

# Effect of Management of Patients with *Anorexia* and *Bulimia nervosa* on Symptoms and Impulsive Behavior

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## ABSTRACT

The aim of the study was to provide further and up to date information on the evaluation of the management of Anorexia and Bulimia nervosa at the Eating Disorders Unit (EDU) of the Ljubljana Psychiatric Clinic, based upon detailed assessment of the eating disorders specific and non specific symptoms of impulsive behaviors, highly correlated with these entities. 34 female patients with anorexia (restrictive or purgative type) and 38 female patients with Bulimia nervosa (purgative or non-purgative type) undergoing hospital treatment at the EDU were evaluated upon admission, as well as upon discharge and three and six months after discharge, using the Eating Disorder Questionnaire. Upon discharge a marked decrease in the overall symptoms was noted. The differences in symptoms incidences between the two groups were significantly specific for the individual form of eating disorder, especially upon admission, and were more pronounced in anorexia group. In later measurements, performed during the period of three and six months after discharge, a mild trend of increase in the disorder specific symptoms was detected in both groups, but was not statistically significant. In addition to bingeing on food, striking, quarreling and spending sprees are characteristics of patients with eating disorders, which in particular apply to the Bulimia nervosa group. Apart from the disorder specific symptoms, impulsive behavior was also reduced during study period, while the difference in its occurrence between the two groups gradually became non-significant. The management of patients with eating disorders at the EDU was successful in both groups, confirmed by an intense reduction of the disorder specific symptoms, impulsive behavior and increased stability recorded three and six months after discharge. The study strongly suggests that the effect of treatment regime for eating disorders can be predicted by careful assessment of the relevant symptoms and impulsive behavioral patterns.

**Key words:** Anorexia nervosa, Bulimia nervosa, symptoms, impulsive behavior, treatment

## Introduction

Anorexia and Bulimia nervosa are important public health problems. Together with compulsive overeating they represent the group of eating disorders, which are classified among mental disorders. However, there are significant differences between them in terms of epidemiology, etiology, symptoms, comorbid disorders and management<sup>1-3</sup>. In recent years, new types of eating disorders have appeared, such as *Orthorexia* and *Bigorexia nervosa*, also determined by characteristic clinical and epidemiological presentation and certain comorbid states. According to data from foreign health care registers, 7 cases of *Anorexia* and 14 cases of *Bulimia nervosa* per 100,000 inhabitants are newly diagnosed every year<sup>4</sup>.

Eating disorders are affective disorders which are manifested as an altered attitude toward food. They are an external manifestation of deep mental and emotional excitement and a lack of self-acceptance. Persons suffering from eating disorders express their emotional problems via changed attitude toward food and eating<sup>5</sup>. However, the apparent problem with food actually conceals deep suffering caused by a whole range of reasons. Eating or declining to eat becomes an expression of liberation from internal painful and unrecognized feelings<sup>6</sup>. Eating disorders may also constitute a reaction to long-term unresolved stressful situations, which have lasted for several years<sup>7</sup>. Therefore, in essence these are not

true eating disorders, but disorders of self-acceptance. Adolescents with eating disorders experience themselves as ugly, incompetent and unsuccessful. They are never satisfied with themselves, even though they may have performed a set of tasks very well. They lack self-confidence and self-respect and have a poor self image<sup>8</sup>.

*Anorexia nervosa* is the third most common chronic disease among adolescent females<sup>9</sup>. It's prevalence is 1% and has not changed much over last decades (in distinction from bulimia) and is stable<sup>10</sup>. For about every nine to ten females, one male will fall ill with this disease<sup>11</sup>. *Anorexia nervosa* most commonly becomes clinically manifest on the transition from childhood to adolescence through pronounced weight loss (Body Mass Index (BMI) > 17.5 kg/m<sup>2</sup>) and a panic fear of obesity. The person's image of his/her body (body schema) becomes distorted. Consequentially, girls also lose their periods<sup>12</sup>.

