

## MALE ANOREXIA AND BULIMIA NERVOSA: DISORDER SYMPTOMS AND IMPULSIVE BEHAVIOUR DURING HOSPITAL TREATMENT AND ONE YEAR FOLLOW-UP PERIOD

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received: 19.3.2015;

revised: 24.5.2015;

accepted: 5.6.2015

### SUMMARY

**Background:** The study aimed to evaluate treatment efficacy in male patients with anorexia (AN) and bulimia nervosa (BN) treated at the Eating Disorder Unit, University Psychiatric Clinic Ljubljana, Slovenia (EDU UPCL), using longitudinal assessments of eating disorder (ED) symptoms and selected impulsive behaviours highly correlated with these entities from hospital admission till twelve months after.

**Subjects and methods:** 35 male AN and 35 male BN patients were included. Participants were aged 17 or more and somatically stable with the BMI > 12 kg/m<sup>2</sup>. Patients with psychiatric comorbidity, mental disorder due to a general medical condition, or serious somatic or neurological disease were excluded. Intensity of ED symptoms and presence of selected impulsive behaviours were evaluated at hospital admission and discharge, and three, six and twelve months after, using an internal Eating Disorder Unit Questionnaire. For statistical analysis multivariate analysis of variance was used.

**Results:** Throughout the research period the appropriate changes in BMI were observed in both patient groups. In both, AN and BN patient groups, the evaluation of longitudinal differences regarding the intensity of all ED symptoms and the presence of studied impulsive behaviours showed a significant decline at discharge and all subsequent assessments compared to the results obtained upon admission to the hospital. The re-hospitalization rates of patients with AN and BN in the first year after discharge from the hospital were 3.84% vs. 3.7% respectively.

**Conclusions:** In male patients with AN and BN treated at the EDU UPCL, ED symptoms, BMI, and studied impulsive behaviours show a substantial improvement during hospital treatment. These changes seem to be long lasting, still being effective through one-year post-hospitalization follow-up.

**Key words:** male patients, eating disorder, symptoms, impulsive behaviour, treatment

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### INTRODUCTION

It is estimated that in clinical settings males represent 10-25% of anorexia nervosa (AN) and bulimia nervosa (BN) patients. It appears that this proportion is increasing as more men with eating disorder (ED) are either seeking help or being identified in treatment (Weltzin et al. 2005, Hudson et al. 2007). Because ED has been typically viewed as a feminine illness affecting merely women, males suffering from ED may feel significant shame or may tend to minimize, deny, or lack insight about the illness; consequently they have been significantly neglected in both diagnosis and treatment. Due to substantial under-representation of male ED patients in the literature, as well as their small sample sizes in the existing studies, our knowledge about clinical characteristics of male EDs is sparse (Darcy 2011, Strother et al. 2012).

Many studies have reported gender similarities in this regard (Striegel et al. 2012, Weltzin et al. 2005, Woodside et al. 2001), while others have pointed out clinical specifics of male EDs that arise from their different etiopathological background when compared to female patients. They found that men with EDs

present to treatment at a later age of onset, are more likely to have a history of pre-morbid overweight, higher desired BMI, significantly higher intensity of physical hyperactivity and vomiting with lower laxative abuse, and have less body image concern and lower drive for thinness (Button et al. 2008, Guegen et al. 2012, Núñez-Alvaro et al. 2012, Spann & Pritchard 2008). In community samples, males with EDs appear to have more psychiatric comorbidity and psychosocial morbidity than females with EDs (Fernández-Aranda et al. 2004). Personality research on AN and BN patients has revealed that an important role in the pathogenesis of these EDs as well as in their relapses may be attributed to heightened aggression and impulsivity, frequently reported in these patients, being especially prominent in the binge-purging subtypes of AN and BN (Ahren-Moonga et al. 2008, Dawe & Loxton 2002). In these patients they are highly correlated with the difficulty in expressing anger, which together with the lack of impulse control may lead to different forms of intense self-destructive impulsive behaviours (Fassino et al. 2001, Fernández-Aranda et al. 2004). The most characteristic ones are bingeing unrelated to ED, alcohol and other psychoactive substance abuse, gambling,

quarrelling, fighting, stealing, excessive money spending, self-injurious behaviour, suicidality and participating in risky and reckless sexual engagements (Fisher et al 2008). Such behaviours are known to be in close correlation with AN and BN (Alvarez-Moya et al. 2007) and represent important predictors of poor course and outcome of ED itself, as well as of higher incidence of its relapse. Furthermore, in the ED recovery phase, they tend to withdraw along with the improvement of specific ED symptomatology (Clausen 2008). In male patients with EDs, especially alcohol and other psychoactive substances abuse are prominent (Barry et al. 2002, Fernández-Aranda et al. 2004).

