



Symptoms of psychosis in anorexia and bulimia nervosa

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ABSTRACT

Despite evidence from case series, the comorbidity of eating disorders with psychosis is less investigated than their comorbidity with anxiety and mood disorders. We investigated the occurrence of symptoms of psychosis in 112 female patients diagnosed with DSM-IV eating disorders (anorexia nervosa = 61, bulimia nervosa = 51) and 631 high school girls in the same health district as the patients: the items of the SCL-90R symptom dimensions “paranoid ideation” and “psychoticism” were specifically examined. No case of comorbid schizophrenia was observed among patients. Compared with controls, the patients with anorexia nervosa were more likely to endorse the item “Never feeling close to another person”; the patients with bulimia nervosa were more likely to endorse the item “Feeling others are to blame for your troubles”. Both groups of patients were more likely than controls to endorse the item “Idea that something is wrong with your mind”. The students who were identified by the EAT and the BITE as being “at risk” for eating disorders were more likely to assign their body a causative role in their problems. Symptoms of psychosis can be observed in patients with eating disorders, but these could be better explained within the psychopathology of the disorders rather than by assuming a link with schizophrenia.

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1. Introduction

Anxiety, alcohol use, drug use and depressive disorders frequently co-occur in patients with eating disorders (Braun et al., 1994; Halmi et al., 1991; Hudson et al., 2007; McElroy et al., 2005), and also among their family members (Lilenfeld et al., 1998; Jacobi et al., 2004). The co-morbidity of schizophrenia and eating disorders is currently understudied (Foulon, 2003; Lyketos et al., 1985).

Some reports have described cases of patients with schizophrenia who developed eating disturbances undistinguishable from a full-blown syndrome of anorexia nervosa (Cheung and Wilder-Smith, 1995; Korkina et al., 1975; Lyon and Silber, 1989; Munoz and Ryan, 1997). Conversely, symptoms of psychosis can develop in both anorexia (Dymek and le Grange, 2002; Grounds, 1982; Hsu et al., 1981; Kiraly and Joy, 2003), and albeit more rarely, in bulimia nervosa (Deckelman et al., 1997; Shiraishi et al., 1992).

In a recent survey of 2436 female inpatients treated for eating disorders, Blinder and co-workers found schizophrenia/other psychoses to be three times more likely with restricting anorexia, and twice as likely with binge-purge anorexia, compared with bulimia

nervosa (Blinder et al., 2006). On the whole, the prevalence of diagnosable schizophrenia in clinical samples of patients with eating disorders is generally calculated as below 10%, with males having a higher risk than females, particularly for the hebephrenia variant of schizophrenia (Foulon, 2003; Korkina et al., 1992; Striegel-Moore et al., 1999).

More often, symptoms of psychosis in eating disorders co-occur in patients with co-morbid schizoaffective and/or bipolar disorder (Hudson et al., 1984), while bipolar disorder shows higher rates of comorbidity for full- and partial-syndrome eating disorders (McElroy et al., 2006). Eating disturbances in childhood often precede affective psychosis in adulthood (Cannon et al., 2001), while patients who develop psychotic symptoms after the onset of anorexia nervosa may show schizothymic personality traits in the pre-psychotic period (Shiraishi et al., 1992).

Many authors have discussed the possible role of starvation and metabolic disturbances in the etiology of psychosis that may develop concurrently with an eating disorder (Shiraishi et al., 1992; Mavroggiorgou et al., 2001; Wenokur and Luby, 1997). However, some cases of schizophrenia-like psychosis had their onset *after* recovery from anorexia nervosa, pointing towards some continuity between the two disorders (Ferguson and Damluji, 1988; Hugo and Lacey, 1998). In a survey of 1,017 patients admitted to Danish psychiatric institutions with the diagnosis of eating disorder during the period of 1968–1986, Moller-Madsen and Nystrup (1994) found that up to 6% of them ended

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up with a diagnosis of a psychosis. In discussing these and other findings, Hugo and Lacey (1998) proposed a role for disordered eating as a defense against psychosis: according to this view, anorexia and bulimia nervosa may exist in a continuum ranging from neurosis to character disorder to psychosis.

