on the previous findings on the DSM-5 severity categories, and the early supporting evidence of transdiagnostic severity indicators, we predicted that DT would provide a clinically more meaningful way of classifying the different ED subtypes, than the DSM-5 severity categories.

2 METHOD

2.1. Sample

The sample comprised 2811 women with a diagnosis of an ED [428 AN-R, 313 AN-BP, 1340 BN, 329 BED, 154 OSFED/AT, and 223 OSFED/PD] presenting for either inpatient or outpatient treatment to an ED Unit in Barcelona (Spain). Patients were diagnosed according to DSM-IV-TR criteria (APA, 2000), and diagnoses were re-analysed and re-codified post hoc using DSM-5 criteria (APA, 2013). For the present analysis, from an initial sample of 2954 ED patients, the following individuals were excluded: 13 BN sub-threshold, and 11 sub-threshold BED, because the numbers were too small for meaningful comparisons. Furthermore, 119 patients with Unspecified Feeding and Eating Disorder (UFED) were excluded from the analyses because of their heterogeneous profile.

2.2 Measures

2.2.1 Sociodemographic and clinical information

Several sociodemographic indices were gathered on the ED patients. These included age, education, marital status, employment, and socioeconomic status (based on employment status, occupational status, and educational attainment, as assessed by the Hollingshead Index) (Hollingshead, 2011). Clinical information was assessed using a semi-structured face-to-face clinical interview (for further information, please refer to Fernandez-Aranda & Turon, 1998). These variables included age of onset, duration of the disorder, number of previous treatments, weekly frequency of binges, vomiting episodes, laxative use, and diuretic use. Height and

weight were also measured at intake. The BMI was calculated by dividing body weight in kilograms by the square of height in meters.

2.2.2 Body composition

Body Composition was assessed at intake using the Tanita Multi-Frequency Body Composition Analyzer MC-180MA (Tanita Corporation, Tokyo, Japan), a weighing instrument which uses bioelectrical impedance analysis for the screening of body composition. For the current study, the Tanita was used to derive the two body composition variables; the percentage of fat mass, and muscle mass.

2.2.3 Eating Disorder Pathology

The Eating Disorder Inventory (EDI-2; Garner, 1991; Spanish version; Garner, 1998) includes 91 items to assess cognitive and behavioural characteristics related to EDs: DT, body dissatisfaction, bulimia, ineffectiveness, perfectionism, interpersonal distrust, interoceptive awareness, maturity fears, asceticism, impulse regulation, and social insecurity. Each question is on a 6-point scale (ranging from "always" to "never"), rated 0-3. The score for each sub-scale is then summed. A global measure of ED severity was obtained based on the sum of all the items on the scale. Internal consistency for the EDI subscales was adequate to excellent in our sample, ranging from α=.60 for the asceticism subscale to α=.90 for body dissatisfaction (α=.85 was obtained for the DT subscale).

2.2.4 General Psychopathology

The Symptom Checklist-Revised (SCL-90-R; Derogatis, 1990; Spanish version; Derogatis, 2002) assesses a broad range of psychopathological symptoms. This test contains 90 items and helps to measure nine primary symptom dimensions: Somatization, Obsession-Compulsion,

Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. Besides this, it includes three global indices: (a) a global severity index (GSI), designed to measure overall psychological distress; (b) a positive symptom distress index (PSDI), designed to measure the intensity of symptoms; and (c) a positive symptom total (PST). The GSI can be used as a summary of the test. Derogatis (2002) validated this scale in a Spanish population and reported a mean internal consistency (Coefficient alpha) of .75. In the current study, internal consistency for the SCL-90-R scales was excellent in our sample and ranged from .76 for the Paranoid Ideation subscale to .98 for all the SCL-90-R summary scales (PST, GSI and PSDI).

2.2.5 Personality

The Temperament and Character Inventory-Revised (TCI-R; Cloninger, 1999; Spanish version; Gutiérrez-Zotes, 2004), which comprises 240 items, is structured on seven personality dimensions: four temperamental factors (novelty seeking, harm avoidance, reward dependence, and persistence), and three character dimensions (self-directedness, cooperativeness, and self-transcendence). Responses are rated on a 5-point Likert scale (definitely false, mostly or probably false, neither true nor false or about equally true and false, mostly or probably true, definitely true). Cronbach's alpha for the TCI-R in the current study sample was good to excellent, and ranged from .80 for the novelty-seeking to .90 for the persistence)

2.2.6 Impulsive behaviours

The Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental for DSM-IV Axis I Disorders (SCID-I; First, Spitzer, Gibbon, & Williams, 2002), and the SCID-

Clinical Version (First, Williams, Karg, & Spitzer, 2015) from 2015 onwards, were used to assess lifetime alcohol and drug abuse, and current tobacco use. Besides, self-harm, defined as direct and intentional self-injurious behaviours (cutting/burning /hitting/scratching/hair-pulling), which did not lead to death, and lifetime suicide attempts (with the question "Have you ever attempted suicide?"), was assessed by a semi-structured clinical interview (Fernández-Aranda & Turon, 1998).

2.3 Procedure

All ED patients were first assessed during a structured face-to-face interview [for further information, please refer to Fernandez-Aranda & Turon (1998)]. During the interview, the clinical and impulsive behaviours data were retrieved based on the SCID-I (First, *et al.*, 2002), and from 2015 onwards the SCID-Clinical Version (First, *et al.*, 2015) criteria. ED diagnoses were made using this information. All interviews were carried out by experienced psychologists. Further data were obtained from the ED patients using the above-mentioned self-report questionnaires. Height and weight were assessed at intake using a measurement tape and a scale. Furthermore, body fat and mass were measured at the same time using the Tanita device. Confidentiality was maintained throughout the whole assessment, and patients were allowed to withdraw from the study at any time. The Ethics Committee of our hospital institution approved the current study, and informed consent was obtained from all patients.

2.4 Categorizing eating disorder patients based on severity

2.4.1 DSM-5 Severity index categories

For each ED subtypes we divided patients into groups based on the DSM-5 severity criteria. For AN, where the severity specifiers are based on BMI, group designations were made

following an in-person assessment of height and weight at the time of admission to our ED unit. According to DSM-5 (APA, 2013), we used the following severity categories for AN: "mild": ≥17.0 kg/m^2, "moderate": 16–16.99 kg/m^2, "severe": 15–15.99 kg/m^2 and "extreme": <15 kg/m^2. For BN, four severity groups based on the weekly frequency of inappropriate compensatory behaviours (vomits, laxative, and diuretic use) were defined (APA, 2013) as follows: "mild" (1–3 episodes/week), "moderate" (4–7 episodes/week), "severe" (8–13 episodes/week) and "extreme" (>14 episodes/week). For BED, the same categorization was used, with the difference that BED was only assessed based on binge eating, and not purging episodes. Given that the DSM-5 has not stipulated a severity index for the OSFED types, and OSFED/AT and PD currently fall into this ED classifications, we decided to use the AN BMI threshold for OSFED/AT, and the BN-purging thresholds for OSFED/PD.

2.4.2 EDI-2 Drive for thinness categories

We used an alternative classification system to the DSM-5 severity index based on the EDI-DT scale. The DT subscale assesses excessive concern with dieting, preoccupation with weight, and fear of weight gain. Garner and colleagues (Garner, Olmsted, Polivy, & Garfinkel, 1984) recommended a cut-off score of > 14 for the EDI-DT subscale for screening purposes, which subsequently has been applied in various other studies (Penas-Lledo, *et al.*, 2009). This was the cut-off score that was used in the current study to divide ED patients into "low-DT" and "high-DT" scoring individuals.

2.5 Statistical analysis

The statistical analysis was done with Stata16 (StataCorp, 2019) for windows. The comparison between the groups in the study (defined by the ED severity group) was based on chi-square

tests (χ^2) for categorical variables (such as the impulsive behaviours, self-harm and suicide attempts, and the consumption of substances), and on analysis of variance (ANOVA) for the quantitative measures (age, onset age of the ED, duration of the ED, binges and purging episodes, BMI, % of fat mass, % of muscle mass and the raw scores in the questionnaires). The comparison for the discriminative capacity of the classifications obtained for the DSM-5 criteria and the EDI-2 DT scale was based on the estimation of effect size measures: a) partial eta-squared coefficient (η^2) was calculated for quantitative measures, through ANOVA procedures (values of 0.06, 0.10, and 0.25 were interpreted as low-poor, moderate-medium, and large-high effect size) (Levine & Hullett, 2002); and b) Cramer's-V coefficient was calculated for categorical measure (values of 0.06, 0.15, and 0.30 were interpreted as low-poor, moderate-medium, and large-high effect size) (Cohen, 1988). In this study, discriminative capacity was evaluated using both the results of the significant tests (p-value), and the effect size estimates. It must be considered that p-values are strongly related to the sample size. Small samples are underpowered to identify relationships between the variables, giving non-significant results, even in the case of high differences or relevant effect sizes. Large samples are overpowered, and significance tests usually tend to achieve very small p-values ($p<.05$), even in the case of poor differences between the groups, or irrelevant effect sizes. We therefore decided to focus on reporting statistically and clinically meaningful findings (moderate-medium and/or large-high effect sizes) in the results section, with all non-significant findings reported in the Tables. In addition, the Finner's Correction test was used to control the increase in the Type-I error due to multiple statistical analyses. This is a family-wise error rate stepwise

procedure which has been shown to be a more powerful test than the classical Bonferroni correction (Finner, 1993).

3 RESULTS

3.1 Demographic

The first block of ***Table 1*** includes the sociodemographic description for the whole sample (*n*=2,811). Most ED patients were single (74.6%), with primary (43.2%) or secondary (41.3%) studies levels, in mean-low (40.8%) to low (50.4%) social indices, and unemployed (60.1%). Mean age was 27.6 yrs-old [Standard Deviation (SD)=9.2]. The other columns of Table 1 display the frequency distribution for the sociodemographic features stratified by the diagnostic subtypes.

--- Insert Table 1 ---

3.2 Frequency distribution of the various severity categories

The bar-charts included in ***Figure 1*** contain the numbers placed in each severity group according to the DSM-5 and the EDI-2 DT scales for each diagnostic subtype. Considering the DSM-5 criteria, the more prevalent categories are “mild” and “moderate” (these both groups included 63.7% of AN-R patients, 78.9% of AN-BP, 73.1% of BN, 86.6% of BED, 100% of OSFED/AT, and 79.4% of OSFED/PD). For the EDI-2 DT classification, the proportion of patients in the low score screening group was 85% for AN-R, 72.2% for AN-BP, 12.2% for BN, 54.7% for BED, 22.7% for OSFED/AT, and 18.4% for OSFED/PD.

--- Insert Figure 1 ---

3.3. Comparison of the classifications for the severity categories

Table 2 shows the discriminative capacity for defining the severity groups based on the DSM-5 and the EDI-2 DT criteria. Table S1 (supplementary material) contains the complete results obtained in the ANOVA and the chi-square procedures, including the frequency distribution within each group (mean and SD for the quantitative measures, and count and proportions for categorical variables), the significance (*p*-value), and effect size measures (partial η^2 and Cramer's-V coefficients).

Within AN-R subtype, the DSM-5 classification achieved an adequate discriminative capacity for the percentage of fat mass, self-harming behaviours, and suicide attempts, and lifetime alcohol and drugs abuse. In terms of the EDI-DT distinction, discriminative capacity for the AN-R was found for some of the EDI-2 (body dissatisfaction, ineffectiveness, asceticism, and social insecurity), and SCL-90-R scales (interpersonal sensitivity, depression, PST, GSI, and PSDI). Regarding the impulsive behaviours, significant and meaningful differentiations were found for current tobacco use, and lifetime alcohol and drug abuse.

AN-BP provided statistically significant findings, with moderate to high effect sizes only for the % fat mass for the DSM-5 differentiation. The differentiation capability of EDI-DT was significantly greater and provided statistically significant findings with moderate to high effect sizes for various EDI-2 (body dissatisfaction, bulimia, interoceptive awareness, ineffectiveness, and asceticism) and SCL-90-R (obsessive-compulsive, anxiety, paranoid, psychotic symptoms, PST, GSI and PSDI) subscales. Finally, for the AN-BP subtype, the EDI-DT differentiation also provided a significant discriminative finding for the TCI-R self-defectiveness scale and various impulsive behaviours (self-harming, current tobacco use, and lifetime alcohol and drug abuse).

For the BN patients, the DSM-5 severity index criteria achieved discriminative capability for weekly binge-eating episodes, and a range of impulsive behaviours, including self-harm, suicide attempts, and lifetime alcohol and drug abuse. The EDI-2 DT classification achieved discriminative capability for two EDI-2 subscales (body dissatisfaction and asceticism), as several impulsive behaviours (self-harming behaviours, current tobacco use, and lifetime alcohol and drug use).

As regards to BED, the DSM-5 severity index criteria achieved discriminative capability for various impulsive behaviours (self-harming, lifetime suicide attempts, and alcohol abuse). The EDI-2 DT classification achieved discriminative capability for two EDI-2 subscales (body dissatisfaction and interoceptive awareness), for the global psychopathological distress scale (SCL-90R GSI), as well as lifetime alcohol and drug abuse.

Regarding OSFED/AT, all the patients fell into the "mild" severity group and therefore DSM-5 severity groups were not obtained. On the other hand, the EDI-2 DT classification achieved discriminative capability for the following EDI-2 subscales (body dissatisfaction, interoceptive awareness, bulimia, and asceticism) and the impulsive behaviours, lifetime suicide attempts, self-harming behaviours, and current tobacco use.