Contemporary treatment programs for patients with EDs should employ evidence-based multidisciplinary and comprehensive working practices that are in line with NICE and APA guidelines for the treatment of EDs. Services available for treating EDs can range from intensive inpatient programs (where general medical care is readily available) to residential and partial hospitalization programs to varying levels of outpatient care (where the patient receives general and psychiatric medical treatment, nutritional rehabilitation and counselling, and psychosocial interventions with individual, group and family psychotherapy). Regarding psychotherapeutic interventions, therapies to be considered include cognitive – behavioural (CBT) or cognitive – analytic therapies, interpersonal psychotherapy, focal psychodynamic therapy and family interventions focused on ED. Although patient's gender per se does not appear to influence the outcome of treatment, APA guidelines point out gender specific issues to be addressed in treatment of male ED patients, i.e. lower drive for thinness and different body image concerns (upper torso and muscularity) in male ED patients, personality traits (less perfectionism, harm avoidance and reward dependence behaviours, less cooperativeness than female ED patients), more frequent issues concerning sexual orientation than among female ED patients, and potential stigmatization of male patients from female patients in treatment. Therefore, where possible, therapy groups restricted to male patients are recommended (NICE 2004, APA 2006).

However, considerable differences exist among different ED treatment models currently employed for patients with EDs, especially with regard to different out- and inpatient settings, inclusion criteria and intensity of care, techniques used for enhancing patient's motivation for change, treatment duration, addressing gender and age specific issues, as well as techniques and design of psychotherapeutic treatment used (Frisch et al. 2006, Zipfel et al. 2002). Considering ED treatment model heterogeneity, in addition to differences in study designs, study groups and methodology applied in ED treatment efficacy research, contradictory findings are found regarding long term prognosis and outcome of EDs. Some studies report no significant gender difference in this respect (Muisse et al. 2003, Weltzin et al.

2005, Woodside et al. 2001), while others however have referred to a better (Lindblad et al. 2006, Strober et al. 2006, Støving et al. 2011) or even a poorer outcome (Oyebode et al. 1988) in male patients when compared to females of the same ED diagnosis.

In the Slovenian treatment model for EDs (Eating Disorder Unit (EDU) at the University Psychiatric Clinic Ljubljana, Slovenia (UPCL)) the NICE and APA guidelines for treating patients with EDs are highly followed. Throughout the therapeutic process gender specific issues are being carefully addressed, incorporating a focus on specifics in nutritional rehabilitation (i.e. larger energy intakes and larger weight gain in males with AN when compared to females), as well as psychosocial issues unique to male patients (weight history, sexual orientation, specific body image concerns, abuse of exercise, history of alcohol and drug abuse, specific media pressures, and the unique dynamic of male depression and shame). Using such approach, very positive treatment outcomes may be achieved for male patients with EDs (Fernández-Aranda & Jiménez-Murcia 2009).

To evaluate therapeutic process, a register of treated patients with EDs has been maintained in the EDU UPCL since its foundation. In 2010, the evaluation of EDU treatment model was conducted on female AN and BN patients using longitudinal assessments of the intensity of ED symptoms as well as of the presence of selected impulsive behaviours (Sernec et al. 2010). However, the evaluation of the EDU treatment model for male patients hasn't been done yet. The aim of the present study was to evaluate treatment efficacy in male patients with AN and BN treated at the EDU UPCL, using longitudinal assessments of the intensity of ED symptoms as well as of the presence of selected impulsive behaviours from admission to the hospital till twelve months after.

