

Impulsivity and assertiveness in women with eating disorders

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Background: Impulsivity and assertiveness are two of the most studied features in eating disorders (ED), although impulsivity has not been featured enough and evidence on assertiveness is not enough either. **Objective:** to Analyze levels of impulsivity and assertiveness in women with/without ED. **Method:** An analytical cross sectional study was carried out, with non-probability sampling in female patients with ED, comparing that with control women with no ED. Tests applied were the following – Eating Attitudes Test (EAT-40), Barratt Impulsivity Scale (BIS), Rathus Assertiveness Scale (RAS) to 42 control subjects and 42 subjects with ED. **Results:** There was no statistically significant differences among the groups, regarding social/demographic characteristics. The EAT-40 score was higher in ED patients ($p=0.000$). There were no significant differences in Total RAS, except in the R1 Subscales ($p=0.004$) R3 ($p=0.035$). The total BIS score also had some significant differences ($p=0.003$) and also the Subscales of Cognitive Impulsivity (CI) ($p=0.000$) and the Scale of Motor impulsivity (MI) ($p=0,0032$). There was a positive correlation, statistically significant among total scores of the EAT-40 RAS Scale, the R1 R2 Subscales; it was negative between the Scale EAT-40 BIS, the CI subscales and MI Scale. **Conclusions:** ED patients have higher levels of impulsivity and lower levels of assertiveness.

Key words: Feeding and eating disorders, Impulsivity, Assertiveness

Introduction

Eating disorders (ED) are psychiatric disorders which mostly affect adolescent women, and adult young women, according to Micali et al⁽¹⁾. Its nuclear feature consists of an eating disorder or conducts related with eating food ending up on altered consumption or absorption of nutrients⁽²⁾. Psychological traits, such as lacking fostering self-autonomy by the family group and a perception of excessive external control, have been considered as relevant factors in the context of these pathologies, according to Williams et al^(3, 4),

which favor difficulties for social assertiveness, just as suggested by Behar, et al^(5, 6). At the same time, prior investigations relate ED and impulsivity. The latter is a distinctive trait in some of these pathologies, as described by Sysko et al⁽⁷⁾. In fact this trait is associated with a deficit in inhibitory processes, which would affect attitude before food, thus leading to disruptions in food intake in more severe cases of ED, according to Bénard et al⁽⁸⁾.

Impulsivity, or the lack to avoid a dominant/not desired action, cannot be defined as a unique construct, but it encompasses a variety of behavioral uncontrol, such as

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response inhibition and reward delay, just as suggested by Stein et al⁽⁹⁾. Higher impulsivity has been reported on chemical addictions (cocaine, alcohol, nicotine) and on behavioral addictions (sex, gambling, shopping), and also in personality disorders⁽¹⁰⁾. Some researchers—including patients in treatment programs—report higher impulsivity in people suffering ED, compared with controls, such as Fahy Eisler (1993); Newton et al (1993); Wolfe et al, (1994)^(11–13). Besides, various studies (Nasser et al, 2004; Galanti et al, 2007) describe an association among high scores in the evaluation of the item “impulsivity” and compulsive intake conducts (for instance, loss of control on food intake, eating alone due to shyness) in patients with excessive eating disorders^(14, 15).

Assertiveness is a complex personality feature⁽¹⁶⁾, whose concept involves some skills, such as defend his/her own rights and opinions while keeping satisfactory interpersonal relationships⁽¹⁷⁾. In two publications, Williams et al^(3, 18) report that ED patients had lower personal assertiveness against people with no disorders. Behar et al⁽⁶⁾, confirmed this difference between a clinical sample, risk patients and controls. Levallius et al⁽¹⁹⁾, reported that personality traits best predicting ED improvement in patients is precisely assertiveness.

Impulsivity and assertiveness are two of the most significant characteristics studied in ED^(7, 19). For evaluation purposes, the Scales of Barrat/Rathus, respectively have been widely used in various investigations^(20–22). However, impulsivity has not been featured enough in these pictures⁽⁷⁾ and evidence regarding assertiveness is scarce^(19, 23). Besides, there are few national publications linking these traits and ED⁽⁶⁾.