Finally, considering the OSFED/PD diagnosis, the DSM-5 criteria achieved no discriminative capacity for any of the measures assessed, while the EDI-2 DT classification achieved discriminative capacity on the EDI-2 subscales body dissatisfaction and, asceticism.

--- Insert Table 2 ---

4 DISCUSSION

This study evaluated the clinical usefulness of the DSM-5 severity indicators for all ED subtypes (AN, BN and BED) concurrently in the same study in a female ED treatment-seeking sample, and for the first time also applied the severity indices of BN to OSFED/PD. Furthermore, we were interested to assess whether an alternative severity classification approach based on DT, a transdiagnostic feature of EDs (Fairburn et al., 2003), would provide better utility than the DSM-5 severity categories.

Our first main finding was related to the frequency distribution of the DSM-5 and DT categories for the different ED subtypes. We found that the DSM-5 severity indicator classification system placed all ED patients into the "mild" or "moderate" groups. This raises questions about its validity in identifying "severe" and "extreme" patients. One would expect a good proportion of severe patients to appear in these samples. On the other hand, the DT severity indicator classification system appeared to discriminate more effectively. It placed a significantly larger proportion of AN (AN-R and AN-BP) patients in the "mild" DT group. Conversely, a higher proportion of BN, OSFED/AT and PD patients were placed in the "severe" DT group. For BED, this distribution seemed more balanced.

A second major finding concerned the relative power of each classification system to differentiate severity. We found that both severity classifications were equally supported for the impulsive behaviours. However, for the ED and general psychopathology measures, the DT differentiation was more robust than the DSM-5 severity categories. Specifically, the DT findings were most pronounced for the AN-BP patients, followed by AN-R. Significant differences with meaningful effect sizes were minimal for the other ED subtypes. In terms of personality, no further significant findings were obtained for either of the two severity

classification systems. A minor exception was that higher self-directedness scores were found in the "low" DT group in the AN-BP sample, compared to the "high" DT group. Each of the above findings will be discussed in more detail in the subsequent sections.

4.1 Distribution of the DSM-5 and DT severity indices

In our study, the DSM-5 severity classification system placed most of the ED patients (> 60%) in the "mild" or "moderate" categories. Similar distributions have been found in previous community samples for BN (Grilo, *et al.*, 2015c; Smink, *et al.*, 2014), and BED (Grilo, *et al.*, 2015b). This is to be expected, given the lower severity of ED symptoms in such a sample. However, one might expect a different frequency distribution in a clinical sample.

Nevertheless, our DSM-5 severity frequency results agree with previous studies that found that more than 50 % of their AN (Dakanalis, Timko, *et al.*, 2018; Machado, *et al.*, 2017; Smith, *et al.*, 2017), BN (Jenkins, *et al.*, 2016), and BED (Dakanalis, Zanetti, *et al.*, 2018; Gianini, *et al.*, 2017; Grilo, *et al.*, 2015a; Lydecker, *et al.*, 2020; Smith, *et al.*, 2017) patients were in the "mild" or "moderate" categories.

These DSM-5 discrepant findings may be either due to the inability of the DSM-5 to capture severity appropriately, or because the DSM-5 severity categorization could have been confounded by the level of care. For instance, in the study by Gianni et al (2017), the AN sample was from an inpatient unit, whereas our AN sample comprised a mixture of inpatients and outpatients.

In regard to the DT severity indicator distinctions, we found that for AN-R and AN-BP, most patients (>70%) were classified into the "low"- DT group, but the majority (>75%) of the BN, OSFED/AT and PD patients were grouped into the "high" DT category. For BED, more

than 50% also scored low on DT. However, in this group, the distribution was more balanced (55% "low" DT versus 45% "high" DT).

It somehow seems paradoxical that such a high proportion of the AN group do not have "high" DT. Nonetheless, our findings are in line with other studies that have also revealed lower DT scores in AN samples (e.g. Abbate-Daga, *et al.*, 2007; Penas-Lledo, *et al.*, 2009; Ramacciotti, *et al.*, 2002). The "low" DT scores in our AN sample could be attributable to the fact that this group of patients may have been more likely to minimize, or even deny their DT and fat phobia symptoms. That could be due to ego-syntonic functioning in these patients, so that these individuals are not worried about their weight, because they are already thin (Rieger, Touyz, Swain, & Beumont, 2001).

Our finding, that BN patients were represented in the "high" DT group, whereas BED was represented more evenly across the two severity DT subtypes, agrees with a previous study (Penas-Lledo, *et al.*, 2009). Even though our overall findings are mainly in line with the findings of previous studies (e.g. Abbate-Daga, *et al.*, 2007; Penas-Lledo, *et al.*, 2009), it needs to be acknowledged that our cut-off score of >14 on the EDI-DT is significantly higher than that used in other studies. Ramacciotti, et al. (2002) used a cut-off score of >7 on the same scale. This means that our study used a higher threshold to be classified into the high-DT group.

4.2 The distinctiveness of the DSM-5 severity categories

Our analysis of the application of the DSM-5 severity classification system identified very limited significant findings. Except for % of body fat for AN, a proxy for BMI, and impulsive behaviours, our findings revealed no significant differences between the DSM-5 severity categories for ED symptoms, general psychopathology, and personality for all ED subtypes.

This was not a surprise, as it agrees with other treatment-seeking ED studies assessing the usefulness of the DSM-5 severity indices. These studies too found only minimal or no support for cross-sectional differences on ED symptoms, and other impairment related variables for AN (e.g. Dalle Grave, *et al.*, 2018; Gianini, *et al.*, 2017; Machado, *et al.*, 2017; Reas & Rø, 2017; Zayas, *et al.*, 2018). Other studies assessing BN (e.g. Grilo, *et al.*, 2015c; Jenkins, *et al.*, 2016; Gianini, *et al.*, 2017; Nakai, *et al.*, 2017), and BED (e.g. Grilo, *et al.*, 2015a; Nakai, *et al.*, 2017) also only found a few statistically significant differences in ED symptomatology and associated psychopathology. The effect sizes for these differences were generally small.

We were able to identify significant differences in impulsive behaviours across the severity categories for AN-R, BN, and BED, but not AN-BP. In the case of OSFED/PD, differences were found for self-harming behaviours, suicide attempts, and lifetime alcohol and drug use. Interestingly, a reversed effect was observed for AN, but not BN and BED. We found that a higher BMI, indicating a low severity level, was associated with more impulsive behaviours. One possible interpretation is that the AN patients with a higher BMI are more similar to relatively higher weights in BN and BED, but further research is required to assess this.

We examined lifetime substance abuse in relation to DSM-5 severity classification. To our knowledge, there are only very few studies that have done this, for BN (e.g. Dakanalis, Bartoli, *et al.*, 2017; Dakanalis, Clerici, *et al.*, 2017), and for BED (e.g. Dakanalis, Colmegna, *et al.*, 2018). Similar to our findings, these studies also found an increase in lifetime substance abuse across the severity groups for BN and BED. For AN-BP, our study found no significant differences across the severity groups in lifetime substance use. This partly agrees with a

previous study (Dakanalis, Timko, *et al.*, 2018) that found no significant differences across the AN severity groups in lifetime substance use.

Our findings also agree with the broader impulsivity literature in EDs. These studies have shown that impulsive behaviours are linked to ED symptom severity (e.g. Mallorqui-Bague, *et al.*, 2020; Todisco, *et al.*, 2020; Waxman, 2009), and a poorer prognosis (e.g. Aguera, *et al.*, 2017; Fischer, Peterson, & McCarthy, 2013). Our conclusion is therefore that, in the absence of sufficient and robust evidence, caution should be exercised regarding conclusive statements suggestive of the validity of the DSM-5 severity specifiers.

4.3 The distinctiveness of the EDI-DT severity groups

Our analyses indicate that "low" DT patients, irrespective of their BMI, have less severe ED symptoms than "high" DT scoring patients. We found that the "high" DT group scored generally higher than the "low" DT individuals on several EDI-2 scales for all ED subtypes. They also scored high for impulsive behaviours on all ED subtypes, except for OSFED/PD.

The results were most significant for AN-BP, followed by AN-R. These two groups also showed some significant findings for general psychopathology (i.e. anxiety, depression). The differences for BED, BN, OSFED/AT, and PD for ED symptoms were less significant and there were hardly any significant differences in general psychopathology. This is similar to previous studies that have found higher EDI-2 and depression scores in a "high" compared to a "low" DT group of AN (e.g. Abbate-Daga, *et al.*, 2007), and OSFED/AT (Davenport, *et al.*, 2015) patients.

Our findings that the results for the DT severity distinction were most pronounced for the AN-BP patients, agrees, with a previous study that indicated that restricting is a non-weight-

based indicator of severity in individuals with AN-BP (e.g. De Young, *et al.*, 2013). This finding might be related to the changing nature of EDs, as shown by an increase of culture-bound and bulimic forms of EDs. More broadly, our findings are also in line with previous studies that have shown that AN-BP patients tend to have more psychopathology, more co-occurring psychiatric symptoms, and a worse outcome than AN-R (e.g. Peat, Mitchell, Hoek, & Wonderlich, 2009).

For the personality measure, the only significant finding was higher self-directedness scores in the AN-BP subtype of the "low DT" (vs "high DT") severity category. All other findings for DSM-5 and DT classifications were non-significant. This finding agrees with another study (Abbate-Daga, *et al.*, 2007) that looked at the same DT distinction in AN patients. Our findings are also in concordance with previous studies that have shown that ED patients with high scores on the TCI-R self-directedness scale responded better to treatment, and were less likely to drop out from treatment (e.g. Dalle Grave, *et al.*, 2007). These generally overall null findings for personality are surprising. Maladaptive personality traits (high harm avoidance, novelty seeking, persistence, and low levels of self-directedness) have commonly been related to ED severity (e.g. Cassin & von Ranson, 2005), prognosis, and the number of hospitalizations (e.g. Westen & Harnden-Fischer, 2001).

The finding that the DT distinction was less pronounced for the ED subtypes with bulimic symptoms with a normal weight (BN, BED, and OSFED/PD) is intriguing. It might be related to the fact that, for these ED subtypes, negative affect could have been an important additional severity indicator not considered in the current study. This observation is in line with Stice's dual pathway model for bulimic symptoms (Puccio, Fuller-Tyszkiewicz, Buck, & Krug,

2019; Stice, Shaw, & Nemeroff, 1998), which specifies dietary restraint, a proxy for DT, and negative affect as key variables. It is also in line with various taxometric studies that have continuously revealed a pure ‘‘dietary’’, and a mixed ‘‘dietary-depressive’’, subtype in BN (Chen & Le Grange, 2007; Grilo, 2004), and BED (Grilo, Masheb, & Wilson, 2001). This differentiation is also supported by a recent network analysis study (Forbush, Siew, & Vitevitch, 2016). This was a study of ED symptoms, that found dietary restraint and restrictive eating was of central importance, even to the extent that when these two variables were removed from the network, the ED symptoms resulted in fragmented smaller disjointed elements.

4.4 Theoretical and clinical implications

Our current results may have some implications for questioning current DSM-5 (APA, 2013) criteria. First, intense fear of gaining weight or of becoming fat, which is currently outlined as criterion B for AN in the DSM-5, may potentially not apply to a significant proportion of AN patients that present with “mild" DT.

Second, the differentiation between AN–R and AN–BP may not be necessary. AN–R and AN–BP were distributed across the two DT subtypes (with both scoring generally low). The most significant findings for the DT distinctiveness analyses were found for these two AN subtypes. These findings of the study agree with prospective research that suggests that this differentiation might not be necessary (Eddy, *et al.*, 2008).

Third, AN–BP may be better regarded as an advanced phase of the AN syndrome. The distinctiveness analyses for the DT severity categories were most evident in AN–BP. However,

further longitudinal research focusing on the DT severity distinctions, is needed to be able to confirm this cross-over hypothesis.

Fourth, the current findings undermine the notion that BMI or the frequency of compensatory behaviours alone are enough to meaningfully determine ED. Severity dimensions based on cognitive domains, such as DT yield, stronger, more clinically useful information, than the DSM-5 severity indices.

Future approaches to assess severity in EDs would, therefore, benefit from comprising a multilayered approach to exemplify illness severity. This could comprise amongst others, a range of affective, social, and biological domains (e.g. Keel, Crosby, Hildebrandt, Haedt-Matt, & Gravener, 2013), with the inclusion also of objective measures such as hormonal levels, blood, biochemical, and neurocognitive profiles. Finally, an important addition to this could be continued examination of transdiagnostic severity indicators, such as self-esteem, interpersonal problems, perfectionism, and mood intolerance, which are all outlined in the transdiagnostic theory for EDs (Fairburn *et al.,* 2003). Future studies would also benefit from assessing whether any of the proposed domains and transdiagnostic factors increase severity through an interactive or multiplicative effect.

Fifth, special consideration needs to be given with regard to how severity can be best assessed for OSFED patients. In the current study, only limited support was provided for the DSM-5 severity index for PD, and the DT differentiation for OSFED/AT, and PD. This suggests that assessing further severity indicators for these ED subtypes would be worthwhile. For OSFED/AT for instance, it would be important to include the rate of recent pre-admission weight loss. This is important as rapid weight loss contributes to medical instability

(Davenport, *et al.*, 2015; Sawyer, *et al.*, 2016). For OSFED/PD, it would be imperative to investigate the extent to which loss of control over eating and subjective binge eating episodes, both of which have been related to PD (Keel, 2019), affect purging severity.

