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Abstract

Objectives: To examine whether outpatient treatment for male patients with bulimic symptomatology is as effective as it is for females. **Method:** The outcome of 19 male patients was compared to that of 150 female eating disorder (ED) individuals after a group CBT treatment. **Results:** A reduction in ED symptomatology was observed after treatment for both genders. Main effects for gender indicated that after collapsing across the mean pre/post values, lower mean scores were found for men in the EAT-40, in the EDI-total score and in the following EDI subscales: “drive for thinness”, “body dissatisfaction” and “interoceptive awareness”. **Conclusions:** A group CBT treatment appears to be effective for male and female ED patients.

Keywords: Bulimia nervosa Eating disorders EDNOS Cognitive-behavioural therapy Males Treatment

1. Introduction

Eating disorders (EDs) are less frequent in males than in females (6–12% of cases) (Kjelsas, Bjornstrom, & Gotestam, 2004). While most characteristics of men and women with EDs are similar, men have been reported to have higher levels of Axis I (Woodside et al., 2001), and Axis II (Striegel-Moore, Garvin, Dohm, & Rosenheck, 1999) comorbidity, more frequent homosexuality (Bramon-Bosch, Troop, & Treasure, 2000), more premorbid overweight or obesity (Fernández-Aranda et al., 2004) and a later onset (Braun, Sunday, Huang, & Halmi, 1999; Grabhorn, Kopp, Gitzinger, von Wietersheim, & Kaufhold, 2003). Other studies have failed to find gender differences in personality traits (Fernández-Aranda et al., 2004) or familial-genetic or individual risk factors (Strober, Freeman, Lampert, Diamond, & Kaye, 2001).

1.1. Outcome of EDs across gender

The few case-control studies where the effect of gender on the prognosis of EDs has been analyzed have shown a similar course and outcome for male and female ED patients (Andersen & Holman, 1997; Eliot & Baker, 2001; Muisé, Stein, & Arbess, 2003; Saccomani, Savoini, Cirrincione, Vercellino, & Ravera, 1998). Other studies have however referred to a better (Deter, Kopp, Zipfel, & Herzog, 1998; Lindblad, Lindberg, & Hjern, 2006; Strober et al., 2006) or even a poorer (Oyebode, Boodhoo, & Schapira, 1988) outcome in male patients when compared to females of the same ED diagnosis.

1.2. Therapy for anorexia nervosa males

Therapy for ED males has received relatively little attention in the literature. Most studies on therapy have been conducted in males with Anorexia Nervosa (AN) undergoing inpatient-residential treatment. A Swedish case register study (n=61) (Lindblad et al., 2006) for example found that the outcome of males with AN admitted for hospital treatment was better than for females which is in agreement with the findings of Strober et al. (2006). Also, Deter et al. (1998) reported a better psychosocial outcome in men with AN than in women, albeit two male cases died in this cohort.

1.3. Therapy for males with bulimic symptomatology

Even though increasing rates of males with bulimia nervosa (BN) and eating disorder not otherwise specified (EDNOS) patients have recently been observed (Fernández-Aranda & Jiménez-Murcia, 2009, Kjelsas et al., 2004), relatively little attention has been paid to these ED subtypes as regard to treatment effectiveness (Krug et al., 2008). It was not until the middle of the 80s, when some of the first descriptions of treated male BN cases were first published (Andersen, 1984; Mitchell & Goff, 1984). Research on the treatment of male EDNOS patients is almost entirely lacking in the literature. Only very few studies have assessed the treatment of EDs with bulimic symptomatology in addition to AN (Grabhorn et al., 2003; Weltzin, Weisensel, Cornelia-Carlson, & Bean, 2007), however most of these studies failed to differentiate the outcome for the specific ED subtypes. To our knowledge only one study (Weltzin et al., 2007) assessed

BN and EDNOS male patients and found that residential therapy was as effective for males as for female ED counterparts.

It should be noted that some of the discrepancies observed in the current literature on EDs in males are partially due to methodological gaps, lack of control groups or too small sample sizes of the clinical used samples and a huge variety in the therapeutical settings employed.

In summary, there is a suggestion that men with EDs in particular males with AN undergoing inpatient treatment have a better outcome than females. However the outcome of males with bulimic symptomatology is still unknown. Assessing EDs in males is essential for clinical reasons, since there is a need for practical information on males with EDs to help guide diagnostic and treatment decisions.