The Objective of this study is to detect presence of impulsivity and assertiveness in its various levels, by comparing them from a comparative / correlational point of view, in women with no ED.

METHODOLOGY

Design of the sample

This is an observational/transversal analytical study. ED patients were selected by consecutive sampling, between August, 2005 and February,

2020, in Valparaíso Region. Their records were gathered in an anonymous data base, by a clinic psychiatrist, expert in ED / a duly trained resident of the Psychiatry training program. The control group was set as per non-probability sampling, as per convenience, among female students of Medicine, from the Universidad de Valparaíso.

The sample size for both variables studied with the program STATA 12 was calculated, considering a statistical power of 80%, an alpha error of 0.05. Both groups had the same number of participants. All participants voluntarily accepted/rejected to answer the data collection instruments, by means of a prior written consent. Inclusion criteria were: a) Females, b) 16 year old or older, 40 year old or younger; and those of exclusion: a) patient with intellectual disability, b) patients who—during the interview or application of the questionnaires— have loss of consciousness /or having a psychotic episode.

Instruments

All subjects of the sample received a structured interview made by the authors with a validated translated version into Spanish of the following instruments (Table # 1):

1. Eating Attitudes Test (EAT-40)^(24–26).
2. Barrat Impulsivity Scale (BIS-11) ()^(22, 27, 28).
3. Rathus Assertiveness Scale (RAS) ()^(20, 29)
4. Semi-structured interview: including social/demographic characteristics (age, schooling, marital status, comorbidities, psychiatric, medical) questions based on the criteria diagnosis of the DSM-5⁽³⁰⁾ for ED, which allowed to inquire /or to confirm the presence of this pathology in the comparative group.

Statistic Analysis

A data base was created, based on an Excel spreadsheet, exported to STATA 12. It was used for all descriptive procedures and statistical tests (average for variables with normal distribution and median for not parametric) and spread distribution (standard deviation [DS] for parametric variables and interquartile range [IQR] for non parametric). The normality test was made with Shapiro Wilk Test. Qualitative

Table # 1. Description of Instruments

Eating Attitudes Test (EAT-40)
<ul style="list-style-type: none"> • 40 self applicable questions aimed to evaluate psychological /or behavioral characteristics compatible with eating disorders, distributed in 3 factors: 1) Diet, 2) Oral Control 3) Bulimia and concern about food • Every answer has values between 0 to 3 points • Score ≥ 30 describes a feeding disorder clinically present or undercoverd
Rathus Assertiveness Schedule (RAS)
<ul style="list-style-type: none"> • 30 self applicable items aimed to evaluate the degree of assertiveness in various situations, in terms of self expression, distributed in 3 factors: R1) Faulty Conducts, R2) Positive Confrontation with R3 social events) Conducts of submissiveness and dependence • Every item has a scale of elevation between +3 -3 excluding 0 • Scores of -90 for an extremely not assertive subject till +90 for a extremely assertive subject
Barratt Impulsivity Scale (BIS-11)
<ul style="list-style-type: none"> • 30 items with an answer format type Likert (1 = never or rarely; 2 = once in a while, 3 = often 4 = always or nearly always) where score 4 reveals higher impulsivity • 3 sub-scales: 1) BIS1 Cognitive impulsivity (CI), 2) BIS2: Motor impulsivity (MI), 3) BIS3: Unplanned Impulsivity (UI) • Scores vary from 30 till 120. There is no cutting point

variables were analyzed by using proportions. The association among dependent/independent variables was analyzed. For quantitative variables T tests Student were applied (Wilcoxon Test for non-parametric). Qualitative variables of less than 2 categories were analyzed with Chi2. The two other categories were analyzed with ANOVA (Kwallis, in case there is no normal distribution). Other correlation tests among quantitative variables were made as well.

RESULTS

Table # 2 describe and compare social/demographic characteristics analyzed for both groups, among them there was no statistically significant differences. Besides, the specific diagnosis within the group of patients was studied (Figure 1).