This study also has a number of implications for clinicians. The results suggest that clinicians should be accustomed to look for the full variety of ED symptoms displayed by their patients, irrespective of their specific DSM-5 ED diagnosis. For instance, our findings suggest that rather than focusing on a single criterion, such as BMI in AN-BP patients, the aggregated occurrence of various features (low BMI, DT, bulimic behaviours) would need to be taken into consideration to be able to properly assess illness severity. The same principle might apply to the other ED subtypes. DSM-5 does provide clinicians with the flexibility to alter the severity classification of a patient based on factors such as the intensity of symptoms, functional impairment, and the need for supervision. If appropriately used, this might improve the utility of the DSM-5 severity indices. In future studies, it would be interesting to see how clinicians take advantage of this recommendation, and how potential, clinician-judged alterations, to these categorizations could be incorporated in a meaningful way into research.

4.5. Limitations and strengths

The current study is not without limitations, that need to be acknowledged. Firstly, our cross-sectional study design precludes examination of the predictive significance of the DSM-5 and DT severity classifications in terms of prognostic outcomes, treatment-efficacy, or cross-over movements between ED diagnoses. Secondly, our findings are not generalizable to non-treatment seeking individuals and males with EDs. Thirdly, the EDI-DT scale, which was used to differentiate the ED patients into the “low/high” DT groups, correlated significantly with the

other EDI subscales (r ranging from .17 for interpersonal distrust to .55 for asceticism). This might partially account for the differences observed for the other EDI subscales based on the DT distinction analyses. Fourthly, a number of our findings are based on self-reported data where objective data on medical conditions were not available. However, ED diagnosis, ED symptoms, and impulsive behaviours were ascertained through a semi-structured interview. Fifthly, the severity level of the AN-BP sample was assessed exclusively based on BMI and not binge-purging symptomatology. Similarly, BN was assessed based on inappropriate purging behaviours. Excessive exercise and/or "severe" dietary restraint were not assessed. Sixthly, even though our sample size was large, it needs to be acknowledged that the "severe" and "extreme" groups for some of the assessed impulsive behaviours, comprised low numbers. This limited the possibility of detecting significant differences between groups. Despite these limitations, the study has some strengths.

Conversely, our study also included various strengths. Firstly, our study allowed for a replication of prior findings of the DSM-5 severity indices and categories in a new ED sample comprising all the official ED subtypes, as well as OSFED/AT and PD. Secondly, we also assessed a novel integration of a transdiagnostic severity indicator based on DT. Thirdly, only significant findings with effect sizes of a moderate to large effect size were included in our results. This allowed us to understand the robustness in our findings.

4.6. Conclusions

In conclusion, our findings add to the increasing evidence indicating that the DSM-5 severity indices for the different ED subtypes provide only limited clinical utility in differentiating the distinct ED subtypes in terms of ED symptomatology, general psychopathology, and

personality. Our findings also provide initial support for an alternative transdiagnostic DT severity category that may be more clinically useful than the DSM-5 severity Indices for EDs. Improved measures as suggested by our findings might help, with prognostic information, and support clinicians in tracking patients' progress based on a range of ED severity indicators, and not just diagnosis alone. Future research is needed to determine the DT-based categories in terms of their relevance for theory, therapy, and for how they could be considered for later diagnostic systems.

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REFERENCES

Abbate-Daga, G., Pierò, A., Gramaglia, C., Gandione, M., & Fassino, S. (2007). An attempt to understand the paradox of anorexia nervosa without drive for thinness. *Psychiatry Research, 149*(1-3), 215-221.

Aguera, Z., Sanchez, I., Granero, R., Riesco, N., Steward, T., Martin-Romera, V., et al. (2017). Short-Term Treatment Outcomes and Dropout Risk in Men and Women with Eating Disorders. *European Eating Disorders Review, 25*(4), 293-301.

American Psychiatric Association (APA). (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). Washington, DC.

American Psychiatric Association (APA). (2000). *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.). Washington, DC.

Cassin, S. E., & von Ranson, K. M. (2005). Personality and eating disorders: a decade in review. *Clinical psychology Review, 25*(7), 895-916.

Chen, E. Y., & Le Grange, D. (2007). Subtyping adolescents with bulimia nervosa. *Behaviour Research and Therapy, 45*(12), 2813-2820.

Chernyak, Y., & Lowe, M. R. (2010). Motivations for dieting: Drive for thinness is different from drive for objective thinness. *Journal of Abnormal Psychology, 119*(2), 276.

Cloninger, C. R. (1999). *The Temperament and Character Inventory–Revised.* St Louis: MO: Center for Psychobiology of Personality, Washington University.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences.* Lawrence Earlbaum Associates, 2. Hilsdale. NJ.

Dakanalis, A., Bartoli, F., Caslini, M., Crocamo, C., Zanetti, M. A., Riva, G., et al. (2017). Validity and clinical utility of the DSM-5 severity specifier for bulimia nervosa: results from a multisite sample of patients who received evidence-based treatment. *European Archives of Psychiatry and Clinical Neuroscience, 267*(8), 823-829.

Dakanalis, A., Clerici, M., Riva, G., & Carrà, G. (2017). Testing the DSM-5 severity indicator for bulimia nervosa in a treatment-seeking sample. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity, 22*(1), 161-167.

Dakanalis, A., Colmegna, F., Zanetti, M. A., Di Giacomo, E., Riva, G., & Clerici, M. (2018). Evaluation of the DSM-5 severity specifier for bulimia nervosa in treatment-seeking youth. *Child Psychiatry & Human Development, 49*(1), 137-145.

Dakanalis, A., Riva, G., Serino, S., Colmegna, F., & Clerici, M. (2017). Classifying adults with binge eating disorder based on severity levels. *European Eating Disorders Review, 25*(4), 268-274.

Dakanalis, A., Timko, C. A., Colmegna, F., Riva, G., & Clerici, M. (2018). Evaluation of the DSM-5 severity ratings for anorexia nervosa in a clinical sample. *Psychiatry Research, 262*, 124-128.

Dakanalis, A., Zanetti, M. A., Colmegna, F., Riva, G., & Clerici, M. (2018). Classifying binge eating-disordered adolescents based on severity levels. *Journal of Adolescence, 62*, 47-54.

Dalle Grave, R., Calugi, S., Brambilla, F., Abbate-Daga, G., Fassino, S., & Marchesini, G. (2007). The effect of inpatient cognitive-behavioral therapy for eating disorders on temperament and character. *Behaviour Research and Therapy, 45*(6), 1335-1344.

Dalle Grave, R., Sartirana, M., El Ghoch, M., & Calugi, S. (2018). DSM-5 severity specifiers for anorexia nervosa and treatment outcomes in adult females. *Eating Behaviors, 31*, 18-23.

Davenport, E., Rushford, N., Soon, S., & McDermott, C. (2015). Dysfunctional metacognition and drive for thinness in typical and atypical anorexia nervosa. *Journal of Eating Disorders, 3*(1), 24.

De Young, K. P., Lavender, J. M., Steffen, K., Wonderlich, S. A., Engel, S. G., Mitchell, J. E., et al. (2013). Restrictive eating behaviors are a nonweight-based marker of severity in anorexia nervosa. *International Journal of Eating Disorders, 46*(8), 849-854.

De Zwaan, M., Mitchell, J. E., Seim, H. C., Specker, S. M., Pyle, R. L., Raymond, N. C., et al. (1994). Eating related and general psychopathology in obese females with binge eating disorder. *International Journal of Eating Disorders, 15*(1), 43-52.

Derogatis, L. (2002). *SCL-90-R Symptom Checklist 90 Revised* (Manual). TEA Ediciones. Madrid.

Derogatis, L. R. (1990). *SCL-90-R. Administration, scoring and procedures manual.* Clinical Psychometric Research: Baltimore MD.

Eddy, K. T., Dorer, D. J., Franko, D. L., Tahilani, K., Thompson-Brenner, H., & Herzog, D. B. (2008). Diagnostic crossover in anorexia nervosa and bulimia nervosa: implications for DSM-V. *American Journal of Psychiatry, 165*(2), 245-250.

Fairburn, C. G., Cooper, Z., & Shafran, R. (2003). Cognitive behaviour therapy for eating disorders: a "transdiagnostic" theory and treatment. *Behaviour Research and Therapy, 41*(5), 509-528.

Fernández-Aranda, F., & Turón, V. (1998). *Trastornos alimentarios. Guia basica de tratamiento en anorexia y bulimia. (Eating Disorders. Treatment guidelines for anorexia and bulimia)* Masson: Barcelona.

Finner, H. (1993). On a monotonicity problem in step-down multiple test procedures. *Journal of the American Statistical Association, 88 (423),* 920-923

First, M., Williams, J., Karg, R., & Spitzer, R. (2015). *Structured clinical interview for DSM-5 - Research version (SCID-5 for DSM-5, research version; SCID-5-RV).* American Psychiatric Association: Arlington, VA.

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. (2002). *Structured clinical interview for DSM-IV-TR axis I disorders.* American Psychiatric Association: New York, NY.

Fischer, S., Peterson, C. M., & McCarthy, D. (2013). A prospective test of the influence of negative urgency and expectancies on binge eating and purging. *Psychology of Addictive Behaviors, 27*(1), 294.

Forbush, K. T., Siew, C. S., & Vitevitch, M. S. (2016). Application of network analysis to identify interactive systems of eating disorder psychopathology. *Psychological Medicine, 46*(12), 2667-2677.

Garner, D. (1998). *Inventario de Trastornos de la Conducta Alimentaria [Eating Disorder Inventory (EDI-2)]*. Masson: Madrid.

Garner, D. M. (1991). *Eating Disorder Inventory (EDI-2)*: Psychological Assessment Resources Odessa: Florida.

Garner, D. M., Olmsted, M. P., Polivy, J., & Garfinkel, P. E. (1984). Comparison between weight-preoccupied women and anorexia nervosa. *Psychosomatic Medicine*; *46*(3), 255–266.

Gianini, L., Roberto, C. A., Attia, E., Walsh, B. T., Thomas, J. J., Eddy, K. T., et al. (2017). Mild, moderate, meaningful? Examining the psychological and functioning correlates of DSM-5 eating disorder severity specifiers. *International Journal of Eating Disorders, 50*(8), 906-916.

Grilo, C. M. (2004). Subtyping female adolescent psychiatric inpatients with features of eating disorders along dietary restraint and negative affect dimensions. *Behaviour Research and Therapy, 42*(1), 67-78.

Grilo, C. M., Ivezaj, V., & White, M. A. (2015a). Evaluation of the DSM-5 severity indicator for binge eating disorder in a clinical sample. *Behaviour Research and Therapy, 71*, 110-114.

Grilo, C. M., Ivezaj, V., & White, M. A. (2015b). Evaluation of the DSM-5 severity indicator for binge eating disorder in a community sample. *Behaviour Research and Therapy, 66*, 72-76.

Grilo, C. M., Ivezaj, V., & White, M. A. (2015c). Evaluation of the DSM-5 severity indicator for bulimia nervosa. *Behaviour Research and Therapy, 67*, 41-44.

Grilo, C. M., Masheb, R. M., & Wilson, G. T. (2001). Subtyping binge eating disorder. *Journal of Consulting and Clinical Psychology, 69*(6), 1066-1072.

Gutiérrez-Zotes, J. A., Bayón, C., Montserrat, C., Valero, J., Labad, A., & Cloninger, C. R. . (2004). Temperament and Character Inventory-Revised (TCI-R). Standardization and normative data in a general population sample. *Actas Españolas de Psiquiatria, 32(1),* 8-15.

Hammerle, F., Huss, M., Ernst, V., & Bürger, A. (2016). Thinking dimensional: prevalence of DSM-5 early adolescent full syndrome, partial and subthreshold eating disorders in a cross-sectional survey in German schools. *BMJ Open, 6*(5), e010843.

Hollingshead, A. (2011). Four factor index of social status. *Yale Journal of Sociology, 8*, 21-51.

Jenkins, P. E., Luck, A., Cardy, J., & Staniford, J. (2016). How useful is the DSM-5 severity indicator in bulimia nervosa? A clinical study including a measure of impairment. *Psychiatry Research, 246*, 366-369.

Keel, P. K. (2019). Purging disorder: Recent advances and future challenges. *Current Opinions in Psychiatry, 32*(6), 518-524.

Keel, P. K., Crosby, R. D., Hildebrandt, T. B., Haedt-Matt, A. A., & Gravener, J. A. (2013). Evaluating new severity dimensions in the DSM-5 for bulimic syndromes using mixture modeling. *Int ernational Journal of Eating Disorders, 46*(2), 108-118.

Koch, S., Quadflieg, N., & Fichter, M. (2014). Purging disorder: a pathway to death? A review of 11 cases. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity, 19*(1), 21-29.

Kuehnel, R. H., & Wadden, T. A. (1994). Binge eating disorder, weight cycling, and psychopathology. *International Journal of Eating Disorders, 15*(4), 321-329.

Levine, T. R., & Hullett, C. R. (2002). Eta squared, partial eta squared, and misreporting of effect size in communication research. *Human Communication Research, 28*(4), 612-625.

Lydecker, J. A., Ivezaj, V., & Grilo, C. M. (2020). Testing the validity and clinical utility of the severity specifiers for binge-eating disorder for predicting treatment outcomes. *Journal of Consulting and Clinical Psychology, 88*(2), 172.