The main goal of this study was to compare the short-middle term response to cognitive-behavioural therapy (CBT) delivered in a group, outpatient format between male and female individuals with bulimic symptomatology.

2. Method

2.1. Participants

Nineteen male ED patients with a bulimic disorder were ascertained from a series of consecutive referrals to our unit between December 2002 and September 2003 and were compared to 150 female ED patients with the same diagnoses (BN and EDNOS–BN). Twelve men (63.16%) fulfilled the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR) (American Psychiatric Association, 2000a) criteria for threshold BN and seven (36.84%) for the EDNOS–BN subtype. The latter diagnosis was given if the individual did not meet the frequency criteria. Given that the patients at our unit normally undergo three to four initial interviews before starting the treatment, we were able to ensure that all symptoms had been present for a minimum of four weeks before starting treatment. Of note 50% of the individuals with EDNOS–BN reported having met criteria for full BN in the past. In the EDNOS–BN group, 71.4% did not report an objective binge-eating episode and 57.1% did not exhibit any purging behaviour.

Patients were excluded if they met any of the following criteria: (a) age below 18 years, (b) men with AN or binge-eating disorder (BED), (c) missing values for any diagnostic items, (d) current alcohol or drug abuse, or (e) current psychotic disorder. For the present analysis, the following individuals had to be excluded: men with AN ($n=4$) and BED ($n=2$). All of the patients who had been excluded from the study were treated separately with different therapeutic modalities. Disposition decisions were made by psychologists or psychiatrists who completed the anamnesis together with the treatment team according to published treatment guidelines (American Psychiatric Association, 2000b) for CBT treatment.

2.2. Assessment and procedure

2.2.1. ED symptomatology

The patients were given the Eating Disorder Inventory (EDI, Garner, Olmsted, & Polivy, 1983), Eating Attitudes Test 40 (EAT-40, Garner & Garfinkel, 1979), and the Bulimic Investigatory Test Edinburgh (BITE, Henderson & Freeman, 1987) prior to and after treatment. All the scales have been adapted and validated in Spanish populations and have demonstrated adequate internal consistency values of 0.74–0.92 (EDI, Guimerá & Torrubia, 1987), 0.93 (EAT-40, Castro, Toro, Salamero, & Guimerá, 1991) and 0.96 (BITE, Rivas, Bernabé, & Jiménez, 2004).

2.2.2. Weekly binge-eating and purging frequencies

Throughout the duration of the study, patients kept a food and purging diary (Fernández-Aranda and Turón, 1998). Weekly binge-eating and purging frequency was determined by examining these food diaries and calculating their mean values.

2.2.3. Demographic and clinical information

Additional demographic–clinical information including age, weight, height and clinical–psychopathological variables was also obtained. Furthermore, patients were evaluated by means of the SCID-I (First, Gibbon, Spitzer, & Williams, 1996) and a semi-structured interview (Fernández-Aranda &

Turón, 1998) at 6 and 12 months follow-up after having completing the treatment.

This study was approved by the Ethics Committee of our institution and informed consent was obtained from all participants.

2.3. Procedure and design

The CBT therapy was based on the cognitive model postulated by Fairburn and colleagues (Fairburn, 1997; Fairburn, Marcus, & Wilson, 1993). In our study, this intervention consisted of 19 weekly outpatient sessions (90 min each) with a total of no more than 10 patients per group. Men and women were treated in separate groups. In total there were four groups, two tailored for male patients and two for females. In male and female groups the topics to be addressed in the group included: nutritional patterns and monitoring of meal plans, strategies for decreasing bingeing and purging behaviour, cognitive restructuring, problem solving strategies and relapse prevention. We adapted our initial therapy model to fit the therapeutic needs of ED male patients. Therefore in the male group several topics were more emphasized than in the female groups. These included: motivation, difficulties with dealing with stress, interpersonal relationships and shyness (many times as a consequence of the negative experience of being criticized for previous obesity or overweight), cognitive style and underlying weight and shape beliefs (e.g. over-evaluation of muscularity, fear of gaining weight and becoming obese again), hyperactivity, autonomy from family and homosexuality in some cases (Fernández-Aranda & Jiménez-Murcia, 2009). The group was directed by a psychologist and a co-therapist. This program and accompanying program material have already been manualized and published in Spanish (Fernández-Aranda and Turón, 1998).

