IMPULSIVITY COMPONENT DIMENSIONS IN PATIENTS WITH EATING DISORDERS: A COMPARISON STUDY BETWEEN CLINICAL SUBTYPES

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EQUILIBRIO

ABSTRACT

PURPOSE

To compare component dimensions of Impulsivity among patients with various clinical subtypes of ED.

METHODS

A multidimensional assessment of Impulsivity was done in 25 patients with Anorexia Nervosa (AN), 35 with Bulimic syndromes (BN), 44 with Multi-impulsive (MI) forms of ED and 50 non-clinical subjects as controls. MI group included subjects with bingeing/purging behaviors and one or more of the following: trichotillomania, intermitent explosive disorder (IED), kleptomania, substance abuse, pathologic gambling, self-mutilation or suicide attempt. Diagnosis was done using the SCID-I for DSM-IV criteria. Impulsivity was assessed using the brief form of the Barratt Impulsiveness Scale in Spanish validated for Colombian population (BIS15-S).

RESULTS

ED group had 24 subjects with restrictive type AN, 13 purging type AN, 43 had BN and 24 had BED; 42.3% had MI forms of ED. MI group had significantly higher total, motor and non-planning BIS15-S scores compared to AN and control groups ($p<0.001$ and $p<0.001$, respectively). Attentional scores did not differ among groups. Bipolar disorder and borderline personality disorder were significant in the MI group.

CONCLUSIONS

Subjects with bingeing and/or purging behaviors and self-mutilation, substance abuse, suicide attempts and other impulse-control disorder, might constitute a different endophenotype in ED compared to subjects with AN, bulimic syndromes without impulsive behaviors and controls. Impulsivity in ED patients could be related with disregulation of prefrontal networks that are responsible for behavioral inhibition and motor planning.

INTRODUCTION

Impulsivity is a complex personality trait that plays a significant role in numerous psychiatric conditions characterized by abnormal behavioral regulation, including eating disorders (ED). Although previous studies have shown that subjects with ED variants characterized by binge eating and purging are associated with high levels of impulsivity, as measured by continuous performance tasks and questionnaires, less is known about the relationship between different component dimensions of impulsivity and various types of eating disorders.

Table 1
Multi-impulsive group inclusion criteria

CRITERIA
To exhibit bingeing or purging behaviors and at least one of the following:
Thricotillomania
Kleptomania
Self-mutilations
Substance abuse
Intermittent explosive disorder
Pathological gambling
Suicide attempts

RESULTS

104 patients with ED and 50 controls were compared. The patient´s distribution according to ED type and age groups are shown in Figures 1 and 2.

Figure 1.
Patient's distribution by ED type N= 104

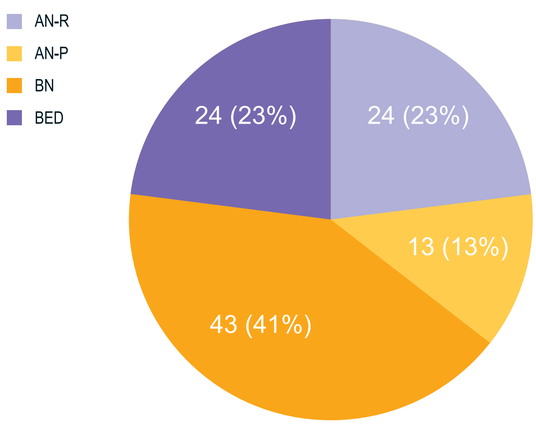
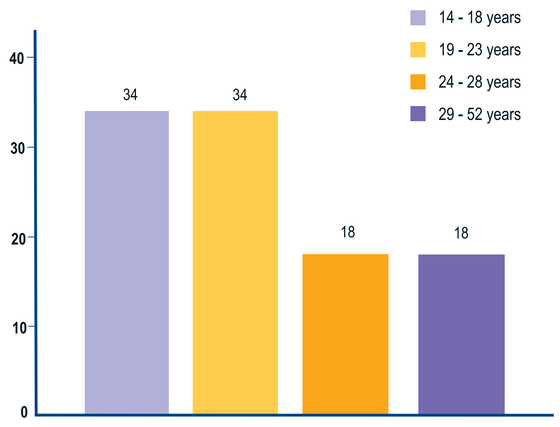


Figure 2.
Age group distribution in 104 patients with ED



Descriptive statistics for demographic variables are shown in Table 2. Significant differences for age and education were founded (χ^2=16.02, $p<0.01$ and χ^2=14.03, $p<0.01$ respectively). Specifically, bulimic and multi-impulsive subjects were older and had completed more years of education compared to subjects with anorexia and controls.

Table 2
Descriptive statistics for demographic variables

VARIABLE	AN N=25 Mean (SD)	Bulimic Syndromes N=34 Mean (SD)	Multi-Impulsive N=43 Mean (SD)	Controls N=50 Mean (SD)
Age (Years)	20.68 (7.34)	24.42 (8.31)*	24.11 (7.52)**	19.94 (2.07)
Education (Years)	11.76 (2.80)	13.85 (2.84)***	13.70 (2.48)***	12.42 (1.07)

* p<0.01 older than controls
** p< 0.05 older than controls
*** p<0.01 more years of education than AN patients

Descriptive statistics for the BIS 15-S total and sub-dimensions scores according to ED type are shown in Table 3. Scores for BIS15-S total and sub-dimensions in the patient group are shown in Table 4.