Scores obtained in the scales applied, whether they are control subjects or ED subjects are described in Table # 3. The score in the EAT-40 scale was significantly higher in ED patients ($p=0.000$) versus the control group. There were no statistically significant differences

in Rathus Scale, but there were differences in R1 Subscales ($p= 0.004$) R3 ($p=0.035$), whose scores were lower in ED patients. The total score of the Barratt scale also had some statistically significant differences ($p=0.003$), reaching higher scores in the ED group, and also in the CI subscales ($p=0.0001$) of MI ($p=0.0032$), against the control group (Table # 4). The correlative analysis among the scores obtained in the EAT-40 Test and those of assertiveness/impulsivity scales/ Subscales, showed a negative correlation, statistically significant among the total scores of the EAT-40 RAS, with the R1 R2 Subscales, positive among EAT-40 BIS, the CI subscales and IM (Table # 4).

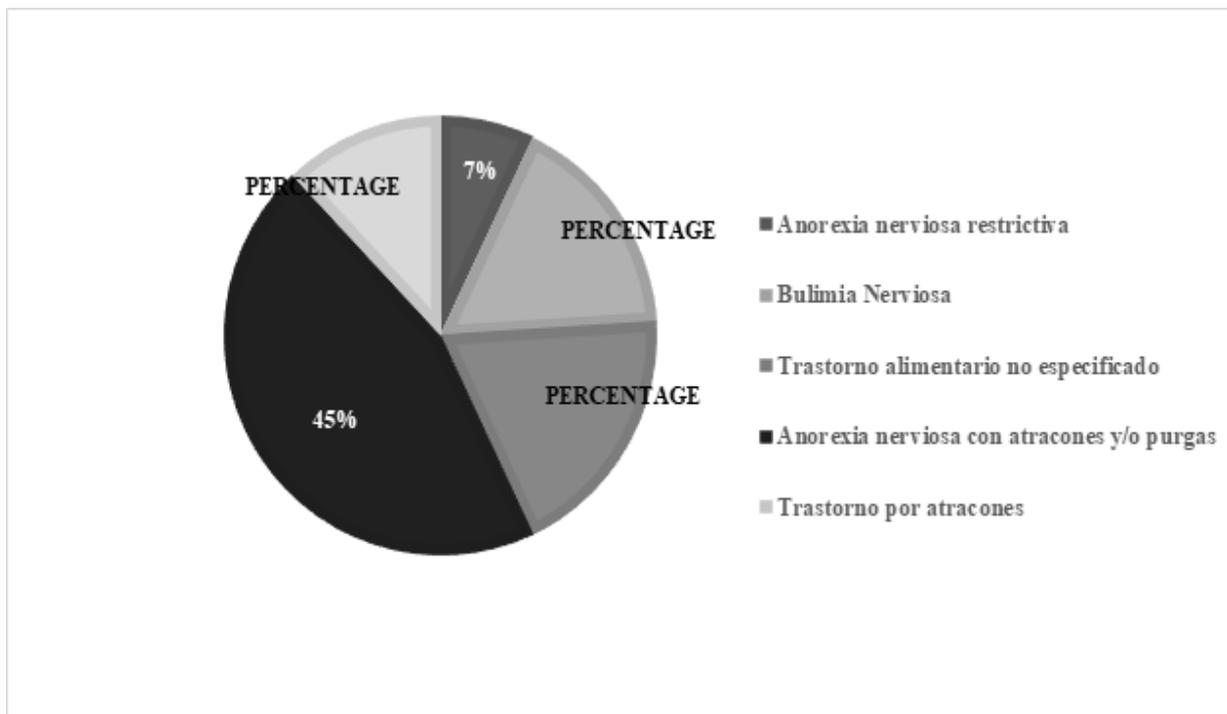
DISCUSSION

In our research, ED patients had differences regarding impulsivity and assertiveness compared with controls patients. When analyzing sociodemographic data no differences were reported in age or marital status among control patients, which allows to compare both groups. However, statistically significant

Table 2. Social/demographic characteristics as per group of studied subjects

	Control (n= 42)	ED (n=42)	Valor p
Age	Median: 24	Median: 22	p=0.2281
	(IQR: 24–25)	(IQR 20–28)	Z=1.206
Schooling	1:00	1: 5 (11.95%)	P=0.002
	2:00	2: 19 (45.24%)	X2(2):33.6
	3: 42 (100%)	3:18 (42.86%)	
Marital status	Single: 40	Single: 40	p=1.002
	95.24%:	95.24%:	X2(1): 000

Figure 1. Proportion of specific diagnosis in subject with studied ED



differences were reported in schooling, possibly as participants of the control group were recruited among Medicine students.