## SUBJECTS AND METHODS

### Subjects

The study included 35 male patients with AN (26 of restrictive and 9 of purgative subtype) and 35 male patients with BN (all of purgative subtype), diagnosed and treated at the EDU UPCL between August 2004 and August 2014. The inclusion criteria were as follows: a clear diagnosis of AN or BN according to DSM-IV criteria (APA 1994) and a stable physical condition with the BMI of more than 12 kg/m<sup>2</sup>. Mean BMI in AN and BN group (at the admission to the hospital) was 16.77 kg/m<sup>2</sup> (SD=2.66) and 22.28 kg/m<sup>2</sup> (SD=2.42). The exclusion criteria in both study groups were age under 17 years, any psychiatric co-morbidity (other than those under study investigation), mental disorder due to a general medical condition or serious somatic or neurological disease.

Nine AN and 8 BN patients were excluded from the study upon exclusion criteria, thus leaving a total num-

ber of 26 AN patients (18 of restrictive and 8 of purgative subtype) and 27 BN patients (all of purgative subtype) suitable for the assessments. Afterwards, until three months after discharge, there were no dropouts of patients in either patient group. However, in a period between the third and sixth month after discharge 2 AN patients (1 for somatic disease and 1 for poor compliance) and 1 BN patient (for poor compliance) were excluded. Consequently, six months after discharge from the hospital 24 AN and 26 BN patients were assessed. Between the sixth month and one year after hospitalization another patient was excluded in each patient group (in AN for somatic disease, in BN for poor compliance), leaving the final number of 23 AN (16 of restrictive and 7 of purgative subtype) and 25 BN (all of purgative subtype) patients that completed the study.

Participants' age range was broad: 19-37 years old with an average age 26.69 (SD 4.96; range: 20-37 years) in AN and 27.52 (SD 5.22; range: 19-37 years) in BN group. Regarding education, proportions of patients in AN and BN group having only primary school education were 23% vs. 26%, of those with secondary school education 58% vs. 61% (including current students), and of patients having university education 19% vs. 13% (including current students). The employment status of patients with AN and BN was as follows: employed 35% vs. 30%, unemployed 19% vs. 22%, and having student status 46% vs. 48%. Regarding the marital status in AN and BN group, the proportions of single patients were 70% vs. 72%, while of those with a spouse or partner were 30% vs. 28%.

The study was approved by the National Medical Ethics Committee of the Republic of Slovenia and informed consent was obtained from all participants.

## Methods

### *EDU UPCL treatment model*

The EDU UPCL treatment model is comprised of four treatment stages: outpatient psychiatric management with strong motivational support, inpatient – hospital program, daily clinic psychiatric management and further outpatient psychotherapeutic treatment. The EDU UPCL hospital treatment for patients with AN and BN is designed as a multidisciplinary and multidimensional program that integrates several treatment components and medical management approaches, including nutritional, educational, pharmacological, CBT, interpersonal, psychodynamic, and family therapy. The overall treatment duration depends less on ED type itself and more on individual psychological developmental delay, with the average duration of hospital treatment being 3 to 4 months. The EDU UPCL is a mixed gender unit with the capacity for 8 female and 4 male residents. Admission criteria for patients with AN and BN are: age > 17 years, severe forms or lack of marked improvement of AN and BN during an outpatient treatment, appropriate patient's readiness – motivation for inpatient treatment (developed and assessed during pre-

hospital outpatient psychiatric management), the absence of acute psychotic episode, ongoing psychoactive substance addiction or serious somatic illness. Almost all admissions (except for most severe ED cases) are planned, with patients attending intensive 4-6 month pre-hospitalization motivational treatment in an outpatient setting.

The inpatient treatment program is divided into three phases: symptomatic, psychodynamic and psychosocial – reintegration phase. In the symptomatic phase, if necessary intensive somatic treatment is provided, however, nutritional rehabilitation and education, as well as CBT (to establish appropriate behavioural patterns with regard to eating and body weight) are the mainstay of this treatment phase. In the psychodynamic phase, patients explore their relations towards themselves and dynamic background of ED itself participating in individual and group psychotherapy treatment. Psychotherapeutic groups include patients of both genders, sensitively incorporating female and male specific issues. The purpose of psychosocial – reintegration phase is that patients develop clear and definite plans for the future, focusing on the changes they wish to enhance in their immediate and larger social environment. Individual (once weekly, 60 min) and group (8 female and 4 male participants, twice weekly, 90 min) psychotherapeutic treatment is being held throughout the hospitalization and continues even after discharge from the hospital, when patients first attend daily clinic and then further outpatient management. Moreover, during hospitalization all patients receive supportive therapeutic interventions in the form of music and art therapy, psychodrama, dance/movement therapy and animal-assisted therapy. Throughout the entire therapeutic process, active involvement of patient's family is an important component of ED treatment. Apart from individual family therapy, therapeutic groups for patient's family members and/or close friends are being held once a week, once a month with patient's participation.