*Bulimia nervosa*, on the other hand, is most commonly manifested on the transition from adolescence to early adulthood, i.e. later than anorexia. Periods of bingeing, during which such patients consume enormous amounts of food in a very short time, are followed by attempts to prevent the consequential increase in body weight, as they have a panic fear of obesity<sup>12</sup>. Approximately 50% of bulimia patients achieve complete cure, others experience repeated occasional symptomatic periods, while only a small percentage of them suffer from a lifelong chronic form of the disease<sup>13–15</sup>. In 33% of cured patients the disorder recurs. The indicators of poor prognosis include the duration of the disorder, history of failed treatment attempts, associated abuse or addiction to psychoactive substances, more pronounced impulsive behaviors and personality disorders<sup>16</sup>. The outcome of treatment in bulimia patients is much better than in those with *Anorexia nervosa*. Hence, their management is shorter and the relapse rate lower<sup>17</sup>.

Inappropriate behavioral patterns directly related to the basic disorder primarily include starving, excessive physical activity, bingeing and abuse of laxatives and diuretics. However, these are only external signs of the primary mental disturbance of eating disorder<sup>18</sup>. Frequently, other inappropriate and harmful behavioral patterns are observed, which may either be direct signs of an co morbid mental disorder or are merely its preliminary stage, and are classified as impulsive behavioral patterns (bingeing that is unrelated to the eating disorder, drinking of large amounts of alcohol, stealing, gambling, auto- and heteroaggression, provocativeness and quarreling, suicide attempts, abuse of psychoactive substances, excessive spending, participation in reckless and risky sexual behavior). Drinking of large amounts of alcohol is also commonly encountered in patients with eating disorders. The severity of this symptom may range widely, from mild abuse to severe alcohol addiction. The degree of abuse and addiction in patients with eating disorders ranges between 10% and 26%<sup>19</sup>. Studies focused on the detection of patients with *Anorexia nervosa* who abused illicit psychoactive substances (heroin, cocaine, cannabis) or were addicted to them have stated lifetime preva-

lence rates ranging from 22% to 33%<sup>20,21</sup>. Older studies showed that 20% of patients with *Bulimia nervosa* abuse or are addicted to legal and/or illegal psychoactive substances<sup>22</sup>, while more recent ones show even higher figures and state 26% of bulimia patients abusing such substances or being addicted to them<sup>23</sup>. Pearlstein's review study showed that the lifetime prevalence of abuse of legal and/or illegal psychoactive substances in bulimia patients ranges from 30% to 70%<sup>21</sup>. Patients with eating disorders often exhibit harmful behavioral patterns that are actually signs of impulse control disorder. They include petty theft and stealing (kleptomania), excessive spending, addiction to gambling (pathological gambling), intermittent explosive behaviors or actions (intermittent explosive disorder) and pyromania<sup>12</sup>. There have been several attempts to confirm or refute the assumption that eating disorders could be classified among impulse control disorders. Álvarez et al., for example, have been researching this question for several years. It was found that patients with eating disorders, primarily those with bulimia, exhibit more behavioral patterns which are characteristic of impulse control disorders than the general population, but they still do not fulfill all of the criteria for being classified in this group<sup>24,25</sup>. Some of the above mentioned harmful behavioral patterns are also characteristic of patients with eating disorder and coexisting personality disorder, who are often impulsive and reckless<sup>26–28</sup>.

Eating disorders cause distress with physical, mental and social problems and the appearance of secondary mental disorders, primarily depression and anxiety. More severe forms may lead to chronic morbidity, reduced work ability and potentially death<sup>29</sup>.

The Slovene model of hospital treatment for such disorders is multidimensional and takes into account the individual's cognitive abilities and emotional needs<sup>30</sup>. In our treatment model for eating disorders, an educational programme about the significance of appropriate diet and the consequences of inappropriate dietary habits, which also comprises assertiveness training and training of social skills including problem-solving, also plays an important role and prevents relapses. However, the basis of treatment is group and individual psychotherapy comprising the elements of behavioral/cognitive and dynamic psychotherapy (psychoanalytical approach). Both forms of psychotherapy are strongly supported by scientific evidence<sup>31</sup>, even though the later still lacks explicit neuroscientific explanation<sup>32</sup>. The indications for admission to the Eating Disorders Unit (EDU) of the Ljubljana Psychiatric Clinic, which also constituted the inclusion criteria for the study, are: marked clinical presentation of *Anorexia nervosa*, *Bulimia nervosa*, compulsive bingeing or more recent forms of eating disorders, such as *Orthorexia nervosa* and *Bigorexia nervosa*. The inclusion of relatives (parents, partners, siblings, etc.) in the treatment process is also an important part of treatment. Contraindications for the inclusion in the EDU treatment programme are as follows: age under 17, acute psychotic episode, ongoing psychoactive substance abuse and serious