Better knowledge of the comorbidity of eating disorders with psychosis is important for treatment: on the one hand, the outcome in patients with eating disorders co-morbid with psychosis is expected to be poor (Shiraishi et al., 1992); on the other hand, patients with anorexia and bulimia nervosa co-morbid with psychosis may be more responsive to therapeutic drugs acting on the dopaminergic system (Bosanac et al., 2005; Brambilla et al., 2007). Increased dopamine activity at the central dopamine receptors is believed to play a role in the pathophysiology of schizophrenia (Davis et al., 1991; Kapur, 2003), and some reports also indicate dopaminergic pathway abnormalities in eating disorders (Barbato et al., 2006; Shinohara et al., 2004).

To date, most of the evidence on the comorbidity of eating disorders with psychosis comes from clinical case studies (Table 1), and no study has investigated the distribution and frequency of symptoms of psychosis in patients with eating disorders in comparison with a control group without significant eating disorder symptoms.

This study set out to investigate the prevalence of self-report symptoms of psychosis in a clinical sample of female patients diagnosed with anorexia and bulimia nervosa, as well as to compare the findings with the normative data drawn from a large sample of adolescents and young people living in the same health district as the patients.

2. Method

2.1. Participants and procedure

Two samples participated in the study: a clinical sample of people in treatment for symptoms attributable to anorexia or bulimia nervosa, and an appropriate community sample recruited among young people attending the high-schools in the same district as the patients. The recruiting centre was authorized by the qualified institutional review board overseeing the study. The protocol of the research project conforms to the guidelines of the 1995 Declaration of Helsinki (as revised in Edinburgh in 2000).

2.1.1. Clinical sample

All of the 112 outpatients applying at an Eating Disorders Unit in northeast Italy for treatment of symptoms attributable to anorexia or bulimia nervosa were individually asked to participate in the study. Inclusion criteria for the study included a DSM-IV diagnosis (American Psychiatric Association, 1994) of a clinically significant eating disorder (anorexia or bulimia nervosa only) agreed upon by no fewer than two independent evaluators, with a clinical significance as defined by the presence of distress, disability or an appreciable increased risk of suffering. All therapists were trained raters, with a minimum of 4 years of experience in the diagnosis and treatment of eating disorders, and supervised by a senior psychiatrist.

In the participating centers, diagnosis was made on the basis of a clinical interview detailing the patient's symptoms and their presentation; a key informant (typically a close relative) was also interviewed for additional information on the patient's

psychopathology, health status and life experiences; a thorough medical and laboratory assessment completed the evaluation. The questionnaires used in this study were included as part of the required psychometric evaluation. Confidentiality was guaranteed on the answers given to the questionnaire, and informed consent was obtained from each patient.

None of the patients initially invited to participate in the study refused, yielding a final sample of 112 participants, all females, with an age range of 13 to 50 years (mean = 23, SD = 7, mode = 17). Clinical diagnoses were as follows: 61 with anorexia nervosa (14 with the binge/purge variant, 22.9%), and 51 with bulimia nervosa (12 with the non-purging type, 23.5%).

2.1.2. Community sample

The community sample included a total of 631 female students attending seven high schools in the same district as the patients, including three small rural towns of northeast Italy. The schools included in the study were selected from those operating in the territory ($n = 21$, 17 public and 4 private schools) in order to reach a wide range of the young population in terms of social and cultural backgrounds: two high schools had an emphasis in humanities, two in sciences (one was a private school), a teachers' training school, a private high school and a vocational school (hotel management).