### *Assessments*

All assessments were obtained by an experienced and trained psychiatrist in a quiet ambulatory environment. The intensity of ED symptoms (starving, excessive exercise, vomiting and purging), BMI, as well as the presence of selected impulsive behaviours (binging unrelated to ED, alcohol abuse, thefts in shops or other places, gambling, fighting, quarrelling, intentional self-injury, suicidal behaviour, psychoactive substance abuse, excessive money spending and impulsive sexual activities) were assessed at admission, discharge and three, six and twelve months after discharge using the internal Eating Disorder Unit Questionnaire (based on Herzog & Kamryn 2007). The latter represents a comprehensive self-rating non-standardized questionnaire, which patients together with the psychiatrist fulfil at each assessment point. Apart from data about the intensity of ED symptoms, it also provides information

on anthropometric parameters (patient's height and weight), presence of selected impulsive behaviours as well as sociodemographic data (patient's age, education (primary, secondary or university level (including current students)), employment (employed, unemployed, student or retired) and marital status (single or with a spouse or partner). To evaluate ED symptoms – starving, vomiting and purging (abuse of laxatives and/or diuretics) to influence body shape or weight, as well as physical hyperactivity (excessive, compulsive or compensatory exercising) in the last 4 weeks prior to the evaluation, the ascending scale of the symptom intensity from 1 (minimal or absent) to 5 (very frequent, fully expressed) is used. The above mentioned selected impulsive behaviours are assessed as dichotomous variables (present or absent).

### Statistical analysis

Variables assessed were analysed using multivariate analysis of variance (MANOVA), enabling us to estimate the likelihood of differences between the individual study groups on the basis of a null hypothesis. Repeated measures design was used to estimate longitudinal differences within the variables. The results are shown using descriptive statistics, Rao R (in the MANOVA Rao R exactly follows the F distribution) and p values. Differences in comparisons were regarded statistically significant where p value was less than 0.05. The re-hospitalization rate was calculated as the proportion of patients (that have entered the study on the basis of inclusion and exclusion criteria) within individual study group that were re-admitted to the hospital within the first year after discharge from the hospital.