somatic illness. Hospital treatment at the EDU lasts three to four months on average and is divided into three phases. During the first – symptomatic phase – we help patients to establish an appropriate attitude to food, drink, body weight and to their own self-image, primarily using behavioral/cognitive psychotherapy. The second phase is psychodynamic, with the aim of recognition of patient’s self-attitude and the dynamic background of their disorder through group and individual psychotherapy. The third phase is the reintegration or social phase, in which patients plan their future in clear and concrete terms, along with the changes they want to enforce within their narrow and wider social environment. After discharge patients are first admitted to the Daily Unit, afterwards they participate in the outpatient psychotherapeutic group and undergo further outpatient treatment. The duration of treatment depends less on the eating disorder type than on the actual developmental delay of each individual. The earlier the onset of a disorder during childhood and adolescence and the deeper it interferes with the formation of the patient’s personality structure, the longer and more difficult its treatment will be<sup>33</sup>.

The above mentioned treatment model has been followed up and evaluated from the inception of the EDU. The first results were quite comparable to similar reports from around the world and in some segments they were even better<sup>34,35</sup>. The aim of the present study was to provide further and up to date information on the evaluation of the described treatment regime at the EDU of the Ljubljana Psychiatric Clinic, based upon detailed assessment of the eating disorders specific and non specific symptoms of impulsive behaviors, highly correlated with these entities.

### Patients and Methods

At the beginning the study included 50 patients with *Anorexia* and 50 patients with *Bulimia nervosa*, diagnosed and treated at the Eating disorders Unit of Ljubljana Psychiatric Clinic, according to the International Classification of Diseases (ICD) diagnostic criteria and EDU treatment programme contraindication protocol. At the end 34 female patients with *Anorexia* and 38 female patients with *Bulimia nervosa* completed the study. All the patients included in the study signed an informed consent. The study was approved by the Medical Ethics Committee.

The two groups of patients were equalized in terms of age; the average age in *Anorexia nervosa* group was 23.8 years, for patients with *Bulimia nervosa* it was 25.0 years ( $t=0.914$ ;  $p=0.36$ ).

The samples were comparable and the possibility of type I error was excluded by using the univariate Newman-Keuls Test (critical ranges 0.10–0.22). The symptoms and severity of impulsive behaviors were assessed upon admission, discharge and three and six months after discharge. Standardized variables were used in the analysis of variance (MANOVA), enabling us to estimate the likelihood of differences between the individual groups on the basis of a null hypothesis and we used repeated measures design to estimate longitudinal differences within the variables. These results are shown in the form of p-values.

Using the Eating Disorder Questionnaire<sup>29</sup>, the presence and severity of the symptoms of individual eating disorders (disorder specific symptoms) were evaluated, along with the severity of those impulsive behaviors which are most characteristic of patients with eating disorder (binging, drinking of large amounts of alcohol, theft in shops or other places, fighting, quarreling and argumentativeness, pyromania, intentional self-injury, suicide attempts, abuse of or addiction to psychoactive substances, excessive spending and involvement in sexual activities, which can be described as uncontrollable or reckless).

### Results

#### Eating disorder specific symptoms

Repeated measurements: RaoR (12.2)=3.40; \* $p=0.0075$

As it is seen in Tables 1 and 2 and represented in Figure 1, the symptom of starving is a crucial distinction be-

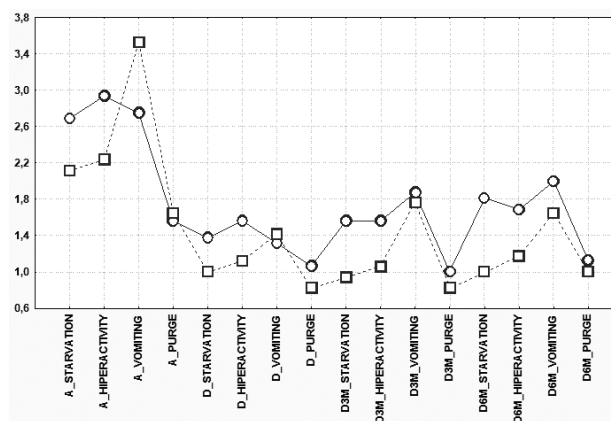


Fig. 1. Symptoms in *Anorexia* and *Bulimia nervosa* upon admission, discharge and 3 and 6 months after. □ – *Bulimia nervosa* group, ○ – *Anorexia nervosa* group, A – upon admission, D – upon discharge, D3M – 3 months after discharge, D6M – 6 months after discharge.