2.4. Statistical analysis

The statistical analysis was conducted with SPSS 15.0.1 for Windows. All analyses were adjusted by age, duration, BMI and subtype diagnosis. Analysis of variance with repeated measures (MANCOVA, gender? time) was applied for quantitative variables (baseline-pre vs. post-treatment) through the General Linear Model (GLM) procedure. Covariate variables were baseline BMI, age, duration of the disorder and diagnosis subtype. Due to the multiple-comparisons, results obtained in MANCOVA tests were considered significant only for p-values lower than 0.0036. Categorical data such as treatment adherence (dropout rates), and clinical outcome were compared by gender at the end of the therapy through chi-square tests (using exact Monte-Carlo estimations for small samples). The working definition of a good clinical outcome was absence of symptoms to a level meeting diagnostic criteria for a minimum of 2 months.

Due to the small men sample size and consequently the low power for significance tests, effect size measures for proportions were calculated based on Cohen's (1988) *d*, as the standardized difference between both values. Results were interpreted as small if *d* values were lower than 0.2, medium for *d* values ranged between 0.2 and 0.5 and large for *d* values higher than 0.5. Since effect sizes can also be thought of as the average percentile standing (PS) of the average treated participant relative to the average control participant, we have also interpreted these PS values (Kirk, 1996). For example, PS¼ 75 indicates that the mean of the treated group corresponds to the 75th percentile of the control group.

3. Results

3.1. Description of the sample

Table 1 contains the sociodemographic and clinical descriptive features of the sample stratified by gender. A lower proportion of women than men was single ($p¼ 0.018$). The majority of patients achieved primary or secondary studies (83.7% of the total sample, with no significant difference across gender: $p¼ 0.295$), and were employed (60.9%, $p¼ 0.523$). Men were significantly younger than females ($p¼ 0.014$). There was no statistically significant difference across gender in the previous number of treatments ($p¼ 0.580$). Most patients were diagnosed with BN, with the females reporting a significantly higher proportion than males ($p¼ 0.006$). The mean BMI value at baseline was higher for women than for men ($p¼ 0.009$).

3.2. The change in eating symptoms after treatment

Table 2 shows the comparison of eating psychopathology across gender before and after treatment. No significant interaction (sex? time) was observed (p-values above 0.0036, considering Bonferroni's correction for multiple-comparisons). Concerning the main effects, significant mean differences (MD)

between pre and post-treatment outcomes were obtained for weekly frequency of binges (95% CI: 3.4–8.4) and vomiting (95% CI: 5.2–11.4), EAT-40 (95% CI: 14.1–34.3), EDI-total score (95% CI: 15.5–52.5), EDI-“drive for thinness” (95% CI: 4.2–10.5), EDI-“bulimia” (95% CI: 1.8–8.4), EDI-“interpersonal distrust” (95% CI: 1.8–6.4), BITE-“symptoms” (95% CI: 4.5–12.3) and BITE-“severity” (95% CI: 4.0–9.9) scales. Main effects for gender indicated that after collapsing across the mean pre/post values, lower mean scores were found for men in the EAT-40 (95% CI: 10.5–41.1), in the EDI-total score (95% CI: 17.1–73.7) and the following EDI subscales: “drive for thinness” (95% CI: 4.0–13.2), “body dissatisfaction” (95% CI: 4.2–18.5) and “interoceptive awareness” (95% CI: 3.7–15.4).

3.3. Comparison of therapy outcome and treatment adherence

The proportion of patients who continued to fulfil the criteria for an ED diagnosis at the end of treatment was 33.3% for men and 49.0% for women ($p = 0.307$). At 1 year post-treatment follow-up, the probability of suffering from BN or EDNOS–BN was 28.6% for men and 25.7% for women ($p = 0.165$). Effect size for the difference of proportions was medium at the end of the therapy (Cohen’s $d = 0.32$ and $PS = 63$) and small at follow-up ($d = 0.07$, $PS = 53$). The risk of dropout during the treatment was similar across gender (26.3% vs. 30.0% for men and women, respectively; $p = 0.798$).