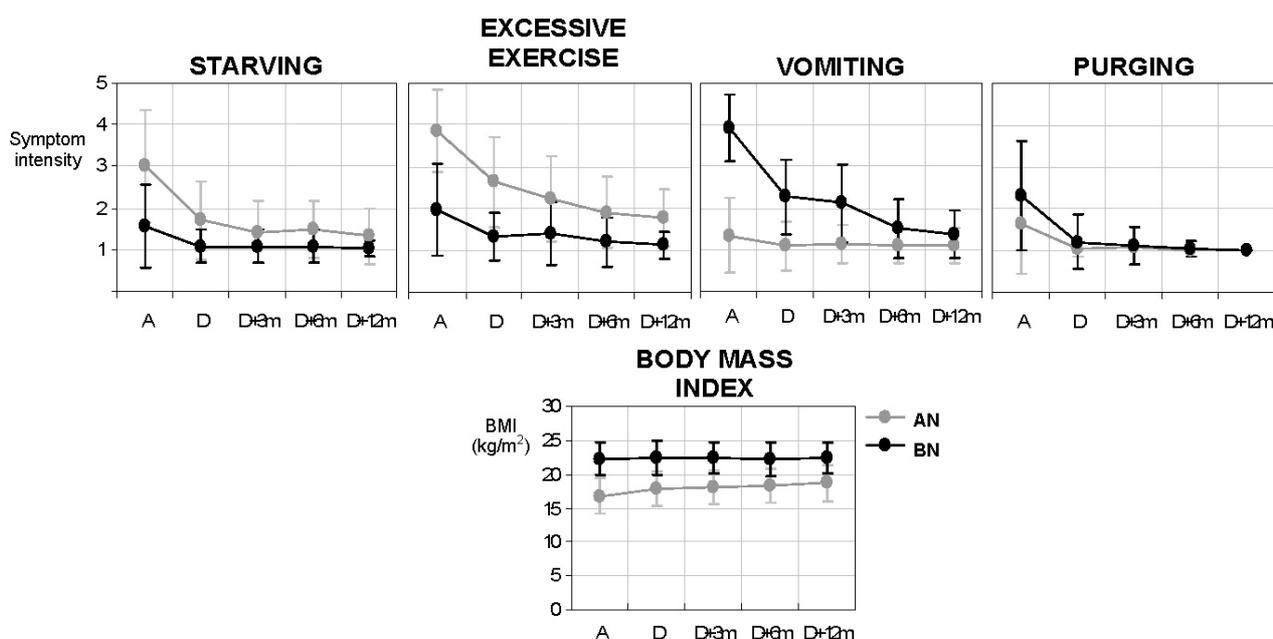
## RESULTS

### Eating disorder symptoms and body weight

In both patient groups the evaluation of longitudinal differences regarding the intensity of all ED symptoms and BMI showed a significant improvement at discharge and all subsequent assessments compared to the results obtained upon admission to the hospital (RaoR (12.2)=3.4,  $p=0.007$ ). After discharge from the hospital, in both patients groups starving, physical hyperactivity and vomiting all showed further trend of improvement, with purging remaining permanently low till the end of the study period. However, in the AN patient group, although at low levels, physical hyperactivity still persisted, while other ED symptoms practically disappeared through the follow-up period after discharge from the hospital. In the BN group however, a decline in the intensity of vomiting was slower compared to other ED symptoms, although at 12 months after discharge from the hospital comparably low levels were observed in regard to all analysed ED symptoms (Figure 1).