Among patients, the most frequent specific diagnosis was anorexia nervosa with excessive eating or purgatives (45%), matching the publication of Lewinsohn et al⁽³¹⁾ (Figure 1).

Significant differences were reported in EAT-40 score between both groups, which confirms the behavioral psychopathological characteristics, compatible with ED, observed participant patients.

Regarding assertiveness evaluation, no differences were reported in the total score of the Rathus scale between both groups; however, regarding R1 scores, which is a Subscale aimed to measure shortfall conducts, such as shyness, paralyzing anxiety, and unjustified expressions failure, statistically significant differences were reported between both groups. The same thing happened with the Subscale R3, which deals with submissiveness attitude and dependence. In both cases lower assertiveness in ED people

Table 3. Comparison of scores obtained in scales applied among ED subjects and control subjects

	Control (n=42)	ED (n=42)	Valor p
Eat40	Median: 18	Median: 59.5	p=0.0001
	IQR 14 31	DS 24.93	Z=-6.046
Rathus	Median: 5	Median:-3	p=0.077 1
	IQR -8 22	IQR -31- 14	Z=1.767
R1	Average: 1.31	Average: -5.12	p=0.0042
	DS 7.716	DS 11.857	T (82) =2.945
R2	Average: -0.095	Average: -0.952	p=0.5952
	DS: 6.607	DS: 8.036	T (82)=0.534
R3	Median: 2.5	Median: -.5	p=0.0351
	IQR -3 7	IQR -15 -5	Z=2.109
Barrat	Average: 45.167	Average: 54.143	p=0.0032
	DS 14.175	DS 12.5	t (82) =-3.08
CI	Average: 14.5	Average: 18.714	p=0.00012
	DS: 5.105	DS: 4.528	t(82)=-4.0025
MI	Average: 14.928	Average: 18.69	p=0.00322
	DS: 6.126	DS 5.2	t(82)=-3.03
UI	Average: 14.762	Average: 16.26	p=0.1932
	DS 5.045	DS: 5.419	t(82)=-1.31

1. Mann Whitney
2. T Student

Table 4. Correlation of EAT-40 score with scales / sub scales of Rathus Barratt in studied subjects

	Spearman Rho¹	Value p
Rathus	-0.2471	0.0235
R1	-0.3352	0.0018
R2	-0.0614	0.5790
R3	-0.3364	0.0018
Barrat	0.2895	0.0076
CI	0.3712	0.0005
MI	0.3089	0.0042
UI	0.0757	0.4938

¹Spearman Test

was observed. This was proved by lower scores than those with no ED. This finding makes much sense, considering that ED patients showed a permanent sense of uselessness, disability and uncertainty, caused by a constant tendency to self-criticism⁽⁴⁾. This, would explain the difference in R1, revealing a constant feeling of failure of personal ineffectiveness⁽³²⁾. On the other hand, it is well known that among ED patients, very often usually there is a background of dysfunctional very cohesive families⁽³³⁾, thus causing insecure attachment traits and tendency to depend on others, thus helping to interpret the findings in R3. Besides, the R2 Subscale, unlike the others, reflects emotional honesty and effective domination with others; evaluating positive traits when facing social events. This scale did not report any significant differences; therefore, we may assume that women with no ED are not those who have more social tools, compared with those with ED, but the latter are those who have feelings of disability, uselessness and dependence, compared with control subjects.