The participation rate was very high: 95% of those invited to take part in the survey agreed to fill out the questionnaires. The final sample included 10% of the 14–19 year-old age group of the district. Informed consent was obtained from the headmasters of all schools and from the parents of the students who took part in the study. Students were approached as a group in their classrooms and asked individually to participate in the study. Each student received a card listing a variety of contacts that they could use in the case that they felt they had the problems described in the questionnaires. Confidentiality was guaranteed on the answers given, and informed consent was obtained from each student.

2.2. Procedure

The participants received an envelope containing a set of questionnaires, including the Eating Attitudes Test (EAT), the Bulimic Investigatory Test of Edinburgh (BITE), the Body Attitudes Test (BAT), and the revised Hopkins Symptom Checklist (SCL-90R). Additional information was derived from self-report data, including data on age, sex and socioeconomic position (rooms available per person at home). The Body Mass Index [BMI = weight (kg) divided by height (m) squared] was derived from self-reported data on weight and height. During diagnostic ascertainment, patients were weighed and their height measured with appropriate anthropometric instruments, but to allow comparability with the students' sample, information from the self-reported data was also used.

2.2.1. Instruments

The EAT (40 items) and the BITE (33 items) are two screening questionnaires aimed at measuring abnormal eating attitudes and behaviors to differentiate the severity of an eating disorder. On the EAT, which has three subscales (dieting, oral control and bulimia), a cut-off of 30 points on the total score is utilized to identify those at risk of an eating disorder (Garner and Garfinkel, 1979). A cut-off of 20 in the BITE symptoms scale (30 items) is used to identify those at risk of a clinically relevant eating disorder in the bulimic spectrum (Henderson and Freeman, 1987). Both questionnaires were found psychometrically sound and effective as screening tools, and those who reported lower scores than the cut-off rarely revealed significant clinical indicators of an eating disorder (King, 1991; Orlandi et al., 2005).

The BAT is a 20-item questionnaire aimed at measuring attitudes towards one's own body, focusing on negative appreciation of body size, lack of familiarity with one's body, and general bodily dissatisfaction (Probst et al., 1995). Patients suffering from eating disorders tend to score significantly higher on the BAT than normal healthy people (Probst et al., 1999). No study had yet assessed the sensitivity and specificity of BAT on the Italian population, but preliminary investigations set the validity of the questionnaire at 0.67 (Favaro et al., 1997).

Table 1

Cases of patients diagnosed with eating disorders presenting with schizophrenia, or schizophrenia-like, symptoms.

Source	Type of study	Diagnosis	Characteristics of cases
Korkina et al. (1975)	Clinical case series	Anorexia nervosa	34 cases of patients with anorexia nervosa comorbid with schizophrenia; at onset with symptoms of dysmorphobia that evolved in anorexia nervosa, and progressed to the personality deterioration of a schizophrenic nature.
Hudson et al. (1984)	Clinical case series	Anorexia nervosa and bulimia nervosa	In 130 consecutive cases of eating disorders, 17 developed symptoms of psychosis: 16 attributable to major affective disorder or schizo-affective disorder; no case of schizophrenia.
Korkina et al. (1992)	Clinical case series	Anorexia nervosa	In a sample of 800 patients diagnosed with anorexia nervosa, about 25% had associated schizophrenia.
Gothelf et al. (1995)	Clinical case series	Anorexia nervosa	One case of anorexia nervosa comorbid with schizophrenia in a sample of 37 inpatient female adolescents with anorexia nervosa (2% of the sample).
Striegel-Moore et al. (1999)	Clinical case series	Eating disorders	98 men with eating disorders: men with anorexia nervosa were at high risk of comorbid schizophrenia/psychotic disorder (9 out of 25 cases, 36%); those with no otherwise specified eating disorders were at special risk of comorbid organic mental disorder and schizophrenia/psychotic disorder.

Data were retrieved from PubMed/Medline and PsychInfo/Ovid search (December 10, 2007), using the following terms: "schizophrenia and/or psychosis" and "anorexia nervosa", "bulimia nervosa", "eating disorders". Single case reports were not considered.

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