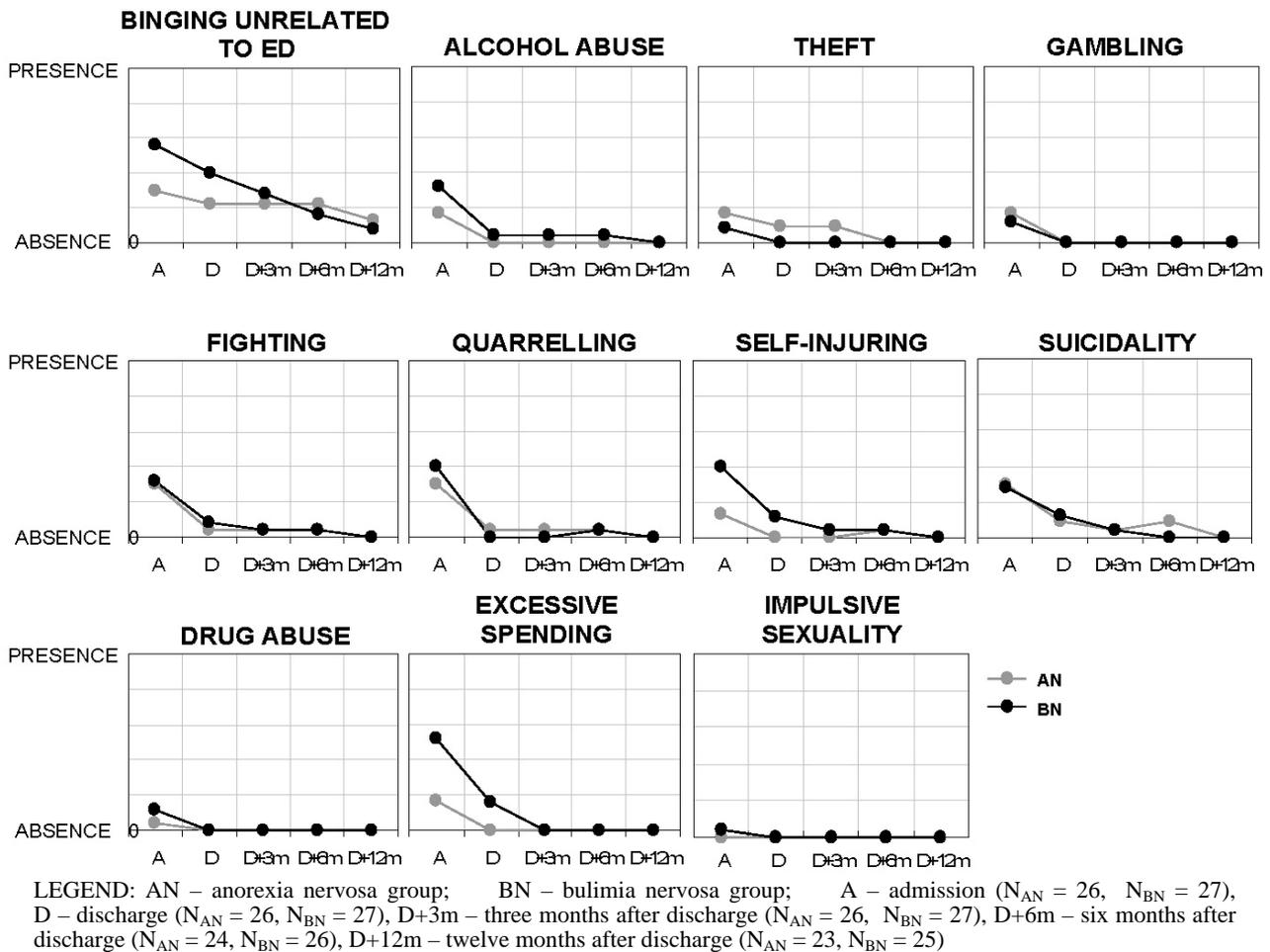
### Impulsive behaviours

In both patient groups the evaluation of longitudinal differences regarding the presence of all studied impulsive behaviours showed a significant decline at discharge and all subsequent assessments compared to the results obtained upon admission to the hospital (RaoR (20.31)=4.38,  $p=0.001$ ). After discharge from the hospital, in both patient groups all studied impulsive behaviours showed further trend of improvement and their gradual disappearance was observed (Figure 1).



LEGEND: AN – anorexia nervosa group; BN – bulimia nervosa group; A – admission ( $N_{AN} = 26$ ,  $N_{BN} = 27$ ), D – discharge ( $N_{AN} = 26$ ,  $N_{BN} = 27$ ), D+3m – three months after discharge ( $N_{AN} = 26$ ,  $N_{BN} = 27$ ), D+6m – six months after discharge ( $N_{AN} = 24$ ,  $N_{BN} = 26$ ), D+12m – twelve months after discharge ( $N_{AN} = 23$ ,  $N_{BN} = 25$ )

**Figure 1.** The intensity of eating disorder symptoms in male anorexia and bulimia nervosa patients at individual assessments



**Figure 2.** The presence of impulsive behaviours in male anorexia and bulimia nervosa patients at individual assessments

Of all studied impulsive behaviours, binging unrelated to ED was the only behavioural pattern that still persisted, although at low frequency, in both patient groups throughout the study period. From three months after discharge on, all other impulsive behaviours practically disappeared in both study groups (Figure 2).

### Anorexia and bulimia nervosa re-hospitalization rate in the first year after hospitalization

In the first year after hospitalization the re-hospitalization rates in the AN and BN groups were 3.84% (1 of 26 patients) vs. 3.7% (1 of 27 patients).

## DISCUSSION

Regarding ED specific symptoms and body weight changes, the results in both patient groups showed a substantial improvement throughout the research period, reaching the levels seen in an outpatient population. However, a decline in the intensity of physical hyperactivity in the AN patient group and of vomiting in the BN patient group were slower than that of other ED symptoms.

Considering a substantial under-representation of male ED patients in the literature, as well as their small sample sizes in the existing studies, regarding ED symptomatology a considerable heterogeneity exists in this research field, and we are still far from obtaining a clear picture of the clinical characteristics of males with ED (Darcy 2011). However, in most studies similar results were observed with excessive exercising among AN and vomiting among BN patients presenting as leading and most resistant compensatory behaviours of these disorders in males (Strober et al. 2006, Strother et al. 2012). Regarding BMI values, recommended weight gain (AN) or sustain (BN) (APA 2006) was observed in all patients. In most longitudinal studies investigating the efficacy of different ED treatment models for male ED patients with regard to the intensity of ED symptomatology and weight changes, the assessments were only performed at the admission and discharge from the hospital. Moreover, most of them failed to differentiate the outcome for the specific ED subtypes. However, our results are in line with the findings of similar studies performed by Weltzin et al., which were conducted on male patients with EDs in an inpatient – residential format with a comparable ED therapeutic model to that of EDU UPCL. In their study on patients