Machado, P. P., Grilo, C. M., & Crosby, R. D. (2017). Evaluation of the DSM-5 severity indicator for anorexia nervosa. *European Eating Disorders Review, 25*(3), 221-223.

Mallorqui-Bague, N., Testa, G., Lozano-Madrid, M., Vintro-Alcaraz, C., Sanchez, I., Riesco, N., et al. (2020). Emotional and non-emotional facets of impulsivity in eating disorders: From anorexia nervosa to bulimic spectrum disorders. *European Eating Disorders Review*.

Mustelin, L., Lehtokari, V. L., & Keski-Rahkonen, A. (2016). Other specified and unspecified feeding or eating disorders among women in the community. *International Journal of Eating Disorders, 49*(11), 1010-1017.

Nakai, Y., Nin, K., Noma, S. i., Teramukai, S., Fujikawa, K., & Wonderlich, S. A. (2017). The impact of DSM-5 on the diagnosis and severity indicator of eating disorders in a treatment-seeking sample. *International Journal of Eating Disorders, 50*(11), 1247-1254.

Peat, C., Mitchell, J. E., Hoek, H. W., & Wonderlich, S. A. (2009). Validity and utility of subtyping anorexia nervosa. *International Journal of Eating Disorders, 42*(7), 590-594.

Penas-Lledo, E., Fernandez-Aranda, F., Jimenez-Murcia, S., Granero, R., Penelo, E., Soto, A., et al. (2009). Subtyping eating disordered patients along drive for thinness and depression. *Behaviour Research and Therapy, 47*(6), 513-519.

Peñas-Lledó, E., Bulik, C. M., Lichtenstein, P., Larsson, H., & Baker, J. H. (2015). Risk for self-reported anorexia or bulimia nervosa based on drive for thinness and negative affect clusters/dimensions during adolescence: A three-year prospective study of the TC h AD cohort. *International Journal of Eating Disorders, 48*(6), 692-699.

Puccio, F., Fuller-Tyszkiewicz, M., Buck, K., & Krug, I. (2019). Negative urgency and the dual pathway model of bulimic symptoms: A longitudinal analysis. *European Eating Disorders Review, 27*(1), 34-48.

Ramacciotti, C. E., Dell'Osso, L., Paoli, R. A., Ciapparelli, A., Coli, E., Kaplan, A. S., et al. (2002). Characteristics of eating disorder patients without a drive for thinness. *International Journal of Eating Disorders, 32*(2), 206-212.

Reas, D. L., & Rø, Ø. (2017). Investigating the DSM-5 severity specifiers based on thinness for adults with anorexia nervosa. *International Journal of Eating Disorders, 50*(8), 990-994.

Regier, D. A., Kuhl, E. A., & Kupfer, D. J. (2013). The DSM-5: Classification and criteria changes. *World Psychiatry, 12*(2), 92-98.

Rieger, E., Touyz, S. W., Swain, T., & Beumont, P. J. (2001). Cross-cultural research on anorexia nervosa: Assumptions regarding the role of body weight. *International Journal of Eating Disorders, 29*(2), 205-215.

Riesco, N., Agüera, Z., Granero, R., Jiménez-Murcia, S., Menchón, J. M., & Fernández-Aranda, F. (2018). Other Specified Feeding or Eating Disorders (OSFED): Clinical heterogeneity and cognitive-behavioral therapy outcome. *European Psychiatry, 54*, 109-116.

Sawyer, S. M., Whitelaw, M., Le Grange, D., Yeo, M., & Hughes, E. K. (2016). Physical and psychological morbidity in adolescents with atypical anorexia nervosa. *Pediatrics, 137*(4), e20154080.

Smink, F. R., van Hoeken, D., Oldehinkel, A. J., & Hoek, H. W. (2014). Prevalence and severity of DSM-5 eating disorders in a community cohort of adolescents. *International Journal of Eating Disorders, 47*(6), 610-619.

Smith, K. E., Ellison, J. M., Crosby, R. D., Engel, S. G., Mitchell, J. E., Crow, S. J., et al. (2017). The validity of DSM-5 severity specifiers for anorexia nervosa, bulimia nervosa, and binge-eating disorder. *International Journal of Eating Disorders, 50*(9), 1109-1113.

StataCorp (2019). *Stata Statistical Software: Release 16*. College Station, TX: StataCorp LLC.

Stice, E., Shaw, H., & Nemeroff, C. (1998). Dual pathway model of bulimia nervosa: Longitudinal support for dietary restraint and affect-regulation mechanisms. *Journal of Social and Clinical Psychology, 17*(2), 129-149.

Todisco, P., Meneguzzo, P., Garolla, A., Antoniades, A., Vogazianos, P., & Tozzi, F. (2020). Impulsive behaviors and clinical outcomes following a flexible intensive inpatient treatment for eating disorders: findings from an observational study. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*

Vervaet, M., Van Heeringen, C., & Audenaert, K. (2004). Is drive for thinness in anorectic patients associated with personality characteristics? *European Eating Disorders Review*, *12*(6), 375-379.

Waxman, S. E. (2009). A systematic review of impulsivity in eating disorders. *European Eating Disorders Review*, *17*(6), 408-425.

Westen, D., & Harnden-Fischer, J. (2001). Personality profiles in eating disorders: rethinking the distinction between axis I and axis II. *American Journal of Psychiatry*, *158*(4), 547-562.

Zayas, L. V., Wang, S. B., Coniglio, K., Becker, K., Murray, H. B., Klosterman, E., et al. (2018). Gender differences in eating disorder psychopathology across DSM-5 severity categories of anorexia nervosa and bulimia nervosa. *International Journal of Eating Disorders*, *51*(9), 1098-1102.

Table 1 Sociodemographic descriptive of the sample

		Total		AN-R		AN-BP		BN		BED		OSFED/AT		OSFED/PD	
		N=2,811		*N=428*		*N=317*		*N=1,364*		*N=329*		*N=154*		*N=223*	
		n	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Marital status	Single	2098	74.6%	373	87.1%	255	81.5%	1013	74.3%	160	48.6%	127	82.5%	170	76.2%
	Married - in couple	519	18.5%	38	8.9%	44	14.1%	246	18.0%	139	42.2%	19	12.3%	33	14.8%
	Divorced - separated	194	6.9%	17	4.0%	14	4.5%	105	7.7%	30	9.1%	8	5.2%	20	9.0%
Education	Primary/less	1214	43.2%	152	35.5%	130	41.5%	600	44.0%	156	47.4%	73	47.4%	103	46.2%
	Secondary	1160	41.3%	174	40.7%	140	44.7%	566	41.5%	123	37.4%	62	40.3%	95	42.6%
	University	437	15.5%	102	23.8%	43	13.7%	198	14.5%	50	15.2%	19	12.3%	25	11.2%
Social position	High	16	0.6%	1	0.2%	1	0.3%	8	0.6%	4	1.2%	1	0.6%	1	0.4%
	Mean-high	87	3.1%	12	2.8%	8	2.6%	39	2.9%	19	5.8%	3	1.9%	6	2.7%
	Mean	145	5.2%	24	5.6%	13	4.2%	70	5.1%	25	7.6%	5	3.2%	8	3.6%
	Mean-low	1146	40.8%	176	41.1%	141	45.0%	579	42.4%	111	33.7%	54	35.1%	85	38.1%
	Low	1417	50.4%	215	50.2%	150	47.9%	668	49.0%	170	51.7%	91	59.1%	123	55.2%
Employment	Unemployed	1689	60.1%	246	57.5%	225	71.9%	886	65.0%	150	45.6%	78	50.6%	104	46.6%
	Student	448	15.9%	115	26.9%	41	13.1%	172	12.6%	31	9.4%	41	26.6%	48	21.5%
	Employed	674	24.0%	67	15.7%	47	15.0%	306	22.4%	148	45.0%	35	22.7%	71	31.8%
Age (yrs-old); *mean-SD*		27.6	9.2	24.8	8.3	26.2	7.3	27.2	8.2	36.0	11.1	24.3	8.4	27.3	9.7

Note. AN-R: Anorexia Nervosa Restrictive; AN-BP: Anorexia Nervosa Binge Purging; BN: Bulimia Nervosa; BED: Binge Eating Disorder; OSFED/AT: Other Specified Feeding or Eating Disorders (OSFED)/Atypical Anorexia; OSFED/PD: OSFED/Purging Disorder; SD: standard deviation.

Table 2 Discriminative capacity for the severity groups based on the Diagnostic and Statistical Manual-5 and the Eating Disorder Inventory-2 Drive for Thinness criteria: partial eta square (η^2) for quantitative variables and Cramer-V for categorical

		AN-R *n=428*		AN-BP n=317		BN *n=1,364*		BED *n=329*		OSFED/AT *n=154*		OSFED/PD *n=223*	
		DSM-5	EDI-DT	DSM-5	EDI-DT	DSM-5	EDI-DT	DSM-5	EDI-DT	DSM-5	EDI-DT	DSM-5	EDI-DT
Age (yrs-old)		.038	.000	.036	.003	.008	.021	.011	.002	---	.005	.037	.002
Onset ED (yrs-old)		.017	.002	.039	.000	.003	.001	.010	.002	---	.003	.016	.007
Duration ED (yrs)		.020	.001	.006	.008	.003	.019	.006	.000	---	.013	.018	.000
# previous treatments		.056	.006	.008	.017	.068	.006	.032	.007	---	.038	.004	.000
Binge episodes		---	---	.003	.022	.306†	.008	---	.008	---	---	---	---
Purging episodes		---	---	.010	.016	---	.008	---	---	---	---	---	.012
BMI (kg/m^2)		---	.009	---	.036	.003	.000	.039	.000	---	.010	.012	.002
% fat mass		.182†	.004	.112†	.041	.005	.002	.012	.001	---	.000	.007	.002
% muscle mass		.087	.010	.078	.001	.003	.000	.007	.000	---	.032	.012	.002
EDI: Drive thinness	.85	.038	---	.035	---	.001	---	.003	---	---	---	.009	---
EDI: Body dissatisfaction	.90	.012	.271†	.036	.356†	.000	.203*	.001	.101†	---	.317†	.022	.264†
EDI: Inter. awareness	.80	.014	.080	.028	.198†	.005	.061	.021	.128†	---	.128†	.001	.051
EDI: Bulimia	.80	.011	.031	.011	.181†	.022	.059	.088	.046	---	.144†	.049	.014
EDI: Inter. Distrust	.79	.022	.047	.015	.035	.004	.015	.007	.000	---	.000	.065	.000
EDI: Ineffectiveness	.87	.006	.108†	.021	.102†	.001	.042	.039	.035	---	.048	.009	.044
EDI: Maturity fears	.79	.004	.009	.008	.059	.006	.016	.032	.004	---	.025	.007	.007
EDI: Perfectionism	.71	.008	.073	.004	.064	.002	.034	.005	.075	---	.038	.011	.016
EDI: Impulse regulation	.80	.026	.073	.021	.091	.004	.052	.034	.032	---	.016	.019	.017
EDI: Asceticism	.60	.010	.182†	.011	.171†	.002	.011†	.021	.077	---	.106†	.004	.102†
EDI: Social insecurity	.78	.012	.103†	.033	.045	.001	.015	.011	.009	---	.036	.028	.001
SCL: Somatization	.90	.004	.055	.014	.091	.005	.023	.008	.014	---	.033	.018	.051
SCL: Obss/compulsive	.85	.004	.051	.018	.128†	.002	.021	.020	.033	---	.052	.007	.051
SCL: Interp. sensitivity	.86	.006	.149†	.014	.186†	.002	.066	.022	.058	---	.066	.010	.080
SCL: Depressive	.90	.009	.111†	.016	.137†	.003	.050	.021	.047	---	.046	.014	.048
SCL: Anxiety	.88	.004	.059	.023	.118†	.004	.037	.023	.033	---	.019	.009	.040
SCL: Hostility	.87	.011	.054	.027	.054	.006	.025	.015	.028	---	.036	.059	.031
SCL: Phobic anxiety	.82	.006	.042	.024	.080	.002	.027	.024	.020	---	.010	.013	.058
SCL: Paranoid id.	.76	.009	.059	.011	.100†	.002	.018	.022	.033	---	.004	.014	.029
SCL: Psychotic	.82	.008	.069	.012	.123†	.005	.019	.040	.066	---	.038	.015	.020
SCL: PST score	.98	.007	.108†	.022	.160†	.005	.047	.031	.057	---	.051	.015	.071
SCL: GSI score	.98	.007	.210†	.048	.433†	.020	.073	.025	.184†	---	.073	.013	.023
SCL: PSDI score	.98	.005	.117†	.017	.161†	.001	.058	.035	.044	---	.092	.013	.062
TCI: Novelty seeking	.80	.023	.001	.016	.005	.006	.000	.037	.002	---	.009	.006	.002
TCI: Harm avoidance	.90	.005	.061	.016	.056	.003	.035	.003	.012	---	.021	.007	.034
TCI: Reward-Depend.	.84	.005	.003	.010	.004	.008	.000	.001	.015	---	.000	.032	.002
TCI: Persistence	.90	.009	.002	.007	.001	.002	.002	.006	.019	---	.003	.011	.008
TCI: Self-directedness	.87	.016	.055	.017	.108†	.001	.033	.034	.031	---	.053	.009	.026
TCI: Cooperative.	.84	.016	.008	.003	.021	.004	.008	.008	.001	---	.004	.025	.002
TCI: Self-Transcend.	.84	.006	.005	.011	.003	.001	.013	.023	.005	---	.019	.010	.000
Self-harming behaviours		.166†	.013	.133†	.131†	.175†	.133†	.187†	.085	---	.250†	.097	.034
Suicide attempts		.180†	.075	.139†	.056	.223†	.084	.185†	.082	---	.221†	.072	.013