4. Discussion

The current pilot study is a novel contribution to the literature as it compares across gender the outcome of a group CBT program of patients with a bulimic disorder, and therefore addresses several fundamental issues.

First, in terms of therapy outcome (measured as differences in the level of symptoms), a reduction in general bulimic symptomatology (measured through the BITE and the weekly frequency of binges and vomits), the EDI-total score and various EDI scales (“drive for thinness”, “bulimia” “interpersonal distrust”) for both male and female ED patients was observed, which is in agreement with previous studies on the therapy effectiveness of patients with bulimic symptomatology (e.g., Krug et al., 2008).

As regards to gender, significant findings were obtained for the EAT-40, the EDI-total score and the following EDI subscales “drive for thinness”, “body dissatisfaction” and “interoceptive awareness”, with the men scoring significantly lower on these scales than the females. This result is in concordance with previous studies, where males with EDs have shown less ED cognitions/body-related thoughts than females (e.g., Joiner, Katz, & Heatherton, 2000; Kjelsas, Augesta & Flanders, 2003).

In terms of categorical outcome (meeting diagnostic criteria) the overall outcome of treatment was good for both genders (47.0% post-treatment and 26.1% at one year post-treatment follow-up) (this level of improvement is at minimum equal to standard treatment) (Mitchell, Agras, & Wonderlich, 2007). This finding is in accordance with previous studies, which have shown a similar outcome for male and female ED patients after treatment (Andersen & Holman, 1997; Eliot & Baker, 2001; Muise et al., 2003; Saccomani et al., 1998).

Second, treatment adherence was also similar across gender in that there was no significant difference in the risk of dropout during treatment (26.3% vs. 30.0% respectively for males and females; $p = 0.798$). These results are within the range found in other studies for female BN patients (17.2–27.3%) (McKisack & Waller, 1997).

There are three limitations of the present study: (a) the small sample size, thus the power to distinguish between clinical outcomes after treatment and between diagnostic subtypes was limited, (b) the quantitative measures of symptom change were not measured at 6 and 12 month post-treatment follow-up and so it is uncertain whether there was a differential rate of relapse of symptoms between the genders, (c) the eating and shape concepts in the questionnaires may have different meanings across gender, for example body image concerns may differ [e.g., men are more likely to desire a more muscular body, rather than thinness (see Weltzin et al., 2005)] and it is possible that these need further validation in males with EDs. Unfortunately such an investigation was beyond our resource.

Upcoming research would profit from incorporating a larger sample size of men in the distinct subgroups of ED diagnoses to permit for a more accurate recognition of potential prognostic factors in diverse subsets

of EDs. Furthermore since the literature has shown that some specific topics are more salient to males (e.g., coping with criticism for previous obesity or overweight, sexual identity and gender roles) than to females, further research would benefit from addressing these themes in different therapeutic modalities.

In conclusion, this is the first study to report the outcome of male cases of BN and EDNOS–BN treated as outpatients and found that even though male cases had significantly lower scores than females on many facets of ED psychopathology, men and women revealed a similar outcome after treatment and at post-treatment follow-up. The results of the present study therefore indicate that an outpatient CBT program appears to confer benefit for male and female ED patients.