Table 3
BIS 15-S Total Score for ED type

ED Type	BIS 15-S Total Score	
	Mean (SD)	Frequency
AN - R	30.1 (6.8)	24
AN - BP	30.8 (7.1)	13
BN	37.8 (9.0)	43
BED	34.1 (8.6)	24

Table 4
BIS 15-S Total Score and sub-dimensions in 104 patients with ED

SCORES	Mean (SD)	SD
BIS 15-S Total Score	34.34	8.76
Motor	11.39	3.86
Non Planning	11.42	3.64
Attentional	11.52	4.19

A one sample Kolmorogov-Smirnov Test (two-tailed significance) indicated the all scores were normally distributed (Total BIS15-S: $Z=0.817$, $p>0.05$; Motor BIS15-S: $Z=1.32$, $p>0.05$; Non planning BIS15-S: $Z=1.31$, $p>0.05$; Attentional BIS15-S: $Z=1.16$, $p>0.05$). Intrascale reliability was very good (Cronbach's Alpha =0.829).

Oneway ANOVAS and pos hoc test with Bonferroni correction demonstrated significant differences among diagnostic groups for BIS15 total score. Specifically, multi-impulsive subjects scored significantly higher on the total BIS15 than Control and Anorexic subjects.

No significant differences were found between Control and Anorexic subjects. (Table 5).

Bivariate analysis demonstrated a significant association between impulsivity and other comorbidities such as Bipolar Disorder and Borderline Personality Disorder. In contrast, it failed to show an association between anxiety disorders and impulsivity (Table 6).

Table 6
Impulsivity in 104 patients with ED according to other comorbidities

COMORBIDITY	Impulsivity N=44	No Impulsivity N=60	χ^2	P
Major Depression	16 (36.3%)	31 (51.6%)	2.4	0.12
Bipolar Disorder	14 (31.8%)	2 (3.3%)	15.8	0.000*
PTSD	10 (22.7%)	8 (13.3%)	1.5	0.21
OCD	12 (27.3%)	19 (31.7%)	0.23	0.62
Borderline Personality Disorder	9 (20.4%)	0	13.4	0.000*
Histrionic personality Disorder	7 (15.9%)	7 (11.7%)	0.39	0.53

PTSD= Post-Traumatic Stress Disorder; OCD=Obsessive Compulsive Disorder
* p<0.05

CONCLUSIONS

- In agreement with previous studies, our results showed that subjects included within the Multi-impulsive and Bulimic Syndromes groups had the highest total, motor and non-planning impulsivity scores. These subjects had significantly higher levels of impulsivity compared with AN or control subjects.
- Regarding the attentional impulsivity scores we neither find significant differences between ED groups nor between them and control participants. However these findings could be related with the properties of the instrument used to measure impulsivity in this study.
- There were no significant differences in impulsivity scores between anorectic and control subjects. This is not surprising considering the fact that restrictive behavior characteristic of subjects with AN affects not only feeding behavior, but also other areas of their global functioning. Risk aversion is also expressed in interpersonal relationships, resistance to change and stress reactivity.
- Subjects with bingeing and/or purging behaviors and self-mutilation, substance abuse, suicide attempts and other impulse-control disorder, might constitute a different endophenotype in ED compared to subjects with AN.
- Finally, our data suggest that impulsivity in ED patients could be related with dysregulation of prefrontal networks that are responsible for behavioral inhibition and motor planning.

Table 5
BIS 15 Total scores and sub-dimensions by diagnostic groups

GROUPS	Total Score Mean (SD) ANOVA $F_{(3,150)}$, p	Motor Mean (SD) ANOVA $F_{(3,150)}$, p	Non Planning Mean (SD) ANOVA $F_{(3,150)}$, p	Attentional Mean (SD) ANOVA $F_{(3,150)}$, p
	7.00 0.01*	**5.717, p<0.01****	**4.666, p<0.01*****	**2.258, p>0.05**
Anorexia Nervosa	30.16 ± 5.97	9.40 ± 2.76	10.16 ± 2.89	10.6 ± 3.46
Bulimic Syndromes	33.17 ± 8.00	11.25 ± 3.64	11.00 ± 3.45	10.91 ± 5.10
Multi-impulsive	37.65 ± 9.54	12.63 ± 4.13	12.47 ± 3.99	12.54 ± 3.60
Controls	31.26 ± 6.80	10.40 ± 2.82	10.10 ± 2.76	10.76 ± 3.15

* Multi-impulsive subjects scored significantly higher than controls and anorexic patients.
** Multi-impulsive subjects scored significantly higher than controls and anorexic patients.
*** Multi-impulsive subjects scored significantly higher than controls and anorexic patients.

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