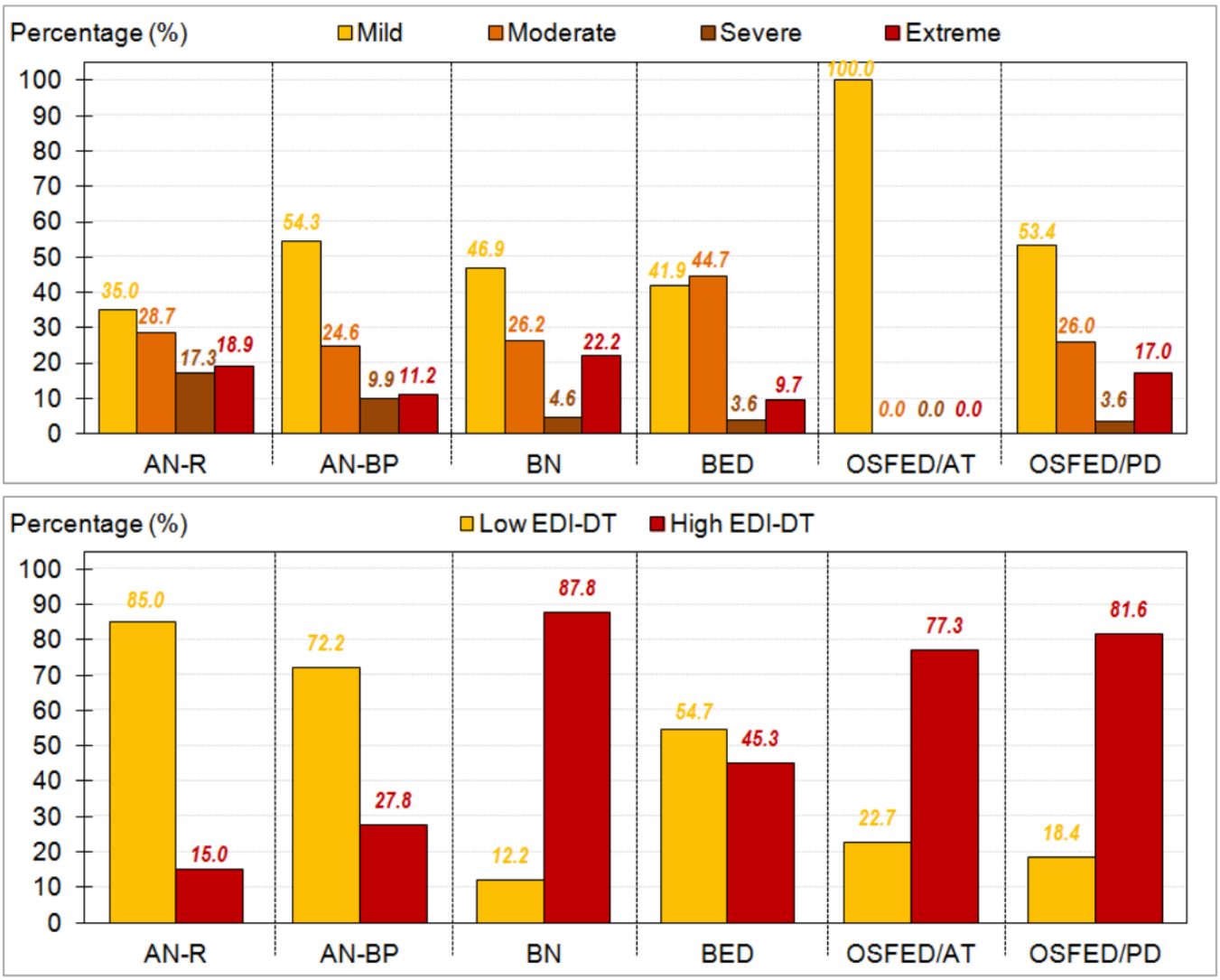
Tobacco use		.090	.121†	.080	.285†	.068	.185†	.068	.066	---	.307†	.110†	.004
Alcohol abuse		.165†	.109†	.144†	.135†	.223†	.105†	.217†	.113†	---	.117†	.154†	.072
Drug abuse		.177†	.103†	.108†	.114†	.205†	.102†	.149†	.122†	---	.062	.118†	.103†

Note. Diagnostic and Statistical Manual of Mental Disorders (DSM-5); EDI-2 DT: Eating Disorder Inventory (EDI-2) Drive for Thinness (DT) subscale; AN-R: Anorexia Nervosa Restrictive; AN-BP: Anorexia Nervosa Binge Purging; BN: Bulimia Nervosa; BED: Binge Eating Disorder; OSFED/AT: Other Specified Feeding or Eating Disorders (OSFED)/Atypical Anorexia; OSFED/PD: OSFED/Purging Disorder; SD: standard deviation. α: Cronbach-alpha in the study.

Effect size [η^2 for Analysis of Variance (ANOVA) and Cramer-V for chi-square tests (χ^2)].

*Bold: significant comparison with effect †effect size into the mild/moderate to the high/large range (η^2>0.10 or V>0.15).

Figure 1 Frequency distribution for the Diagnostic and Statistical Manual of Mental Disorder 5 severity index categories and the Eating Disorder Inventory Drive for Thinness differentiation



Note The upper figure represents the frequency distribution of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) severity indices and categories. The figure below provides the distribution of EDs according to high versus low scoring patients based on the Eating Disorder Inventory (EDI-2) Drive for Thinness (DT) subscale (a cut off score of 14 was used).

AN-R: Anorexia Nervosa Restrictive; AN-BP: Anorexia Nervosa Binge Purging; BN: Bulimia Nervosa; BED: Binge Eating Disorder; OSFED/AT: Other Specified Feeding or Eating Disorders (OSFED)/Atypical Anorexia; OSFED/PD: OSFED/Purging Disorder

Table S1-Anorexia Nervosa Restrictive (supplementary) Discriminative capacity for the severity groups

	DSM-5 classification										EDI-2 DT score					
Anorexia Nervosa	Mild		Moderate		Severe		Extreme			Effect	Low		High			Effect
Restrictive (AN-R)	*n=150*		*n=123*		*n=74*		*n=81*			size	*n=364*		*n=64*			size
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	*p*	η^2/V	Mean	SD	Mean	SD	*p*	η^2/V
Age (yrs-old)	23.4	7.3	24.5	7.7	24.4	7.1	28.0	10.7	.001*	.038	24.8	8.1	24.5	9.4	.810	.000
Onset ED (yrs-old)	18.5	5.2	18.7	5.1	19.7	4.6	20.3	6.8	.060	.017	19.2	5.3	18.5	6.2	.327	.002
Duration ED (yrs)	5.3	6.3	6.0	7.2	4.9	5.9	7.8	8.9	.037*	.020	5.8	7.1	6.4	7.5	.540	.001
# previous treatments	0.8	2.1	2.2	3.8	0.6	1.8	1.3	2.4	.001*	.056	1.3	2.9	0.7	1.6	.106	.006
Binge episodes	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Purging episodes	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
BMI (kg/m^2)	17.8	0.5	16.5	0.3	15.5	0.3	13.7	1.1	---	---	16.2	1.6	16.6	1.6	.045*	.009
% fat mass	11.5	4.1	8.8	3.3	7.3	3.3	8.0	3.0	.001*	.182†	9.2	3.6	9.9	5.5	.171	.004
% muscle mass	38.5	2.1	38.0	1.7	37.6	1.9	36.9	1.9	.001*	.087	37.8	1.8	38.4	2.9	.040*	.010
EDI: Drive thinness	10.2	5.7	7.9	5.2	7.9	4.9	8.0	5.1	.001*	.038	7.2	4.2	17.4	2.5	---	---
EDI: Body dissatisfaction	11.1	6.0	9.7	5.3	10.3	5.3	10.7	4.6	.162	.012	9.3	4.2	17.2	6.8	.001*	.271†
EDI: Inter. awareness	8.6	5.2	7.3	4.8	7.3	5.5	7.7	4.4	.111	.014	7.2	4.5	11.2	6.0	.001*	.080
EDI: Bulimia	2.2	2.0	1.8	1.4	1.9	1.9	1.9	1.5	.211	.011	1.8	1.5	2.7	2.5	.001*	.031
EDI: Inter. distrust	5.6	4.0	4.4	2.7	4.8	3.4	5.2	3.4	.026*	.022	4.7	2.8	6.8	5.9	.001*	.047
EDI: Ineffectiveness	9.0	5.8	8.2	5.2	7.9	6.2	8.1	4.0	.431	.006	7.7	4.7	12.7	6.9	.001*	.108†
EDI: Maturity fears	7.7	4.5	7.6	4.5	7.4	4.2	7.0	3.4	.624	.004	7.3	3.9	8.5	5.8	.048*	.009
EDI: Perfectionism	5.3	3.4	4.7	2.8	4.8	3.1	5.5	3.6	.319	.008	4.7	2.7	7.1	4.8	.001*	.073
EDI: Impulse regulation	5.4	4.5	3.9	3.4	4.3	4.2	4.1	3.6	.011*	.026	4.1	3.4	7.2	6.1	.001*	.073
EDI: Asceticism	5.6	3.3	4.9	2.9	5.0	3.9	5.0	2.9	.224	.010	4.6	2.7	8.5	4.1	.001*	.182†
EDI: Social insecurity	7.1	4.3	6.1	3.6	6.3	4.3	6.5	3.3	.178	.012	6.0	3.3	9.6	5.6	.001*	.103†
SCL: Somatization	1.5	0.7	1.4	0.7	1.4	0.8	1.5	0.7	.599	.004	1.4	0.7	1.8	0.9	.001*	.055
SCL: Obss/compulsive	1.6	0.7	1.5	0.6	1.6	0.9	1.5	0.7	.629	.004	1.5	0.7	1.9	0.8	.001*	.051
SCL: Interper-sensitivity	1.8	0.8	1.6	0.8	1.6	0.8	1.7	0.8	.487	.006	1.6	0.7	2.4	0.8	.001*	.149†
SCL: Depressive	2.0	0.8	1.9	0.8	1.9	0.8	2.1	0.7	.301	.009	1.9	0.7	2.5	0.8	.001*	.111†
SCL: Anxiety	1.4	0.7	1.4	0.7	1.5	0.8	1.5	0.6	.640	.004	1.4	0.6	1.9	1.0	.001*	.059
SCL: Hostility	1.3	0.7	1.1	0.7	1.2	0.8	1.1	0.7	.204	.011	1.1	0.6	1.6	1.1	.001*	.054
SCL: Phobic anxiety	0.8	0.7	0.7	0.6	0.7	0.7	0.8	0.6	.431	.006	0.7	0.6	1.1	0.8	.001*	.042
SCL: Paranoid ideation	1.3	0.7	1.2	0.6	1.3	0.8	1.3	0.6	.261	.009	1.2	0.6	1.7	0.8	.001*	.059
SCL: Psychotic	1.1	0.6	1.0	0.5	1.1	0.7	1.2	0.5	.341	.008	1.0	0.5	1.5	0.7	.001*	.069
SCL: PST score	1.5	0.6	1.4	0.6	1.4	0.7	1.5	0.6	.387	.007	1.4	0.6	1.9	0.7	.001*	.108†
SCL: GSI score	39.3	26.8	34.7	24.8	39.9	26.0	37.4	25.5	.423	.007	32.8	24.3	66.0	13.5	.001*	.210†
SCL: PSDI score	2.2	0.5	2.1	0.5	2.1	0.6	2.2	0.4	.516	.005	2.1	0.5	2.5	0.5	.001*	.117†
TCI: Novelty seeking	97.4	12.6	94.9	8.9	95.5	12.9	92.6	9.9	.018*	.023	95.6	9.5	94.5	18.7	.489	.001
TCI: Harm avoidance	112.6	15.4	112.0	15.8	109.7	15.3	110.9	15.0	.560	.005	110.0	14.3	120.6	18.2	.001*	.061
TCI: Reward dependence	101.4	13.0	103.3	11.4	102.5	11.7	101.3	11.9	.561	.005	102.4	10.5	100.6	18.8	.282	.003
TCI: Persistence	113.5	15.7	113.7	15.1	117.3	16.9	115.7	13.8	.283	.009	114.3	13.4	116.1	23.9	.413	.002
TCI: Self-directedness	126.4	17.7	130.1	15.6	130.6	16.7	131.3	14.7	.083	.016	130.7	15.4	119.9	19.2	.001*	.055
TCI: Cooperative.	133.9	12.8	136.7	11.6	136.4	11.6	137.9	11.9	.078	.016	136.3	10.8	133.4	17.8	.071	.008
TCI: Self-Transcendence	62.1	10.8	62.2	9.9	63.7	11.8	64.2	12.3	.450	.006	63.1	9.7	60.9	16.7	.143	.005
Self-harming behaviour*; n-%*	19	12.7%	19	15.4%	4	5.4%	2	2.5%	.008*	.166†	38	10.4%	6	9.4%	.796	.013
Suicide attempts; *n-%*	14	9.3%	17	13.8%	1	1.4%	2	2.5%	.003*	.180†	32	8.8%	2	3.1%	.122	.075
Current tobacco use	23	15.3%	12	9.8%	11	14.9%	7	8.6%	.327	.090	39	10.7%	14	21.9%	.012*	.121†

Lifetime alcohol abuse	10	6.7%	18	14.6%	2	2.7%	4	4.9%	.009*	.165†	33	9.1%	1	1.6%	.041*	.109†
Lifetime drug abuse	12	8.0%	19	15.4%	3	4.1%	2	2.5%	.004*	.177†	35	9.6%	1	1.6%	.032*	.103†

Note. Diagnostic and Statistical Manual of Mental Disorders (DSM-5); EDI-2 DT: Eating Disorder Inventory (EDI-2) Drive for Thinness (DT) subscale; SD: standard deviation.
Effect size: [η^2 for Analysis of Variance (ANOVA) and Cramer-V for chi-square tests (χ^2)].

