

The influence of obsessive compulsive symptoms on the course of anorexia nervosa

Magda Błachno, Anita Bryńska, Celina Tomaszewicz-Libudzie,
Gabriela Jagielska, Tomasz Srebnicki, Tomasz Wolańczyk

Department of Child Psychiatry, Medical University of Warsaw, Poland
Head: prof. dr hab. n. med. T. Wolańczyk

Summary

Objective: to assess the prevalence of obsessive-compulsive disorder (OCD) or OC symptoms in patients with anorexia nervosa (AN) and to find a possible relationship between the presence of OC symptoms and the course of AN.

Method: 137 adolescent female patients with AN, aged 14.8 +/- 1.8 years, completed the Polish version of the LOI-CV. Two groups, High-risk (HR) and no High-risk (nHR), were defined according to the cut-off score of LOI-CV. The diagnosis of OCD was confirmed with the Polish version of K-SADS-PL. The relationship between the number and intensity of OC symptoms and the following data were analyzed: age of onset and on admittance to a psychiatric facility, weight loss, BMI on admittance and its changes, age of first menstruation, time of amenorrhea and of restitution of menses, length of treatment and number of relapses.

Results: OCD was not diagnosed in any subject, but 25% of the examined patients had OC symptoms which qualified them to High-risk group. Differences in HR and nHR groups were found between duration of AN before hospitalization, age and body mass after release from hospital. Negative correlation was found between “Yes” Score and Interference Score in LOI CV and the age of patient at the time of release from hospital.

Conclusions: the results of our study do not support the observations about a high co-occurrence of AN and OCD, but indicate the frequent co-occurrence of OK symptoms.

Key words: anorexia nervosa, obsessive-compulsive disorder, obsessive-compulsive spectrum disorder

Introduction

Many studies indicate that anorexia nervosa (AN) is possibly a variant of Obsessive-Compulsive Disorder (OCD) [1-6] and include AN as an OCD-spectrum disorder [7]. The binge eating/purging subtype of AN does not seem to be linked to the ritualistic behavior observed in OCD, but the restricting subtype (involving restrictive behavior to lose weight) is the one that has been found to have a high comorbidity with OCD [2]. According to the literature there are three main possible relations between AN

and OCD: increased incidence of prior AN in OCD patients [3], high number of anorectic patients with obsessional premorbid personality [8] and serotonin disturbance linked with the pathogenesis of both OCD and AN [9]. Rothenberg [10] suggests that in today's modern society based on value of thinness, eating disorders are just a form of obsessive-compulsive behavior. He believes that social factors along with modeling and predisposition to OCD influence the development of anorexia. Still a lot of issues require explanation: is there a common cause underlying both disorders and is possible link biological or psychological?

These similarities between AN and OCD lie i.e. clinical characteristic, especially in the symptoms of the disorders: intrusive, fearful thoughts and a compulsive need to perform rituals aimed at reducing the level of anxiety. In case of anorexia nervosa these behaviors center around food and thinness (obsessive pursuit of thinness, along with body preoccupation and an incessant rumination about food) [11] whereas in OCD they are of more general type. In addition anorectic patients are also engaged in compulsive calories counting and excessive physical exercise. As it is known, in patients with OCD symptoms most are related to washing, checking and counting. On the other hand, patients with AN, in addition to OC symptoms related to weight, appearance and eating, tend to have symptoms particularly related with symmetry and order [11, 12].

Various investigators found that OCD was more common in anorectic patients than in the general population [4, 11, 13, 14] and anorexia was more common in patients with OCD than in general population [15]. The lifetime prevalence for OCD has been found to be around 3% whereas the comorbidity rate for OCD and anorexia has been reported to be between 6% and even 33% [4, 11, 13, 14]. This leads one to the hypothesis that there may be a relationship between anorexia and OCD. It is not clear whether elevated rates of comorbid psychiatric disorders, in patients with AN, are merely the consequence of malnutrition and weight loss or whether they persist after recovery. The results of number studies suggest that the symptoms of OCD are present before the development of the eating disorder [14, 16].

Objective

The aim of the study was to: 1) assess the prevalence of OCD or obsessive-compulsive symptoms, thematically unrelated with weight and appearance among patients with anorexia nervosa, 2) to find a possible relationship between presence of obsessive-compulsive symptoms and course of anorexia nervosa.