TABLE 1  
DIFFERENCES BETWEEN ANOREXIA AND BULIMIA NERVOSA GROUP IN ALL SYMPTOMS EXPRESSION ACCORDING TO RESEARCH PHASES

Symptoms	Admittance		Discharge		3 months after discharge		6 months after discharge	
	RaoR (4.68)	p	RaoR (4.68)	p	RaoR (4.68)	p	RaoR (4.68)	p
	7.98	*0.00003	3.16	*0.021	1.63	0.184	2.36	*0.007

**TABLE 2**  
DIFFERENCES BETWEEN ANOREXIA AND BULIMIA NERVOSA GROUP IN SPECIFIC SYMPTOMS EXPRESSION ACCORDING TO RESEARCH PHASES

Symptom	Admittance		Discharge		3 months after discharge		6 months after discharge	
	F	p	F	p	F	p	F	p
Starvation	11.30	*0.002	7.96	0.006	2.41	0.127	6.81	*0.012
Hyperactivity	10.65	*0.001	5.44	0.023	4.27	0.044	2.01	0.163
Vomiting	9.57	0.028	0.97	0.329	0.09	0.758	0.079	0.779
Purge	0.32	0.572	3.44	0.068	0.489	0.487	3.18	0.082

tween the two samples and relatively constant, but more characteristic of patients with *Anorexia nervosa*. It shows a strong decrease upon discharge and a trend of slow increase in between measurements (three and six months after discharge). Hyperactivity is also a discriminating feature and is characteristic of patients with *Anorexia nervosa*. This symptom also shows a relatively strong decrease in intensity upon discharge, and afterwards there is a mild trend of increase. In the first phase, it represents a category of distinction between the anorexia and bulimia group, but within six months it transitions to a level of statistical non-significance. Vomiting upon admission is a distinct phenomenon in patients with *Bulimia nervosa*; it almost completely subsides after discharge and becomes equal in occurrence to the anorexia group. This is followed by a mild trend of increase, the difference, which is statistically non-significant between the two groups. It is interesting that in anorexia group the values of all symptoms (starvation, hyperactivity,

vomiting and purging) three and six months after discharge are (non-significantly) higher than in bulimia group. Even the use of laxatives (purging), the difference between the anorexia and bulimia groups during all four phases of the study was statistically non-significant, almost completely disappeared upon discharge and remained permanently low even when measured three and six months later. The results of phase measurements of all four measured symptoms (starvation, hyperactivity, vomiting and purging) upon discharge, three and six months afterwards compared to the ones obtained upon admission show statistically significant lower intensity values.

*Impulsiveness*

RaoR (20.32) = 4.568; \*p=0.0011

Binging is a permanently significant symptom in patients with *Bulimia nervosa* and is most evident upon