*Bold: significant comparison. †Effect size into the mild/moderate to the high/large range (η^2>0.10 or V>0.15).

Table S1-Anorexia Nervosa Binge-Purging (supplementary) Discriminative capacity for the severity groups

	DSM-5 classification										EDI-2 DT score					
Anorexia Nervosa	Mild		Moderate		Severe		Extreme			Effect	Low		High			Effect
Binge-Purging (AN-BP)	*n=170*		*n=77*		*n=31*		*n=35*			size	*n=226*		*n=87*			size
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	*p*	η^2/V	Mean	SD	Mean	SD	*p*	η^2/V
Age (yrs-old)	25.5	6.7	25.9	8.3	27.3	6.1	29.8	8.0	.010*	.036	26.0	6.9	26.9	8.4	.351	.003
Onset ED (yrs-old)	18.2	5.1	19.2	6.1	18.7	4.6	21.9	7.9	.006*	.039	19.0	5.8	18.8	5.8	.840	.000
Duration ED (yrs)	7.3	6.2	6.7	6.9	8.3	4.8	7.9	6.0	.619	.006	7.0	5.7	8.2	7.5	.113	.008
# previous treatments	1.3	2.7	1.9	3.4	1.5	2.4	1.4	2.3	.457	.008	1.7	3.0	0.9	2.0	.023*	.017
Binge episodes	5.0	11.9	4.3	11.5	3.8	9.2	3.2	9.7	.829	.003	5.6	13.0	1.8	3.2	.008*	.022
Purging episodes	7.5	12.7	6.7	12.6	5.2	6.1	10.0	11.4	.395	.010	8.3	13.3	4.9	7.4	.026*	.016
BMI (kg/m^2)	17.9	0.8	16.6	0.3	15.6	0.3	13.8	1.0	---	---	16.7	1.6	17.4	1.3	.001*	.036
% fat mass	11.5	3.8	9.7	3.1	9.1	2.3	8.2	2.8	.001*	.112†	10.0	2.8	11.6	5.0	.001*	.041
% muscle mass	38.2	1.7	37.6	1.2	37.5	1.4	36.7	2.9	.001*	.078	37.8	1.4	37.9	2.7	.528	.001
EDI: Drive thinness	12.0	5.1	11.5	5.0	10.8	3.8	9.0	4.4	.011*	.035	8.9	3.0	17.9	2.2	---	---
EDI: Body dissatisfaction	12.8	6.1	12.2	5.2	12.3	4.0	9.3	3.3	.011*	.036	10.2	3.2	17.5	6.7	.001*	.356†
EDI: Inter. awareness	10.1	5.0	10.8	4.6	9.8	3.7	7.9	4.1	.030*	.028	8.7	3.6	13.4	5.6	.001*	.198†
EDI: Bulimia	3.8	3.4	3.8	3.2	4.3	3.4	2.9	1.5	.323	.011	2.9	1.8	6.0	4.7	.001*	.181†
EDI: Inter. distrust	5.3	3.3	6.1	3.6	5.0	1.7	5.0	2.7	.193	.015	5.1	2.4	6.4	4.5	.001*	.035
EDI: Ineffectiveness	9.8	5.7	10.8	5.6	9.7	2.8	8.1	3.5	.085	.021	8.8	3.8	12.5	7.2	.001*	.102†
EDI: Maturity fears	8.2	4.4	8.5	4.6	8.6	3.5	7.2	2.5	.463	.008	7.6	2.7	9.9	6.4	.001*	.059
EDI: Perfectionism	5.2	3.5	5.7	3.5	5.5	2.6	5.3	3.3	.735	.004	4.8	2.2	6.7	5.1	.001*	.064
EDI: Impulse regulation	6.4	5.1	6.6	4.7	5.0	2.5	4.6	3.8	.083	.021	5.3	3.7	8.4	6.2	.001*	.091
EDI: Asceticism	6.5	3.2	6.8	2.8	6.4	1.8	5.7	2.6	.327	.011	5.7	1.9	8.4	4.1	.001*	.171†
EDI: Social insecurity	7.0	3.4	8.2	4.2	7.0	2.0	6.0	3.4	.016*	.033	6.7	2.8	8.4	4.9	.001*	.045
SCL: Somatization	1.8	0.8	1.7	0.7	1.6	0.4	1.5	0.4	.224	.014	1.6	0.6	2.0	0.9	.001*	.091
SCL: Obss/compulsive	1.7	0.7	1.8	0.6	1.6	0.3	1.5	0.6	.131	.018	1.6	0.5	2.1	0.9	.001*	.128†
SCL: Interper-sensitivity	1.9	0.7	2.0	0.7	1.8	0.5	1.7	0.6	.233	.014	1.7	0.5	2.3	0.8	.001*	.186†
SCL: Depressive	2.2	0.8	2.2	0.6	2.0	0.5	2.0	0.6	.172	.016	2.0	0.6	2.6	0.8	.001*	.137†
SCL: Anxiety	1.7	0.7	1.7	0.6	1.5	0.4	1.4	0.5	.065	.023	1.5	0.5	2.0	0.9	.001*	.118†
SCL: Hostility	1.4	0.8	1.4	0.8	1.2	0.3	1.1	0.5	.038*	.027	1.3	0.6	1.6	1.0	.001*	.054
SCL: Phobic anxiety	1.0	0.7	1.0	0.6	0.8	0.4	0.7	0.4	.059	.024	0.8	0.4	1.2	1.0	.001*	.080
SCL: Paranoid ideation	1.4	0.7	1.5	0.7	1.3	0.4	1.3	0.6	.337	.011	1.3	0.5	1.7	0.8	.001*	.100†
SCL: Psychotic	1.3	0.6	1.3	0.5	1.1	0.4	1.2	0.4	.281	.012	1.2	0.4	1.6	0.7	.001*	.123†
SCL: PST score	1.7	0.6	1.7	0.5	1.5	0.3	1.5	0.4	.078	.022	1.5	0.4	2.0	0.7	.001*	.160†
SCL: GSI score	41.9	29.2	42.1	29.5	25.3	21.4	28.1	22.6	.002*	.048	27.2	23.6	69.0	14.6	.001*	.433†
SCL: PSDI score	2.3	0.5	2.3	0.4	2.2	0.2	2.2	0.4	.150	.017	2.2	0.3	2.6	0.5	.001*	.161†
TCI: Novelty seeking	99.2	12.1	99.4	14.6	96.2	9.1	95.0	8.0	.164	.016	98.0	9.1	99.9	17.9	.208	.005
TCI: Harm avoidance	113.3	15.6	114.8	13.8	111.7	8.3	108.5	12.1	.165	.016	110.9	11.3	118.4	19.0	.001*	.056
TCI: Reward dependence	101.5	12.0	99.5	12.2	103.6	7.4	101.9	12.1	.380	.010	101.7	9.5	100.1	16.0	.274	.004
TCI: Persistence	114.4	16.2	111.6	13.5	114.8	13.7	114.6	10.4	.527	.007	113.4	10.7	114.7	22.1	.499	.001

TCI: Self-directedness	123.9	16.4	122.1	14.3	124.8	7.1	129.1	15.5	.159	.017	127.2	12.3	116.1	18.8	.001*	.108†
TCI: Cooperative.	134.3	11.8	133.7	11.4	134.6	6.8	135.8	11.9	.839	.003	135.4	9.3	131.7	15.1	.010*	.021
TCI: Self-Transcendence	66.3	12.3	65.1	11.9	62.5	5.5	64.4	10.4	.333	.011	65.0	9.3	66.5	15.9	.307	.003
Self-harming behaviour; *n-%*	27	15.9%	10	13.0%	1	3.2%	2	5.7%	.134	.133†	35	15.5%	5	5.7%	.021	.131†
Suicide attempts; *n-%*	21	12.4%	11	14.3%	0	0.0%	2	5.7%	.109	.139†	27	11.9%	7	8.0%	.320	.056
Current tobacco use	40	23.5%	15	19.5%	4	12.9%	8	22.9%	.572	.080	32	14.2%	35	40.2%	.000	.285†
Lifetime alcohol abuse	15	8.8%	10	13.0%	0	0.0%	1	2.9%	.092	.144†	24	10.6%	2	2.3%	.017	.135†
Lifetime drug abuse	16	9.4%	9	11.7%	1	3.2%	1	2.9%	.299	.108†	24	10.6%	3	3.4%	.043	.114†

Note. Diagnostic and Statistical Manual (DSM) – 5; EDI-2 DT: Eating Disorder Inventory (EDI-2) Drive for Thinness (DT) subscale; SD: standard deviation.
Effect size: [η^2 for Analysis of Variance (ANOVA) and Cramer-V for chi-square tests (χ^2)].
*Bold: significant comparison. †Effect size into the mild/moderate to the high/large range (η^2>0.10 or V>0.15).

Table S1-Bulimia Nervosa (supplementary) Discriminative capacity for the severity groups

Bulimia nervosa (BN)	DSM-5 classification										EDI-2 DT score					
	Mild *n=640*		Moderate *n=358*		Severe *n=63*		Extreme *n=303*			Effect size	Low *n=166*		High *n=1,198*			Effect size
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	*p*	η^2/V	Mean	SD	Mean	SD	*p*	η^2/V
Chronological age (yrs-old)	28.0	8.8	26.9	8.0	26.6	6.8	26.2	7.3	.009*	.008	30.4	9.8	26.8	7.9	.011*	.021
Onset ED (yrs-old)	19.3	7.2	18.7	5.9	18.8	5.7	18.4	5.1	.222	.003	19.4	7.2	18.9	6.2	.334	.001
Duration ED (yrs)	8.8	7.4	8.1	7.1	7.8	5.9	7.9	6.6	.213	.003	11.0	9.2	8.0	6.7	.011*	.019
# previous treatments	0.7	2.1	0.8	2.1	0.6	1.6	2.4	4.0	.001*	.068	0.6	1.7	1.2	2.8	.005*	.006
Binge episodes	4.0	4.5	5.5	4.4	7.4	4.1	18.4	16.3	.001*	.306†	5.2	6.2	8.1	10.8	.001*	.008
Purging episodes	1.1	1.3	5.7	1.3	9.8	1.1	25.2	13.0	---	---	5.3	7.7	8.4	11.7	.001*	.008
BMI (kg/m^2)	25.2	22.5	26.8	38.2	23.8	7.3	22.4	37.9	.317	.003	25.0	7.4	25.0	32.7	.994	.000
% fat mass	29.4	7.3	28.7	6.2	29.2	5.8	28.4	4.8	.085	.005	28.3	9.3	29.1	6.0	.122	.002
% muscle mass	43.8	4.0	43.5	3.1	43.5	2.6	43.3	2.4	.204	.003	43.4	5.1	43.6	3.1	.601	.000
EDI: Drive thinness	15.8	3.8	15.9	3.1	16.0	2.7	16.1	2.7	.748	.001	8.9	3.7	16.9	1.7	---	---
EDI: Body dissatisfaction	18.9	5.8	18.8	5.2	19.2	5.0	19.0	4.0	.891	.000	12.5	7.9	19.8	4.1	.011*	.203*
EDI: Inter. awareness	12.7	5.3	13.5	4.7	12.9	4.1	13.2	3.8	.059	.005	9.9	6.4	13.5	4.3	.011*	.061
EDI: Bulimia	9.5	4.0	10.5	3.6	11.1	3.1	10.4	2.8	.001*	.022	7.7	4.9	10.4	3.3	.011*	.059
EDI: Inter. distrust	5.7	3.6	6.2	3.5	5.9	3.9	6.0	3.0	.135	.004	4.8	4.4	6.1	3.3	.011*	.015
EDI: Ineffectiveness	12.0	6.1	12.2	5.2	12.3	4.8	12.5	4.1	.721	.001	9.2	7.4	12.6	4.9	.011*	.042
EDI: Maturity fears	8.6	4.4	9.3	4.3	8.4	3.6	9.2	3.2	.037*	.006	7.5	5.0	9.1	3.9	.011*	.016
EDI: Perfectionism	6.0	3.2	6.2	3.2	6.3	3.1	5.9	2.5	.432	.002	4.5	4.0	6.3	2.9	.011*	.034
EDI: Impulse regulation	7.6	4.9	8.0	4.5	8.1	3.5	8.2	3.7	.178	.004	5.1	5.1	8.2	4.3	.011*	.052
EDI: Asceticism	8.0	3.0	8.2	3.0	8.2	2.1	8.1	2.2	.521	.002	5.7	3.6	8.4	2.5	.011*	.011†
EDI: Social insecurity	8.0	4.1	8.3	3.7	8.3	3.5	8.2	2.7	.680	.001	6.9	5.1	8.3	3.4	.011*	.015
SCL: Somatization	1.9	0.7	1.9	0.7	1.9	0.6	2.0	0.5	.061	.005	1.7	0.9	2.0	0.6	.011*	.023
SCL: Obss/compulsive	2.0	0.6	2.1	0.6	2.1	0.5	2.1	0.5	.456	.002	1.8	0.8	2.1	0.5	.011*	.021
SCL: Interper-sensitivity	2.2	0.7	2.2	0.6	2.2	0.6	2.2	0.4	.545	.002	1.8	0.8	2.2	0.6	.011*	.066
SCL: Depressive	2.4	0.7	2.4	0.6	2.4	0.6	2.4	0.5	.236	.003	2.0	0.9	2.4	0.5	.011*	.050
SCL: Anxiety	1.8	0.7	1.8	0.6	1.8	0.6	1.9	0.5	.112	.004	1.5	0.8	1.9	0.6	.011*	.037
SCL: Hostility	1.4	0.8	1.5	0.7	1.5	0.7	1.6	0.7	.034*	.006	1.2	0.9	1.5	0.7	.011*	.025
SCL: Phobic anxiety	1.2	0.7	1.2	0.7	1.2	0.7	1.2	0.6	.370	.002	0.9	0.9	1.2	0.6	.011*	.027
SCL: Paranoid ideation	1.5	0.6	1.6	0.6	1.6	0.5	1.6	0.5	.420	.002	1.3	0.8	1.6	0.5	.011*	.018
SCL: Psychotic	1.4	0.6	1.5	0.5	1.5	0.6	1.5	0.5	.066	.005	1.3	0.7	1.5	0.5	.011*	.019
SCL: PST score	1.9	0.5	1.9	0.5	1.9	0.5	1.9	0.4	.101	.005	1.6	0.7	1.9	0.5	.011*	.047
SCL: GSI score	43.6	28.6	41.1	29.5	38.1	29.5	33.2	28.9	.001*	.020	61.6	17.3	37.4	29.3	.011*	.073