References

- American Psychiatric Association. (2000a). *Diagnostic and statistical manual of mental disorders*, fourth edition, text revision (DSM-IV-TR) (4th ed. revised.). Washington, DC: American Psychiatric Association.
- American Psychiatric Association. (2000b). *Practice guideline for the treatment of patients with eating disorders*. Washington, DC: American Psychiatric Association.
- Andersen, A. E. (1984). Anorexia nervosa and bulimia in adolescent males. *Pediatric Annals*, 13, 901–904, 907.
- Andersen, A. E., & Holman, J. E. (1997). Males with eating disorders: challenges for treatment and research. *Psychopharmacology Bulletin*, 33, 391–397.
- Bramon-Bosch, E., Troop, N. A., & Treasure, J. L. (2000). Eating disorders in males: a comparison with female patients. *European Eating Disorders Review*, 8, 321–328.
- Braun, D. L., Sunday, S. R., Huang, A., & Halmi, K. A. (1999). More males seek treatment for eating disorders. *International Journal of Eating Disorders*, 25, 415–424.
- Castro, J., Toro, J., Salamero, M., & Guimerá, E. (1991). The eating attitudes test: validation of the Spanish version. *Evaluacion Psicologica*, 7, 175–190.
- Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2nd ed.). Hillsdale, New Jersey: Lawrence Erlbaum Associates.
- Deter, H. C., Kopp, W., Zipfel, S., & Herzog, W. (1998). Männliche Anorexia-nervosa Patienten im Langzeitverlauf. [Male anorexia nervosa patients in long-term follow-up]. *Nervenarzt*, 69, 419–426.
- Eliot, A. O., & Baker, C. W. (2001). Eating disordered adolescent males. *Adolescence*, 36, 535–543.
- Fairburn, C. G. (1997). Eating disorders. In D. M. Clark, & C. C. G. Fairburn (Eds.), *Science and practice of cognitive behaviour therapy* (pp. 209–241). Oxford: Oxford University Press
- Fairburn, C. G., Marcus, M. D., & Wilson, G. T. (1993). Cognitive-behavioural therapy for binge eating and bulimia nervosa: a comprehensive treatment manual. In C. G. F. G. T. Wilson (Ed.), *Binge eating: Nature, assessment and treatment* (pp. 361–404). New York: Guilford Press.
- Fernández-Aranda, F., Aitken, A., Badia, A., Giménez, L., Collier, D., & Treasure, J. (2004). Personality and psychopathological traits of males with an eating disorder. *European Eating Disorders Review*, 12, 367–374.
- F. Fernández-Aranda et al. / *J. Behav. Ther. & Exp. Psychiat.* 40 (2009) 479–486
- Fernández-Aranda, F., & Jiménez-Murcia, S. (2009). Evidence based therapy for males with eating disorder. In I. Dancyger, & V. Fornari (Eds.), *Evidence based treatments for eating disorders: Children, adolescents and adults*. New York: Nova Publishers, ISBN 978-1-60692-310-8.
- Fernández-Aranda, F., & Turón, V. (1998). Trastornos alimentarios. Guía básica de tratamiento en anorexia y bulimia. [Eating disorders. Basic guide of treatment in anorexia and bulimia]. Barcelona: Masson.
- First, M., Gibbon, M., Spitzer, R., & Williams, J. (1996). *Users guide for the structured clinical interview for DSM IV Axis I disorders – Research version (SCID-I, version 2.0)*. New York: New York State

Psychiatric Institute.