Material and method

137 female patients, aged 14,8 +/- 1,8 years met the ICD-10 [17] criteria for anorexia nervosa or atypical anorexia nervosa at the time of admission to the Department

of Child and Adolescent Psychiatry. All subjects met DSM IV criteria for anorexia nervosa- restrictive subtype [18].

Patients underwent physical, neurological and psychiatric examination. A complete medical history including details regarding history of weight loss, age of onset, age on admittance to a psychiatric facility, weight loss and the extent of the weight loss before admittance, BMI on admittance, menstrual function (age of first menstruation, time of amenorrhea) was collected. The evaluation of obsessive-compulsive psychopathology was made by the team of 2 trained child psychiatrists. First, patients completed the Polish version of the 20-item self-report version of the Leyton Obsessional Inventory-Child Version (LOI-CV) [19] which assesses the presence or absence of obsessive preoccupations and behaviors and rates the level of interference in personal functioning. Psychometric properties of the Polish version of LOI-CV were tested in an epidemiological study among Polish adolescents and published elsewhere [20]. The cut-off score for the obsessive sample ("High-risk group"- HR group) according to Brynska and Wolańczyk's [21] procedure was: 1) 25 points or more for the Interference Score regardless of the "Yes" Score, or 2) 15 or more for the "Yes" Score and Interference Score of 10 or less. Subjects with Interference Score less than 25 were defined as no High-risk group" (nHR group). The presence of OCD in HR group patients was confirmed with the K-SADS-PL [22] and using DSM-IV criteria [17]. In order to assess a relationship between presence of OC symptoms and course of AN also used data on the length of treatment after discharge from the psychiatric ward, number of relapses, BMI changes and time of return of menstrual cycle.

Statistical analysis

SPSS for Windows Release 14.0 (Standard Version) was used for statistical analysis. The following tests were used in data analysis: one-way analysis of variance, chi-square test Kolmogorov-Smirnow test for small samples. The *Pearson's* correlation coefficient was used to test correlation between LOI-CV results and medical parameters. A level of $p < 0,05$ was used for overall effects.

Results

LOI-CV/Prevalence rates

Out of 137 subjects included in the research, 35 (25%) qualified to HR group. All subjects got 25 or more points on the Interference Score of LOI-CV. No subject got 15 or more "Yes" Score and 10 or less points on the Interference Score scale. OCD was not diagnosed in any of 35 subjects interviewed according to K-SADS-PL and DSM – IV criteria. For all sample the mean result on the Interference Score of LOI-CV was 15,6 ($sd=12.3$) and the mean number of "Yes" answers was 8,2

($sd=4.4$). The most frequent obsessive-compulsive symptoms among all anorectic patients were: hate of dirt and contamination (70%), worry about being clean enough (67%), lack of sureness (repetition) (62%), indecisiveness (a frequent problem) (60%), fussiness about hands (58%), doing things in exact manner (58%), repeated thoughts or words (55%).

The Kolmogorov-Smirnov distribution of „Yes” responses is normal ($KS=0.99$), skewness and curtosis parameters are characteristic for normal distribution $<-1,1>$ (skewness = 0.23, curtosis = -0.55). Similar distributions have been observed in HR and nHR groups. The distribution of Interference Score is not normal ($KS=1.57$; $p<0.05$) and is skewed positively (skewness = 0.94) which means the majority of subjects did not observe negative influence of symptoms on their functioning. In nHR group the distribution of Interference Score was normal, but in HR group the distribution was skewed positively (skewness = 1.34) and leptokurtic. Positive skewness in HR group means the majority of subjects in this group had Interference Score close to the threshold qualifying them to the group (48% of subject in HR group scored 25-28 points). High curtosis (curtosis = -0.56) was caused by the overrepresentation of the result of 34 points on Interference Score scale, observed in 17% of subjects.

Intergroup comparisons

Descriptive statistics and the comparison of medical parameters of HR and nHR group are shown in Table 1. No differences were found between HR and nHR group in medical parameters before hospitalization such as age of onset, BMI before onset, weight loss, pace of weight loss in kilograms and according to BMI parameter, also medical parameters during hospitalization such as age, body weight and BMI on admittance and following parameters after hospitalization – BMI, pace of weight gain in kilograms and according to BMI, length of hospitalization. Differences were found between duration of AN before hospitalization, age and body mass after release from hospital. nHR group patients were admitted to hospital after shorter period of duration of illness and they were both older and heavier when released from hospital.