SCL: PSDI score	2.4	0.4	2.4	0.4	2.5	0.4	2.5	0.3	.678	.001	2.2	0.6	2.5	0.3	.011*	.058
TCI: Novelty seeking	103.4	12.7	104.2	11.3	105.7	12.1	105.5	9.9	.048*	.006	104.5	14.8	104.1	11.2	.700	.000
TCI: Harm avoidance	119.4	15.9	118.2	15.0	116.3	13.5	119.1	10.7	.310	.003	111.6	20.8	119.9	13.1	.011*	.035
TCI: Reward dependence	103.2	12.0	100.9	11.2	102.0	12.7	101.5	8.3	.011*	.008	102.4	14.3	102.1	10.6	.731	.000
TCI: Persistence	106.3	16.1	105.4	14.8	108.4	14.1	106.1	12.5	.501	.002	104.4	20.5	106.3	14.0	.120	.002
TCI: Self-directedness	111.6	15.9	110.9	14.0	110.9	12.0	110.7	11.2	.754	.001	118.2	21.0	110.2	12.8	.011*	.033
TCI: Cooperative.	132.6	12.1	131.3	11.1	132.6	10.8	131.2	9.0	.164	.004	134.6	15.6	131.6	10.4	.001*	.008
TCI: Self-Transcendence	64.9	11.7	64.9	10.8	66.6	10.8	65.3	8.3	.654	.001	68.3	14.2	64.6	10.1	.011*	.013
Self-harming behaviour*; n-%*	94	14.7%	51	14.2%	7	11.1%	92	30.4%	.011*	.175†	7	4.2%	237	19.8%	.011*	.133†
Suicide attempts*; n-%*	70	10.9%	41	11.5%	6	9.5%	92	30.4%	.011*	.223†	12	7.2%	197	16.4%	.002*	.084
Current tobacco use	113	17.7%	78	21.8%	13	20.6%	44	14.5%	.101	.068	62	37.3%	186	15.5%	.011*	.185†
Lifetime alcohol abuse	41	6.4%	25	7.0%	6	9.5%	70	23.1%	.011*	.223†	3	1.8%	139	11.6%	.011*	.105†
Lifetime drug abuse	55	8.6%	38	10.6%	4	6.3%	77	25.4%	.011*	.205†	6	3.6%	168	14.0%	.011*	.102†

Note. Diagnostic and Statistical Manual of Mental Disorders (DSM-5); EDI-2 DT; Eating Disorder Inventory (EDI-2) Drive for Thinness (DT) subscale SD: standard deviation.

Effect size: [η^2 for Analysis of Variance (ANOVA) and Cramer-V for chi-square tests (χ^2)].

*Bold: significant comparison. †Effect size into the mild/moderate to the high/large range (η^2>0.10 or V>0.15).

Table S1-Binge Eating Disorder (supplementary) Discriminative capacity for the severity groups

Binge Eating Disorder (BED)	DSM-5 classification										EDI-2 DT score					
	Mild		Moderate		Severe		Extreme			Effect size	Low		High			Effect size
	n=138		*n=147*		*n=12*		*n=32*				*n=180*		*n=149*			
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	*p*	η^2/V	Mean	SD	Mean	SD	*p*	η^2/V
Chronological age (yrs-old)	35.6	11.0	36.6	11.2	40.2	8.9	33.7	11.5	.291	.011	36.5	10.9	35.5	11.3	.430	.002
Onset ED (yrs-old)	23.1	9.2	24.8	11.2	27.3	12.8	23.2	10.5	.363	.010	24.4	10.1	23.6	10.9	.475	.002
Duration ED (yrs)	12.6	10.0	11.6	9.2	11.9	9.5	10.3	9.0	.609	.006	12.0	9.9	11.8	9.0	.786	.000
# previous treatments	0.2	0.8	0.2	1.0	0.6	1.1	0.9	3.0	.013*	.032	0.4	1.6	0.2	0.6	.134	.007
Binge episodes	1.5	1.3	6.0	1.2	9.9	1.4	20.3	10.7	---	---	6.2	7.4	5.0	4.9	.099	.008
Purging episodes	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
BMI (kg/m^2)	38.3	8.0	36.9	9.0	33.5	4.7	32.4	12.8	.005*	.039	36.8	9.3	37.1	8.8	.754	.000
% fat mass	44.4	6.4	43.3	6.4	42.1	5.0	42.8	5.7	.286	.012	43.9	5.4	43.5	7.3	.555	.001
% muscle mass	52.0	6.8	52.3	6.9	49.1	5.0	51.9	8.4	.521	.007	52.1	6.3	51.9	7.7	.723	.000
EDI: Drive thinness	13.2	4.7	12.9	4.7	11.9	5.0	13.3	3.5	.789	.003	9.9	3.7	16.9	1.9	---	---
EDI: Body dissatisfaction	21.3	5.9	21.3	5.4	21.4	5.2	21.7	4.9	.983	.001	19.7	5.9	23.2	4.4	.001*	.101†
EDI: Inter. awareness	10.6	6.4	11.1	5.6	11.6	5.0	13.6	5.6	.076	.021	9.2	4.9	13.5	6.4	.001*	.128†
EDI: Bulimia	8.7	4.1	10.7	3.5	11.8	3.5	11.7	3.9	.001*	.088	9.2	3.7	10.9	4.1	.001*	.046
EDI: Inter. distrust	4.9	4.2	5.1	4.3	5.5	3.6	6.2	4.5	.490	.007	5.0	4.0	5.2	4.6	.718	.000
EDI: Ineffectiveness	10.4	5.9	12.2	6.2	12.9	7.1	14.3	6.8	.005*	.039	10.6	5.7	12.9	6.6	.001*	.035
EDI: Maturity fears	7.3	5.1	6.8	4.7	5.8	2.2	9.7	4.7	.015*	.032	7.0	4.5	7.6	5.2	.276	.004
EDI: Perfectionism	5.0	3.7	4.9	3.8	5.7	2.2	5.7	3.7	.657	.005	4.1	3.0	6.1	4.1	.001*	.075
EDI: Impulse regulation	5.4	5.4	6.0	5.0	6.6	3.1	8.8	6.4	.011*	.034	5.2	4.6	7.1	5.9	.001*	.032
EDI: Asceticism	6.9	3.3	7.5	3.2	6.8	2.2	8.4	2.9	.077	.021	6.5	2.9	8.3	3.3	.001*	.077
EDI: Social insecurity	6.7	4.6	7.3	4.5	8.2	4.6	8.2	4.5	.295	.011	6.8	4.2	7.7	4.8	.080	.009
SCL: Somatization	1.8	0.7	1.9	0.8	1.9	0.6	2.1	0.8	.452	.008	1.8	0.6	2.0	0.9	.034*	.014
SCL: Obss/compulsive	1.8	0.7	1.9	0.8	2.0	0.8	2.1	0.8	.086	.020	1.7	0.7	2.0	0.8	.001*	.033
SCL: Interper-sensitivity	1.9	0.8	2.1	0.9	2.2	0.7	2.3	0.9	.068	.022	1.9	0.8	2.3	0.9	.001*	.058
SCL: Depressive	2.1	0.8	2.3	0.8	2.3	0.6	2.5	0.8	.071	.021	2.1	0.8	2.4	0.8	.001*	.047

SCL: Anxiety	1.4	0.7	1.5	0.8	1.6	0.8	1.9	0.7	.052	.023	1.4	0.7	1.7	0.8	.001*	.033
SCL: Hostility	1.2	0.8	1.4	0.9	1.3	0.6	1.6	1.0	.183	.015	1.2	0.8	1.5	1.0	.002*	.028
SCL: Phobic anxiety	0.8	0.7	1.0	0.8	1.1	0.8	1.2	0.7	.049*	.024	0.8	0.6	1.1	0.9	.010*	.020
SCL: Paranoid ideation	1.3	0.8	1.5	0.8	1.5	0.7	1.7	0.8	.062	.022	1.3	0.7	1.6	0.9	.001*	.033
SCL: Psychotic	1.1	0.6	1.3	0.7	1.4	0.6	1.6	0.6	.004*	.040	1.1	0.6	1.4	0.7	.001*	.066
SCL: PST score	1.6	0.6	1.7	0.7	1.8	0.5	2.0	0.6	.017*	.031	1.6	0.6	1.9	0.6	.001*	.057
SCL: GSI score	55.2	19.9	55.6	24.2	40.8	26.6	46.6	29.5	.042*	.025	44.9	24.9	65.0	15.4	.001*	.184†
SCL: PSDI score	2.3	0.5	2.4	0.5	2.6	0.4	2.6	0.5	.009*	.035	2.3	0.5	2.5	0.5	.001*	.044
TCI: Novelty seeking	102.2	14.7	101.2	13.2	103.7	17.4	111.0	15.9	.006*	.037	102.0	13.2	103.4	15.9	.381	.002
TCI: Harm avoidance	119.7	17.1	120.3	17.2	119.0	20.2	122.8	18.4	.830	.003	118.5	16.9	122.3	17.6	.047*	.012
TCI: Reward dependence	105.3	15.8	104.1	14.9	104.8	12.5	104.1	13.4	.923	.001	103.0	14.7	106.6	15.2	.028*	.015
TCI: Persistence	103.0	17.2	100.4	19.9	105.8	17.0	102.8	19.2	.563	.006	99.6	16.8	104.7	20.3	.013*	.019
TCI: Self-directedness	117.0	18.0	112.5	17.0	117.9	17.2	106.6	19.0	.011*	.034	116.8	15.9	110.5	19.5	.001*	.031
TCI: Cooperative.	135.6	16.6	133.5	15.3	131.3	15.0	131.4	15.8	.449	.008	133.7	13.3	134.6	18.6	.603	.001
TCI: Self-Transcendence	63.1	13.6	64.8	13.5	65.2	12.0	70.4	16.4	.059	.023	63.8	13.7	65.7	14.1	.220	.005
Self-harming behaviour; *n-%*	8	5.8%	9	6.1%	3	25.0%	6	18.8%	.009*	.187†	18	10.0%	8	5.4%	.121	.085
Suicide attempts; *n-%*	3	2.2%	6	4.1%	1	8.3%	5	15.6%	.010*	.185†	11	6.1%	4	2.7%	.138	.082
Current tobacco use	32	23.2%	33	22.4%	1	8.3%	8	25.0%	.674	.068	36	20.0%	38	25.5%	.234	.066
Lifetime alcohol abuse	0	0.0%	2	1.4%	0	0.0%	3	9.4%	.001*	.217†	5	2.8%	0	0.0%	.040*	.113†
Lifetime drug abuse	5	3.6%	4	2.7%	0	0.0%	4	12.5%	.063	.149†	11	6.1%	2	1.3%	.027*	.122†

Note. Diagnostic and Statistical Manual of Mental Disorders (DSM-5); EDI-2 DT: Eating Disorder Inventory (EDI-2) Drive for Thinness (DT) subscale; SD: standard deviation.

Effect size: [η^2 for Analysis of Variance (ANOVA) and Cramer-V for chi-square tests (χ^2)].

*Bold: significant comparison. †Effect size into the mild/moderate to the high/large range (η^2>0.10 or V>0.15).

