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## **Major Depression and avoidant personality traits in Eating Disorders**

### **Running head: Major Depression in Eating Disorders**

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Lifetime prevalence of mood disorders in Anorexia Nervosa (AN) varies between 64.1 and 96%, and between 50 and 90% in Bulimia Nervosa (BN). Moreover, the prevalence of comorbid mood disorders among patients diagnosed with ED is also high, between 12.7 and 68% among those with AN, and 40% among those with BN [1]. The severity of depressive symptomatology seems to correlate with the severity of the ED [2;3;4]. Unfortunately, previous studies showed several limitations.

Other factors that should be addressed are depressive personality traits. Instability and emotional lability, avoidant behaviors, and depressive traits have been frequently found in ED patients [5;6]. Some studies [7;8;9] have identified groups of patients with comorbid avoidant behaviors, depressed mood and constricted affect.

This study aimed to a) assess the prevalence of current MD in a clinical sample of female patients with ED; b) confirm the correlation between ED severity and diagnosis of MD; and c) assess the differences in personality traits between ED patients with and without MD.

The sample consisted of 693 patients admitted to the outpatient service of the ED Program of Turin University between January 1<sup>st</sup>, 2003 and October 30<sup>th</sup>, 2007. All subjects were diagnosed with an ED: AN, restricting type (AN-R), N=151; AN, binge-eating/purging type (AN-BP), N=75; BN, purging type, N=188; and Eating Disorder Not Otherwise Specified (EDNOS), N=279. Diagnoses of ED and MD were based on the structured clinical interview for DSM-IV (SCID-I), [10]. Exclusion criteria were a) severe medical comorbidity (e.g., epilepsy or diabetes); b) current drug abuse; and c) male gender.

The first two assessment interviews were conducted by psychiatrists experienced in the diagnosis and treatment of ED. Between the first and the second interviews patients completed some self-report questionnaires: Eating Disorder Inventory-2 (EDI-2) [11], Beck Depression Inventory (BDI) [12] and Temperament and Character Inventory (TCI) [13]. After complete description of the study

to the subjects, written informed consent was obtained.

Statistical analyses were carried out using SPSS software version 13.0 for Windows. Categorical data were compared using the chi-squared test, and continuous data were analyzed using a two-tailed independent t-test.

Subjects with MD represented the 17.4% (N=121) of the sample, with the following ED subtypes: 13.2 % AN-R (N=20), 24% AN-BP (N=18), 21.2% BN (N=40), and 15.4% EDNOS (N=43). No significant differences were found among ED subtypes (chi-square: 7.162,  $p < 0.067$ ), but patients with MD reported more frequent episodes of binge eating than patients without MD ( $5.6 \pm 8.2$  versus  $3.51 \pm 5.9$  episodes/week;  $F: 8.46$ ;  $p < 0.004$ ) after controlling for BMI (based on investigators' measurements), age, duration of the disorder, and ED diagnosis (clinical variables). Moreover, subjects with MD more often reported self-induced vomiting ( $5.1 \pm 8.8$  versus  $3.3 \pm 6.2$ ;  $F: 5.89$ ;  $p < 0.015$ ), after controlling for age and clinical variables.

Patients with MD did not differ from those without MD with regard to age, age of onset of the disorder, duration of the disorder, and BMI (data not shown). The BMI in the AN-BP subgroup was lower in patients with MD than in those without MD (data not shown). The BDI scores of subjects with MD were significantly different from those without MD ( $35.1 \pm 3.3$  versus  $10.9 \pm 5.8$ ;  $F: 550.5$ ;  $p < 0.001$ ), after controlling for age and clinical variables.

In addition, the BDI scores of 306 patients (44.1% of the sample) who were not diagnosed with MD were higher than 10; there were no statistically significant differences among diagnostic subtypes respectively (chi-square: 5.321;  $p < 0.215$ ).

Patients with MD reported higher scores on all EDI-2 scales than did those without this diagnosis (Table 1).

Patients with MD obtained higher scores on the HA scale and lower scores on the RD, SD, and C scales than those without MD (data not shown).

We found a high current prevalence of MD; in our study indeed it was similar to that reported in studies with smaller ED samples [1]. Low BMI, as a global malnutrition index, plays a modest role in the association between ED and MD; it cannot independently correlate with depression, as previously shown [14].

Indeed, patients with MD reported significantly more episodes of binge eating and vomiting. This association might depend on the greater severity and higher rates of comorbidity characterizing patients with purging behaviours [4;7].

From a dimensional perspective, referring to BDI, depression achieves considerable impact on patients with ED: 306 patients (44.1%) obtained scores higher than 10 on the BDI, showing a clinically notable subthreshold symptomatology even though the criteria for MD were not met. This phenomenon, sporadically examined in past studies [3], has not been accurately assessed in large samples. Indeed, a large portion of ED patients showed a subthreshold pattern of symptoms that might represent risk factors for the development of MD and exacerbate during the course of the ED. These patients require appropriately careful attention in ED treatment. Indeed, Ametller and Coll. [15] have demonstrated that high BDI scores at the first visit represent one of the independent predictors of hospitalization.

Patients with ED and MD were characterized by more pathological personality profiles on the TCI than patients with ED alone.

Such alterations in these traits have been found in patients diagnosed with acute MD, without ED [16], after ED recovery [17], and in bipolar euthymic patients [18].

ED patients with this personality profile match the subgroup described by Westen et al. [7] and by Thompson-Brenner et al. [8;9] as avoidant/depressed patients. These data are also consistent with the hypothesis [19] that dysphoria and avoidant personality traits represent AN risk factors.

The cross-sectional design of this study makes it impossible to differentiate if avoidant

personality traits represent a risk factor or a “scarring effect” on personality for both ED and depression [20]. In other words, depression can influence the development of altered personality traits or vice versa. It can’t be excluded that underlying common features could influence both personality traits and depression. Future research should include longitudinal studies in the general population in order to compare premorbid personality traits with those associated with the development of ED and depression in adolescence.

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