with AN and BN, pre- and post treatment measures of ED symptomatology and weight changes showed a substantial improvement from admission to discharge, reaching values seen in an outpatient setting (Weltzin et al 2012). The study did not involve any follow-up period after discharge from the hospital. However, in another study from the same ED treatment centre conducted on males with AN and BN, significant improvements in both the severity of ED symptoms and weight changes observed at discharge from the hospital were long lasting because they were still effective one year after discharge from the residential treatment (Weltzin et al. 2007). In their ED treatment model very similar therapeutic approach and techniques are included in comparison to the ones used by EDU UPCL. Similarly to EDU UPCL model, male and female patients are not entirely separated (they co-mingle for recreational therapy and for exposure-based CBT), but males have separate therapy groups, program schedules and eating times, as well as separate identified therapist, which is not the case at the EDU UPCL, where male and female patients are treated together.

Considering the fact that in the EDU UPCL treatment model only mix-gender therapeutic groups are applied (8 female and 4 male participants), one could speculate that the recommendation for treating male AN and BN patients separately from female patients where ever possible (APA 2006), is not of crucial importance in regard to treatment efficacy. Indeed, to our clinical experience treating female and male ED patients together does not represent an obstacle; on the contrary, it even proves to be beneficial. Namely, such treatment setting, where patients of both genders and of quite a broad age range are being sensitively addressed together, allows patients to be appropriately protected, as well as exposed to an environment reflecting the real life social circumstances at the same time. Moreover, in psychotherapeutic groups, heterogeneous regarding gender and age, different transference roles are possible, which in our experience represents an additional benefit for the participants. However, high professional experience assures that individual patient's specific issues are being properly addressed and additionally worked on in the individual and family therapy format.

During one-year post-hospitalization follow up, very low levels of patients' re-hospitalization were observed, indicating that in the first year after inpatient treatment the majority of the sample retained the intensity of their ED symptoms and body weight similar to that achieved at discharge from the hospital and seen in an outpatient population. Due to small number of similar studies and their substantial heterogeneity regarding treatment models, indications for hospitalization and severity of the ED at hospital admission, study designs and small sample sizes, it is difficult to compare these results with the findings in the existing literature. However, in the

study of Weltzin et al. (2007), at one-year post-hospitalization follow-up in most AN and BN patients similar treatment effects to those observed at discharge from the hospital were still present. Considering that initial ED severity level as well as the level of patient's motivation for treatment are considered important predictors of treatment efficacy (Treasure & Bauer 2003, Treasure et al. 2010), low re-hospitalization levels observed in our study could possibly be explained by the fact, that at the EDU UPCL patients suffering from the most severe ED forms are exceptionally rare (1-2 cases per year) and that the majority of inpatients are considerably motivated when entering hospital treatment.

Similarly to the intensity of ED symptoms and weight changes, the frequency of all studied impulsive behavioural patterns significantly declined until discharge from the hospital in both study groups. They showed further trend of improvement till the end of the study; almost all of them were even completely absent. These behaviours are known to be in close correlation with AN and BN (Alvarez-Moya et al. 2007), they represent important predictors of poor course and outcome of ED itself, and during ED recovery phase they tend to withdraw along with the improvement of specific ED symptomatology (Clausen 2008). Similar results were reported in our previous studies conducted on female AN and BN patients (Sernec et al. 2010, Zalar et al. 2011).

## Limitations

The variables were assessed using a non-standardized questionnaire, which makes the results less reliable and difficult to compare with the findings of similar studies in the field. Also, more clinical data together with the assessment of body image distortion, and other psychological parameters should be addressed to establish a clearer estimate of clinical presentation of the sample. Moreover, with regard to the heterogeneity of behaviours within the various diagnostic sub-groups, our results would be more accurate and easier to interpret when performing separate analysis of data from different AN and BN subtypes. However, only 7 of the final 23 patients with AN had purgative subtype, while in BN group all patients had purgative subtype of the disorder. Considering the small number of male ED patients that seek professional help, as well as the small population of the country (Slovenia has 2 million residents, the EDU UPCL is the only inpatient ED treatment centre for all patients > 17 years old), despite long recruitment phase (10 years) the sample size was small.

## CONCLUSIONS

In male patients with AN and BN treated at the EDU UPCL, ED symptoms, BMI, and selected impulsive

behaviours show a substantial improvement during hospital treatment. These changes seem to be long lasting, still being effective through one-year post-hospitalization follow-up.

**Acknowledgements:** None.

**Conflict of interest:** None to declare.

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