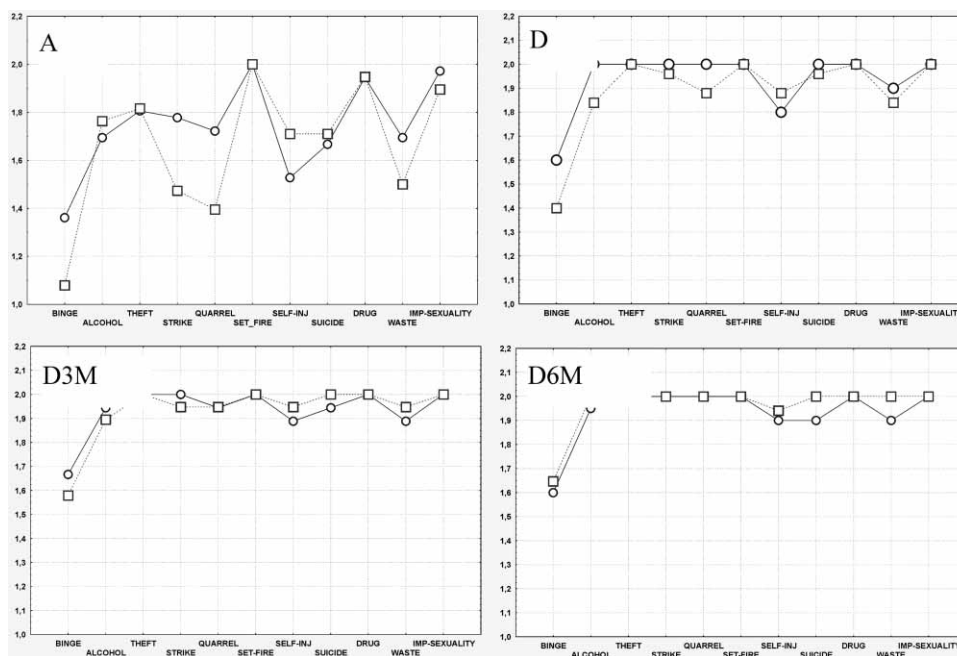


Fig. 2. Differences between *Anorexia* and *Bulimia nervosa* groups in specific categories of impulsive behavior; □ – *Bulimia nervosa* group, ○ – *Anorexia nervosa* group, A – upon admission, D – upon discharge, D3M – 3 months after discharge, D6M – 6 months after discharge, BINGE – binging, ALCOHOL – excessive alcohol consumption, THEFT – thefts, STRIKE – striking, QUARREL – quarrelling, SETFIRE – setting fire, SELFINJ – self-injuring, SUICIDE – suicide attempts, DRUG – drug abuse, WASTE – wasting, IMPSEX – impulsive sex behavior. According to research phases.

**TABLE 3**  
DIFFERENCES BETWEEN ANOREXIA AND BULIMIA NERVOSA GROUP IN ALL CATEGORIES OF IMPULSIVE BEHAVIOR ACCORDING TO RESEARCH PHASES

Impulsive behavior	Admittance		Discharge		3 months after discharge		6 months after discharge	
	RaoR (11.62)	p	RaoR (11.62)	p	RaoR (11.62)	p	RaoR (11.62)	p
	4.14	*0.00014	1.67	*0.102	4.14	0.835	0.368	0.936

**TABLE 4**  
DIFFERENCES BETWEEN ANOREXIA NERVOSA AND BULIMIA NERVOSA GROUP IN SPECIFIC CATEGORIES OF IMPULSIVE BEHAVIOR ACCORDING TO RESEARCH PHASES

Impulsive behavior	Admittance		Discharge		3 months after discharge		6 months after discharge	
	F	p	F	p	F	p	F	p
	BINGE	9.573	*0.002	1.769	0.190	0.288	0.594	0.082
ALCOHOL	0.433	0.512	3.640	0.063	0.292	0.592	0.846	0.363
THEFT	0.012	0.912	0.000	1.000	0.000	1.000	0.000	1.000
STRIKE	7.841	*0.006	0.796	0.377	0.945	0.337	0.000	1.000
QUARREL	8.756	*0.004	2.606	0.113	0.001	0.969	0.000	1.000
SETFIRE	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
SELFINJ	2.647	0.108	0.523	0.473	0.405	0.528	0.198	0.658
SUICIDE	0.161	0.688	0.796	0.377	1.057	0.310	1.786	0.189
DRUG	0.003	0.956	0.000	1.000	0.000	1.000	0.000	1.000
WASTE	2.936	0.090	0.333	0.566	0.405	0.528	1.786	0.189
IMPSEX	1.755	0.189	0.000	1.000	0.000	1.000	0.000	1.000

BINGE – bingeing, ALCOHOL – excessive alcohol consumption, THEFT – thefts, STRIKE – striking, QUARREL – quarreling, SETFIRE – setting fire, SELFINJ – self-injuring, SUICIDE – suicide attempts, DRUG – drug abuse, WASTE – wasting, IMPSEX – impulsive sex behavior

their admission to hospital (Figure 2, Table 4). Statistical significance was also found for physical aggression (striking) and quarreling (Table 4). In the subsequent measurement phases, the differences between all of these three specific features between the two groups became non-significant (Table 4) and showed a trend of improvement or gradual disappearance (Figure 2). Impulsive behaviors, such as spending sprees, self-injurious behavior, suicide attempts, theft and alcohol abuse are also characteristic of the two groups, while impulsive sexual behavior, arson and abuse of illicit psychoactive substances were not found to be statistically significant in our study (Table 3 and 4).