Table S1-Other Specified Feeding or Eating Disorder/ Atypical Anorexia (supplementary) Discriminative capacity for the severity groups

OSFED/AT	DSM-5 Mild *n=154*		EDI-2 DT score Low *n=35*		High *n=119*			Effect size
	Mean	SD	Mean	SD	Mean	SD	*p*	η^2/V
Chronological age (yrs-old)	24.3	8.5	25.4	9.8	24.0	8.0	.400	.005
Onset ED (yrs-old)	18.3	5.8	17.7	5.0	18.4	6.0	.507	.003
Duration ED (yrs)	6.1	6.3	7.5	7.4	5.8	6.0	.152	.013
# previous treatments	1.2	3.0	0.1	0.6	1.5	3.3	.015*	.038
Binge episodes	---	---	---	---	---	---	---	---
Purging episodes	---	---	---	---	---	---	---	---
BMI (kg/m^2)	19.8	1.1	19.6	0.9	19.9	1.2	.227	.010
% fat mass	18.6	4.1	18.6	3.7	18.6	4.3	.979	.000
% muscle mass	40.4	2.4	39.6	2.1	40.6	2.5	.027*	.032
EDI: Drive thinness	14.1	5.0	6.8	4.3	16.2	2.7	---	---
EDI: Body dissatisfaction	14.7	6.7	7.9	5.7	16.8	5.5	.001*	.317†
EDI: Inter. awareness	10.0	4.9	7.2	6.0	10.8	4.2	.001*	.128†
EDI: Bulimia	2.9	2.6	1.0	1.8	3.4	2.6	.001*	.144†
EDI: Inter. distrust	5.0	3.5	5.0	4.5	5.0	3.2	.966	.000
EDI: Ineffectiveness	10.0	5.6	7.8	7.2	10.7	4.8	.007*	.048
EDI: Maturity fears	8.8	4.6	7.5	6.1	9.2	4.0	.048*	.025
EDI: Perfectionism	5.9	3.2	4.8	3.7	6.3	3.0	.015*	.038
EDI: Impulse regulation	6.0	4.2	5.1	5.6	6.3	3.7	.116	.016
EDI: Asceticism	6.8	3.3	4.8	3.4	7.4	3.1	.001*	.106†
EDI: Social insecurity	6.9	3.7	5.6	4.9	7.3	3.2	.019*	.036
SCL: Somatization	1.6	0.7	1.4	1.0	1.7	0.6	.024*	.033
SCL: Obss/compulsive	1.8	0.6	1.5	0.8	1.9	0.6	.004*	.052
SCL: Interper-sensitivity	1.9	0.7	1.6	0.9	2.0	0.6	.001*	.066
SCL: Depressive	2.0	0.7	1.8	1.0	2.1	0.6	.008*	.046
SCL: Anxiety	1.6	0.7	1.4	0.8	1.7	0.6	.091	.019
SCL: Hostility	1.3	0.7	1.1	0.8	1.4	0.7	.018*	.036
SCL: Phobic anxiety	0.8	0.6	0.7	0.7	0.9	0.6	.213	.010
SCL: Paranoid ideation	1.4	0.6	1.3	0.8	1.4	0.6	.417	.004
SCL: Psychotic	1.2	0.6	1.0	0.7	1.3	0.5	.016*	.038
SCL: PST score	1.6	0.6	1.4	0.8	1.7	0.5	.005*	.051
SCL: GSI score	43.7	27.5	57.3	21.2	39.7	27.9	.001*	.073
SCL: PSDI score	2.3	0.4	2.0	0.6	2.3	0.4	.001*	.092
TCI: Novelty seeking	96.2	11.4	94.3	12.9	96.8	10.9	.243	.009
TCI: Harm avoidance	116.2	16.8	111.7	17.7	117.5	16.4	.071	.021
TCI: Reward dependence	105.3	12.3	104.9	15.8	105.4	11.1	.841	.000
TCI: Persistence	113.2	15.9	114.9	17.9	112.7	15.2	.476	.003
TCI: Self-directedness	119.9	15.3	126.4	20.3	118.0	12.9	.004*	.053
TCI: Cooperative.	134.8	11.8	136.1	14.0	134.4	11.0	.435	.004
TCI: Self-Transcendence	63.9	11.6	66.8	12.3	63.0	11.4	.085	.019
Self-harming behaviour; *n-%*	27	17.5%	0	0.0%	27	22.7%	.002*	.250†
Suicide attempts; *n-%*	22	14.3%	0	0.0%	22	18.5%	.006*	.221†
Current tobacco use	28	18.2%	14	40.0%	14	11.8%	.001*	.307†

Lifetime alcohol abuse	20	13.0%	2	5.7%	18	15.1%	.145	.117†
Lifetime drug abuse	19	12.3%	3	8.6%	16	13.4%	.441	.062

Note. OSFED/AT: Other Specified Feeding or Eating Disorders/Atypical Anorexia; Diagnostic and Statistical Manual of Mental Disorders (DSM-5); EDI-2 DT: Eating Disorder Inventory (EDI-2) Drive for Thinness (DT) subscale; SD: standard deviation.

Effect size: [η^2 for Analysis of Variance (ANOVA) and Cramer-V for chi-square tests (χ^2)].

*Bold: significant comparison. †Effect size into the mild/moderate to the high/large range (η^2>0.10 or V>0.15).

Table S1-Other Specified Feeding or Eating Disorder/Purging Disorder (supplementary) Discriminative capacity for the severity groups

OSFED/PD	DSM-5 classification										EDI-2 DT score					
	Mild		Moderate		Severe		Extreme			Effect size	Low		High			Effect size
	n=119		*n=58*		*n=8*		*n=38*				*n=41*		*n=182*			
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	*p*	η^2/V	Mean	SD	Mean	SD	*p*	η^2/V
Chronological age (yrs-old)	28.3	10.6	24.5	6.6	32.4	10.4	27.5	10.2	.042*	.037	28.3	10.8	27.1	9.5	.469	.002
Onset ED (yrs-old)	20.7	8.6	18.5	5.6	21.1	8.5	19.3	6.8	.315	.016	21.3	9.4	19.6	7.2	.203	.007
Duration ED (yrs)	7.8	8.7	6.2	5.7	11.1	5.2	8.2	7.1	.257	.018	7.3	8.0	7.7	7.7	.786	.000
# previous treatments	0.4	1.3	0.4	1.6	0.3	0.7	0.6	1.9	.841	.004	0.4	1.1	0.5	1.5	.796	.000
Binge episodes	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Purging episodes	1.1	1.3	5.6	1.4	9.6	1.7	19.6	7.1	---	---	7.5	10.4	5.4	6.5	.099	.012
BMI (kg/m^2)	22.5	3.7	22.1	2.8	24.2	6.8	22.2	4.4	.455	.012	22.0	2.8	22.5	4.0	.475	.002
% fat mass	24.3	6.7	24.2	5.7	25.3	6.9	23.0	6.8	.691	.007	23.4	6.9	24.2	6.3	.471	.002
% muscle mass	41.1	3.0	40.7	5.3	40.1	1.5	41.9	4.4	.449	.012	40.8	3.1	41.2	4.1	.516	.002
EDI: Drive thinness	15.9	4.0	15.9	4.1	17.8	2.2	15.4	5.0	.561	.009	9.0	3.8	17.4	2.1	---	---
EDI: Body dissatisfaction	17.9	6.1	17.6	6.0	20.6	6.0	19.8	5.7	.186	.022	11.7	6.4	19.7	4.9	.001*	.264†
EDI: Inter. awareness	12.7	5.7	13.1	5.0	13.5	4.5	13.0	6.0	.964	.001	10.3	6.0	13.5	5.2	.001*	.051
EDI: Bulimia	4.5	3.3	5.5	3.3	5.3	3.7	6.7	4.4	.012*	.049	4.3	3.9	5.4	3.6	.079	.014
EDI: Inter. distrust	5.7	3.9	5.9	3.4	8.1	3.1	8.3	4.3	.002*	.065	6.5	5.2	6.2	3.6	.751	.000
EDI: Ineffectiveness	11.4	5.8	11.5	5.6	11.8	6.9	12.9	6.1	.583	.009	9.1	6.5	12.3	5.5	.002*	.044
EDI: Maturity fears	9.1	5.2	8.7	4.4	10.0	4.9	9.8	5.7	.687	.007	8.2	5.5	9.4	4.9	.199	.007
EDI: Perfectionism	6.5	3.3	5.8	3.5	5.8	1.4	5.8	4.5	.490	.011	5.2	3.3	6.4	3.6	.062	.016
EDI: Impulse regulation	7.5	4.9	7.8	4.9	9.4	5.5	9.2	5.9	.245	.019	6.5	6.0	8.2	4.9	.052	.017
EDI: Asceticism	7.9	3.2	7.9	3.5	8.3	2.1	8.4	3.8	.846	.004	5.8	3.7	8.5	3.0	.001*	.102†
EDI: Social insecurity	7.8	4.3	7.7	3.6	8.9	3.5	9.6	4.2	.102	.028	7.8	5.2	8.2	3.9	.646	.001
SCL: Somatization	2.0	0.7	2.1	0.7	2.2	0.8	2.2	0.8	.275	.018	1.7	1.0	2.1	0.7	.001*	.051
SCL: Obss/compulsive	1.9	0.7	2.1	0.7	2.1	0.5	2.0	0.7	.689	.007	1.7	0.8	2.1	0.6	.001*	.051
SCL: Interper-sensitivity	2.1	0.8	2.1	0.7	2.2	0.5	2.3	0.8	.532	.010	1.7	0.9	2.3	0.6	.001*	.080
SCL: Depressive	2.4	0.7	2.3	0.6	2.5	0.7	2.5	0.8	.382	.014	2.0	0.9	2.4	0.6	.001*	.048
SCL: Anxiety	1.9	0.7	1.9	0.7	2.1	0.6	2.0	1.0	.559	.009	1.6	1.0	2.0	0.7	.003*	.040
SCL: Hostility	1.4	0.8	1.6	0.7	2.2	1.2	1.8	0.9	.004*	.059	1.2	1.0	1.6	0.7	.008*	.031
SCL: Phobic anxiety	1.1	0.8	1.2	0.8	1.3	0.7	1.4	1.0	.422	.013	0.8	0.7	1.3	0.8	.001*	.058
SCL: Paranoid ideation	1.6	0.7	1.6	0.7	2.0	0.5	1.7	0.7	.365	.014	1.3	0.8	1.7	0.6	.010*	.029
SCL: Psychotic	1.4	0.6	1.5	0.6	1.5	0.8	1.6	0.8	.360	.015	1.3	0.8	1.5	0.6	.033*	.020
SCL: PST score	1.9	0.6	1.9	0.5	2.1	0.6	2.0	0.7	.354	.015	1.6	0.7	2.0	0.5	.001*	.071
SCL: GSI score	52.1	27.5	48.0	28.6	51.3	32.3	58.1	28.7	.395	.013	61.0	17.3	50.0	29.7	.022*	.023
SCL: PSDI score	2.4	0.5	2.4	0.4	2.5	0.5	2.5	0.6	.413	.013	2.2	0.6	2.5	0.4	.001*	.062
TCI: Novelty seeking	100.9	12.5	102.9	14.0	100.5	11.4	102.9	15.8	.744	.006	103.0	15.0	101.5	13.1	.525	.002
TCI: Harm avoidance	119.6	16.7	119.0	13.6	125.0	24.9	121.5	13.0	.691	.007	113.9	18.3	121.3	14.7	.006*	.034
TCI: Reward dependence	100.7	12.6	99.1	15.0	92.3	9.3	94.8	15.6	.067	.032	97.7	17.7	99.3	12.9	.497	.002

TCI: Persistence	113.5	19.2	109.1	18.2	111.1	13.7	110.6	18.3	.490	.011	108.2	20.4	112.6	18.2	.175	.008
TCI: Self-directedness	114.5	15.4	111.9	15.8	112.6	19.7	110.9	13.3	.558	.009	118.3	17.2	112.0	14.7	**.016***	.026
TCI: Cooperative.	132.3	12.3	133.9	12.2	123.5	18.4	130.3	14.0	.141	.025	133.2	15.7	131.8	12.2	.517	.002
TCI: Self-Transcendence	66.1	12.3	66.5	12.0	60.1	6.4	64.8	12.5	.513	.010	66.1	14.5	65.7	11.5	.832	.000
Self-harming behaviour*; n-%*	16	13.4%	8	13.8%	0	0.0%	3	7.9%	.554	.097	4	9.8%	23	12.6%	.609	.034
Suicidal attempts*; n-%*	9	7.6%	6	10.3%	0	0.0%	3	7.9%	.765	.072	3	7.3%	15	8.2%	.844	.013
Current tobacco use	30	25.2%	13	22.4%	2	25.0%	14	36.8%	.441	**.110†**	11	26.8%	48	26.4%	.952	.004
Lifetime alcohol abuse	2	1.7%	2	3.4%	1	12.5%	0	0.0%	.153	**.154†**	0	0.0%	5	2.7%	.283	.072
Lifetime drug abuse	3	2.5%	4	6.9%	1	12.5%	2	5.3%	.375	**.118†**	0	0.0%	10	5.5%	.125	**.103†**

Note. OSFED/PD: Other Specified Feeding or Eating Disorders/Purging Disorder; Diagnostic and Statistical Manual of Mental Disorders (DSM-5); EDI-2 DT: Eating Disorder Inventory (EDI-2) Drive for Thinness (DT) subscale; SD: standard deviation.

Effect size: [η^2 for Analysis of Variance (ANOVA) and Cramer-V for chi-square tests (χ^2)].

*Bold: significant comparison. †Effect size into the mild/moderate to the high/large range (η^2>0.10 or V>0.15).

Drive for Thinness Provides an Alternative, More Meaningful, Severity Indicator than the DSM-5 Severity Indices for Eating Disorders

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