- Garner, D. M., & Garfinkel, P. E. (1979). The eating attitude test: an index of the symptoms of bulimia nervosa. *Psychological Medicine*, 9, 273–279.
- Garner, D. M., Olmsted, M. P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders*, 2, 15–34.
- Grabhorn, R., Kopp, W., Gitzinger, I., von Wietersheim, J., & Kaufhold, J. (2003). Unterschiede zwischen weiblichen und maennlichen Patienten mit Essstoerungen. [Differences between female and male patients with eating disorders – results of a multicenter study on eating disorders (MZ-Ess)]. *Psychotherapie, Psychosomatik, Medizinische Psychologie*, 53, 15–22.
- Guimerá, E., & Torrubia, R. (1987). Adaptación Española del “eating disorder inventory” (EDI) en una muestra de pacientes anoréxicas. [A Spanish adaptation of the “eating disorder inventory” (EDI) in a sample of anorexic patients]. *Anales de Psiquiatría*, 3, 185–190.
- Henderson, M., & Freeman, C. P. L. (1987). A self-rating scale for bulimia. The “BITE”. *British Journal of Psychiatry*, 150, 18–24.
- Joiner, T. E., Jr., Katz, J., & Heatherton, T. F. (2000). Personality features differentiate late adolescent females and males with chronic bulimic symptoms. *International Journal of Eating Disorders*, 27, 191–197.
- Kirk, R. E. (1996). Practical significance: a concept whose time has come. *Educational and Psychological Measurement*, 56, 746–759.
- Kjelsas, E., Augesta, L. B., & Flanders, D. (2003). Screening of males with eating disorders. *Eating and Weight Disorders*, 8, 304–310.
- Kjelsas, E., Bjornstrom, C., & Gotestam, K. G. (2004). Prevalence of eating disorders in female and male adolescents (14–15 years). *Eating Behaviors*, 5, 13–25.
- Krug, I., Casasnovas, C., Martinez, C., Jiménez-Murcia, S., Bulik, C. M., Roser, G., et al. (2008). Brief-psychoeducational therapy for EDNOS: a short-term effectiveness comparison study. *Psychotherapy Research*, 18, 37–47.
- Lindblad, F., Lindberg, L., & Hjern, A. (2006). Anorexia nervosa in young men: a cohort study. *International Journal of Eating Disorders*, 39, 662–666.
- McKisack, C., & Waller, G. (1997). Factors influencing the outcome of group psychotherapy for bulimia nervosa. *International Journal of Eating Disorders*, 22, 1–13.
- Mitchell, J. E., Agras, S., & Wonderlich, S. (2007). Treatment of bulimia nervosa: where are we and where are we going? *International Journal of Eating Disorders*, 40, 95–101.
- Mitchell, J. E., & Goff, G. (1984). Bulimia in male patients. *Psychosomatics*, 25, 909–913.
- Muise, A. M., Stein, D. G., & Arbess, G. (2003). Eating disorders in adolescent boys: a review of the adolescent and young adult literature. *Journal of Adolescent Health*, 33, 427–435.
- Oyeboode, F., Boodhoo, J. A., & Schapira, K. (1988). Anorexia nervosa in males: clinical features and outcome. *International Journal of Eating Disorders*, 7, 121–124.
- Rivas, T., Bernabé, R., & Jiménez, M. (2004). Fiabilidad y validez del test de investigación bulímica de Edimburgo (BITE) en una muestra de adolescentes españoles. [Reliability and validity of the bulimic investigatory test Edinburgh (BITE) in a simple of Spanish adolescents]. *Psicología Conductual*, 12, 447–461.
- Saccomani, L., Savoini, M., Cirrincione, M., Vercellino, F., & Ravera, G. (1998). Long term outcome of children and adolescents with anorexia nervosa: study of comorbidity. *Journal of Psychosomatic Research*, 44, 565–571.
- Striegel-Moore, R. H., Garvin, V., Dohm, F. A., & Rosenheck, R. A. (1999). Eating disorders in a national sample of hospitalized female and male veterans: detection rates and psychiatric comorbidity. *International*

Journal of Eating Disorders, 25, 405–414.

Strober, M., Freeman, R., Lampert, C., Diamond, J., Teplinsky, C., & DeAntonio, M. (2006). Are there gender differences in core symptoms, temperament, and short-term prospective outcome in anorexia nervosa? *International Journal of Eating Disorders*, 39, 570–575.

Strober, M., Freeman, R., Lampert, C., Diamond, J., & Kaye, W. (2001). Males with anorexia nervosa: a controlled study of eating disorders in first-degree relatives. *International Journal of Eating Disorders*, 29, 263–269.

Weltzin, T. E., Weisensel, N., Cornelia-Carlson, T., & Bean, P. (2007). Improvements in the severity of eating disorder symptoms and weight changes in a large population of males undergoing treatment for eating disorders. *Best Practices in Mental Health: An International Journal*, 3, 52–65.

Weltzin, T. E., Weisensel, N., Franczyk, D., Burnett, K., Klitz, C., & Bean, P. (2005). Eating disorders in men: update. *Journal of Men's Health & Gender*, 2, 186–193.

Woodside, D. B., Garfinkel, P. E., Lin, E., Goering, P., Kaplan, A. S., Goldbloom, D. S., et al. (2001). Comparisons of men with full or partial eating disorders, men without eating disorders, and women with eating disorders in the community. *American Journal of Psychiatry*, 158, 570–574.

Table 1

		Men (<i>n</i> = 19)	Women (<i>n</i> = 150)	<i>p</i>
Marital status; %	Single	100.0	72.3	0.018
Studies; %	Primary	22.2	35.1	0.295
	Secondary	50.0	50.0	
	University	27.8	14.9	
Employment status; %	Employed	64.7	60.4	0.523
	Unemployed	5.9	16.0	
	Student	29.4	23.6	
Consulting reason; %	Own free will	44.4	54.7	0.409
Age (yrs)	Mean (SD)	22.4 (3.7)	26.7 (6.7)	0.014
Age of onset of disorder (yrs)	Mean (SD)	17.8 (3.0)	19.9 (6.8)	0.213
Duration of disorder (yrs)	Mean (SD)	4.6 (3.1)	6.7 (5.3)	0.109
Number of previous treatments	Mean (SD)	0.67 (0.69)	0.79 (0.93)	0.580
Diagnose subtype; %	BN	57.9	86.0	0.006
	EDNOS	42.1	14.0	
Baseline BMI	Mean (SD)	20.8 (3.1)	23.6 (4.5)	0.009