Regarding impulsivity, statistically significant differences were reported, both in the General Scale as in the CI subscales (motor impulsivity), which involves to act in a rush, with no reflection or prior thinking, the MI (cognitive impulsivity), related with the mental disturbance and quick decision making, but not in the UI (unplanned impulsivity), featured by acts lacking planning for the future. There are other works showing there are significant differences between ED people and healthy people, regarding impulsivity, which provides external consistency in results obtained^(8,34). According to Wu et al⁽³⁵⁾ the fact that unplanned impulsivity is the only that shows no differences, could be understood, as ED patients use to have processing thinking focused on future performance, which would theoretically decrease unplanned impulsivity, thus explaining results obtained. Current behavioral, cognitive and neuroimage evidence⁽³⁶⁾ as suggested by Schmidt is an altered equilibrium of reward and inhibition and may explain disturbed food intake, which is an interruption of both ventral limbic reward circuit and also the dorsal cognitive circuit. For instance, restricted feeding in anorexia nervosa

may come from an excessive inhibition, and a depressed valuation of reward. On the contrary, Kaye et al⁽³⁷⁾, suggest the combination of deregulated inhibitory control and a excessive reward sensitivity may lead to a behavior involving low/excessive food intake; clinically overlapping the symptomatological profile from anorexia nervosa to bulimia nervosa and viceversa.

When studying the correlation between EAT-40 and its Subscales, a significant negative association was found with the total scores of the Rathus, R1, R3 Scales. A positive association was found with those of the Barratt Scale, and its Subscales of cognitive impulsivity and motor impulsivity. This provides evidence regarding the strong link existing between dysfunctional conducts/attitudes regarding weight and unwise behavior and cognitive/motor impulsivity. That is to say, it happens on people studied that those with fewer social skills and more impulsive are more keen to have disruptions in their relationship with food and their body. It is possible to assume, just as described by Monteleone et al⁽³⁸⁾, that these social/behavioral difficulties are related, as these are expressions of the low capacity to properly monitor their emotional conditions, as they are used to check themselves from outside in, just as described by Arcelus et al⁽³⁹⁾, according to the sensitivity they feel before external criticism, coming from third parties. External approval would become so critical that would leave them in a situation of loss of control, and they would try to recover that by means of their weight. In this sense, just as described by Fassino et al⁽⁴⁰⁾, we can understand how shy/very dependent people have significant disruptions in EAT-40. This is usually accompanied by an ambivalent attitude ranging from excessive control to lack of control.

This analytical study provides relevant evidence regarding associated characterological features when having ED. This information is fundamental for implementing primary prevention strategies and therapeutic handling of these pathologies. It had a sampling size big enough as to provide statistical power of 80%. Not only the correlation of the scales with the diagnosis was evaluated, but also an exploring analysis with the scores of the EAT-

40 was made, with results better contributing to understand the clinical phenomenology of these syndromes. Another advantage of this study is that compared groups were homogeneous regarding age and gender, which allows to make a more reliable analysis of the data and the diagnosis were always made by experienced mental health personnel.

Even though, the sample size of this research was calculated prior to its execution, based on pre-existing analysis (6) it only allowed us to evaluate differences among patients and control subjects; no differences or associations as per specific diagnosis were evaluated. This result would have been quite relevant for the dimensional analysis of assertiveness and impulsivity with co-existence of bulimic restrictive behavior. On the other hand, as subjects were selected by means of non-probability sampling, results are not applicable for another population. Likewise, selection of controls only among college volunteers of a specific career, could have caused a bias in our findings. Finally, it is important to highlight that as the results are mostly dependent on self assessment tests, some disruptions may be found in scores provided by minimized subjective reports and/or distorted reports of the symptoms.

It is fundamental to perform more studies aimed to evaluate, specially as per sub diagnosis, the association with impulsivity, and lack of assertiveness, inquired in our research, as the clarification of the relationship existing among different characterological dimensions and feeding disorders will allow us to implement, on the one hand, preventive strategies, as to be aware of ED symptoms in patients with social disruptions in social assertiveness and impulsivity, apart from therapeutic techniques focused specifically on these difficulties of social functioning and control of impulses, in order to get more effective interventions in the long term.

As a conclusion, this study identified a positive correlation between ED and higher levels of score in the Impulsivity Scale, and a negative correlation regarding a lower score in the Assertiveness Scale. This proves that ED people have higher levels of impulsivity, and lower levels of assertiveness. These parameters

significantly influence the outcome and prognosis of feeding disorders.

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