In the second phase of the study (discharge, three and six months after discharge), impulsive behaviors decreased strongly, some parameters were even slightly improved (Table 3 and 4, Figure 2 and 3).

## Discussion

Regarding eating disorders specific symptoms, the major discriminating features between *Anorexia* and *Bulimia nervosa* are starving and hyperactivity, which are both more characteristic of the *Anorexia* patients, as well as vomiting, which is more common in those with *Bulimia nervosa*<sup>3</sup>. The symptom of starving is present in

both entities, but is more expressed in *anorexia*<sup>18,29</sup>. According to our results, the process of therapeutic management at the Eating Disorders Unit (EUD) at the Ljub-

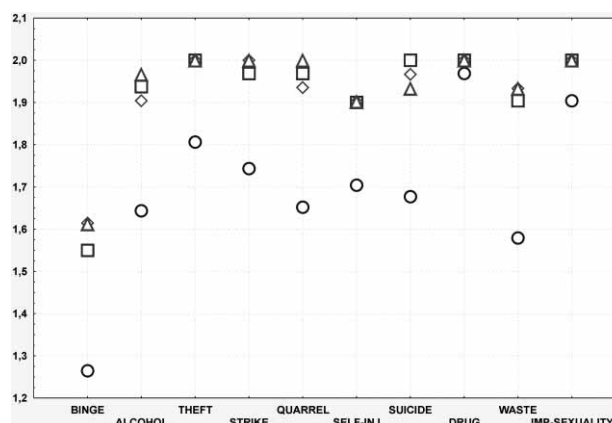


Fig. 3. Specific categories of impulsive behavior according to research phases (repeated measurements); ○ – upon admission, □ – 3 months after discharge, ◇ – 6 months after discharge, △ – 12 months after discharge, BINGE – bingeing, ALCOHOL – excessive alcohol consumption, THEFT – thefts, STRIKE – striking, QUARREL – quarreling, SETFIRE – setting fire, SELFINJ – self-injuring, SUICIDE – suicide attempts, DRUG – drug abuse, WASTE – wasting, IMPSEX – impulsive sex behavior.

Ljubljana Psychiatric Clinic had a remarkable effect on the symptom of starving, which in bulimia group did not recur at all for the duration of the study. In patients with *Anorexia nervosa*, an extreme reduction of the symptom intensity values was achieved, but three and six months after discharge there was a tendency towards linear increase, although it did not reach the level of a relapse. Thus, in the second phase of the study, the anorexia group approached bulimia group (regarding its characteristic symptom of vomiting), the observation, that could reflect the common basic etiological background of both disorders<sup>5-8</sup>. Another discriminating symptom between the two groups observed in our study was excessive physical activity, which was characteristic of the anorexia group. It showed a strong decrease upon discharge, even though there was a mild, but non-significant trend of increase afterwards. *Anorexia nervosa* has a greater impact on developmental processes, as it begins much earlier than *Bulimia nervosa*<sup>17</sup>. As a result, the developmental delays in anorexia patients are bigger and more persistent, the fact that could explain greater resistance of symptoms to treatment and a consequential mild trend of increase of already reduced symptoms of starving and excessive physical activity<sup>36</sup>, observed in our study as well. Vomiting was confirmed to be a distinct phenomenon upon admission, characteristic of patients with *Bulimia nervosa*. After management, it almost completely subsided and became equal in occurrence to the anorexia group. The difference in the trend of its increase between the two groups of patients, observed three and six months after discharge, is statistically non-significant, but it does indicate a similar trend as the one related to starving and excessive physical activity in anorexia group. It is interesting that in spite of the increase in vomiting as a symptom of the *Bulimia nervosa* disorder, patients with *Anorexia nervosa* achieved higher results for the severity of this symptom after six months than those with *Bulimia nervosa*. This observation may be in accordance to the fact, that *Bulimia nervosa* appear later during an adolescent's life, therefore the developmental delays are not so big and the disorder is less pronounced and less persistent<sup>29</sup>. The same finding of the study also indicates and warns of a need for more prolonged and dynamic in-depth management of *Anorexia nervosa* patients compared to those with *Bulimia*, as well as their requirement for longer and more intense further management after discharge from hospital, as already noted<sup>17</sup>.