Table 2

	Adjusted mean; standard deviation				<i>F</i> test <i>Df</i>	Interaction Sex × time <i>F</i> (<i>p</i>)	Main effects			
	Men		Women				Time ^b <i>F</i> (<i>p</i>)	MD	Sex ^a <i>F</i> (<i>p</i>)	MD
	Pre	Post	Pre	Post						
Weekly freq. of binges	6.2; 8.7	0.2; 2.8	7.9; 8.2	2.1; 2.6	1, 66	0.00 (0.962)	22.91 (<0.001)	5.90*	1.36 (0.248)	−1.79
Weekly freq. of vomiting	12.5; 9.8	0.4; 5.8	7.6; 9.2	3.1; 5.4	1, 67	5.47 (0.022)	28.86 (<0.001)	8.29*	0.33 (0.570)	1.09
Body mass index (BMI)	22.4; 2.2	23.7; 3.2	24.4; 2.3	26.0; 3.4	1, 14	0.06 (0.810)	5.32 (0.004)	−1.42	2.84 (0.114)	−2.13
EAT-40: total score	39.3; 20.9	6.3; 24.9	56.3; 18.8	40.9; 22.3	1, 62	2.76 (0.102)	22.78 (<0.001)	24.20*	11.38 (0.001)	−25.77*
EDI: total score	60.8 (33.0)	15.8 (39.5)	95.2 (29.8)	72.2 (35.7)	1, 62	1.33 (0.253)	13.56 (<0.001)	34.02*	10.27 (0.002)	−45.40*
EDI: drive for thinness	11.4; 5.3	0.2; 6.6	16.1; 4.8	12.6; 6.0	1, 60	5.66 (0.021)	21.88 (<0.001)	7.34*	13.92 (<0.001)	−8.61*
EDI: body dissatisfaction	10.4; 7.7	2.8; 9.4	19.5; 7.0	16.4; 8.5	1, 60	1.39 (0.244)	8.40 (0.005)	5.34	10.13 (0.002)	−11.34*
EDI: interocep. awareness	5.9; 7.6	0.6; 8.2	14.7; 6.8	10.9; 7.5	1, 60	3.77 (0.098)	4.27 (0.043)	4.59	10.74 (0.002)	−9.58*
EDI: bulimic episodes	5.5; 6.1	1.5; 5.5	11.7; 5.7	5.6; 5.1	1, 59	0.39 (0.537)	9.55 (0.003)	5.10*	4.38 (0.041)	−5.18
EDI: interpersonal distrust	8.3; 6.2	1.8; 5.2	7.0; 5.6	5.3; 4.7	1, 60	4.01 (0.049)	12.63 (0.001)	4.07*	0.20 (0.655)	−1.09
EDI: inefficacy	8.3; 7.8	1.2; 8.3	11.8; 7.0	10.1; 7.5	1, 59	1.85 (0.179)	5.57 (0.022)	4.43	3.66 (0.061)	−6.22
EDI: maturity fears	9.2; 6.6	3.2; 6.0	8.4; 5.9	6.3; 5.4	1, 59	1.65 (0.204)	7.43 (0.008)	4.00	0.19 (0.661)	−1.12
EDI: perfectionism	3.0; 4.1	4.1; 4.1	5.9; 3.7	5.4; 3.7	1, 60	0.52 (0.473)	0.08 (0.778)	−0.31	1.80 (0.185)	−2.10
BITE: symptoms	19.1; 4.7	9.1; 9.9	25.2; 4.3	18.3; 9.1	1, 62	0.57 (0.453)	18.54 (<0.001)	8.40*	8.17 (0.006)	−7.67
BITE: severity	9.1; 6.8	3.1; 7.5	15.4; 6.2	7.6; 6.9	1, 62	0.37 (0.546)	22.60 (<0.001)	6.95*	4.00 (0.050)	−5.37