As for impulsive behavioral patterns, known to be in close correlation with studied eating disorders<sup>24,25</sup> and to

be important markers of a poor prognosis of the eating disorder itself and its higher relapse incidence<sup>16</sup>, in bulimia group we found higher incidence of bingeing, quarrelling, physical aggression and spending sprees. In anorexia group however, only self-injurious behavior was a prominent feature. Upon discharge, all of the above-mentioned impulsive behaviors were significantly reduced and three and six months after discharge they showed a further trend of improvement. Three and six months after discharge the differences in the incidence of individual impulsive behavioral patterns between the two groups of patients also became statistically non-significant. These observations suggest that the efficiency of the studied EDU treatment regime wasn't reflected only in considerable improvement of the eating disorders specific symptoms, but also regarding impulsiveness, which is why the probability of relapses after such management should be at a low range.

Beside the already mentioned reflection of common etiological background of both studied entities, the observed mild trend of worsening of the eating disorders specific symptoms in both groups of our patients in the second – psychodynamic – treatment stage could be explained as the known and anticipated effect of all psychotherapy regimes at the point, where they hit strong psychological defense mechanisms. The fact, that intensity of eating disorder specific symptoms strongly declined already during the first phase of treatment, together with the observed dramatic improvement in non-specific impulsive behavior throughout the study period, confirms high efficiency of the EDU treatment model at the Ljubljana Psychiatric Clinic.

## Conclusion

The study confirmed known differences and similarities between the *Anorexia* and *Bulimia nervosa* patients regarding the incidence, intensity and marked improvement of eating disorders specific symptoms after treatment in Eating Disorders Unit at the Ljubljana Psychiatric Clinic. In addition, regarding a substantial decrease in impulsiveness it stressed the importance of establishment and management of non specific, but with eating disorders closely correlated impulsive behavior symptoms also, since their reduction is an indicator of a lower rate of the primary disorder relapses.

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## UTJECAJ BAVLJENJA PACIJENTIMA S ANOREKSIJOM I BULIMIJOM NA SIMPTOME BOLESTI I IMPULZIVNO PONAŠANJE

### SAŽETAK

Cilj ove studije je dati nove informacije o evaluaciji bavljenja anoreksijom i bulimijom na Odjelu poremećaja u prehrani Psihijatrijske klinike u Ljubljani, na temelju detaljne procjene specifičnih i nespecifičnih simptoma impulsivnog ponašanja kod pacijenata s poremećajem u prehrani. Trideset i četiri pacijentice s anoreksijom (restriktivni i purgativni tip) i trideset osam pacijentica s bulimijom (purgativni i nepurgativni tip) hospitalizirane na Odjelu poremećaja u prehrani su procjenjivane na temelju Upitnika o poremećaju u prehrani i to prilikom prijema i otpusta, kao i tri i šest mjeseci nakon otpusta. Pri otpustu je zabilježeno značajno smanjenje ukupnih simptoma. Razlike u učestalosti simptoma između navedene dvije skupine su bile značajno povezane sa individualnim oblikom poremećaja u prehrani, pogotovo pri prijemu, a izraženije su bile u skupini s anoreksijom. Kod kasnijih mjerenja, provedenih tri i šest mjeseci nakon otpusta, kod obje je skupine zamijećen blagi trend povećavanja simptoma specifičnih za pojedini poremećaj, no bez statističkog značaja. Uz prejedanje, štrajkanje, prepiranje i neobuzdano trošenje su karakteristike osoba s poremećajem u prehrani, pogotovo u skupini pacijentica s bulimijom. Osim simptoma specifičnih za određeni poremećaj, smanjena je i razina impulsivnog ponašanja za vrijeme provođenja studije te je razlika između dvije skupine, što se impulsivnog ponašanja tiče, postupno postajala sve manje izražena. Bavljenje pacijentima s poremećajem u prehrani na Odjelu poremećaja u prehrani dalo je dobre rezultate kod obje skupine, a potvrđeno je i značajnim smanjenjem simptoma specifičnih za poremećaj, impulsivnog ponašanja te povećanom stabilnošću nakon tri i šest mjeseci od otpuštanja iz bolnice. Ova studija upućuje na zaključak da se učinak terapije poremećaja u prehrani može predvidjeti opreznom procjenom relevantnih simptoma i obrazaca impulsivnog ponašanja.