Correlations

Negative correlation was found between the number of “YES” responses and the age of patients at the time of release from hospital (Pearson $r = -0.35$; $p=0.048$) and the Interference Score (LOI-CV) and the age at the time of release (Pearson $r = -0,35$; $p=0.047$) (Table 2).

Table 1. Descriptive statistics of medical parameters in nHR and HR group and the comparison of clinical parameters between nHR group and HR group

Medical Parameters			Min	Max	Mean	SD	Variance	Levene's test		T-test	
								F	p	T	p
Before hospitalization	Age before onset [in years]	nHR	10.2	17.3	13.9	1.6	2.6	-0.02	0.90	0.89	0.27
		HR	10.0	16.9	13.8	1.6	2.8			0.85	0.29
	Body mass before onset	nHR	28.0	80.0	51.9	9.6	91.9	-0.67	0.42	1.41	0.16
		HR	30.0	74.0	50.5	8.8	78.1			1.57	0.12
	BMI before onset	nHR	10.7	18.2	14.6	1.7	2.8	-2.51	0.12	1.40	0.16
		HR	13.9	27.2	19.9	2.6	6.5			1.63	0.11
	Weight loss [in kgs]	nHR	-4.0	-33.5	-13.9	6.3	40.3	1.61	0.21	-1.09	0.28
		HR	-4.0	-28.6	-14.0	6.2	38.7			-1.30	0.20
Weight loss [BMI]	nHR	0.0	-19.7	-5.9	3.2	10.5	1.59	0.21	-0.45	0.65	
	HR	-2.0	-11.3	-5.1	2.3	-5.3			-0.51	0.62	
Pace of weight loss [kgs/mth.]	nHR	-0.1	-7.4	-1.7	1.2	1.4	0.09	0.77	-1.02	0.31	
	HR	-0.1	-3.9	-1.6	1.0	1.1			-1.14	0.26	
Pace of weight loss BMI [BMI/mth.]	nHR	0.04	-2.8	-0.7	0.5	0.3	0.80	0.38	-1.19	0.24	
	HR	-0.4	-1.4	-0.5	0.4	0.2			-1.39	0.17	
Duration of illness [in months]	nHR	2.4	32.0	10.8	6.7	44.7	5.61	0.02*	-1.31	0.19	
	HR	3.6	33.6	11.7	7.6	57.6			-1.14	0.26	
During hospitalization	Age on admittance [in years]	nHR	10.9	17.5	14.9	1.6	2.7	-0.02	0.89	0.70	0.49
		HR	11.4	17.5	14.9	1.6	2.7			0.69	0.50
	Body mass on admittance [in kgs]	nHR	21.3	57.0	37.8	6.4	41.2	-1.59	0.21	1.28	0.20
HR	23.8	57.0	37.0	6.0	36.2	1.41	0.16				
BMI on admittance [kgs/m ²]	nHR	10.7	18.2	14.6	1.7	2.8	-2.66	0.11	0.55	0.59	
	HR	10.9	17.6	14.5	1.5	2.1			0.63	0.53	
End of hospitalization	Age on release [in years]	nHR	13.6	17.6	15.3	1.2	1.2	-4.49	0.04*	1.46	0.15
		HR	11.9	17.0	14.7	1.8	3.3			1.29	0.22
	Body weight on release [in kgs]	nHR	28.0	80.0	51.9	9.6	9.6	-5.63	0.03*	1.38	0.15
		HR	40.0	50.0	45.6	3.0	9.1			1.85	0.05*
	BMI on release [kgs/m ²]	nHR	15.1	20.3	17.8	1.4	1.4	-1.46	0.24	0.70	0.49
		HR	15.1	18.7	17.5	1.1	1.1			0.77	0.45
	Weight gain [in kgs]	nHR	2.0	16.1	7.5	3.6	3.6	-0.02	0.89	0.13	0.90
		HR	2.0	14.0	7.2	3.4	12.0			0.13	0.90
	BMI increase [BMI/mth.]	nHR	0.8	6.2	2.8	1.3	1.3	-0.42	0.52	-0.06	0.95
HR		0.7	5.8	2.8	1.5	2.1	-0.06			0.95	
The pace of weight gain [kgs/mth.]	nHR	0.0	4.5	1.1	0.7	0.7	-1.27	0.27	0.35	0.73	
	HR	0.1	3.5	1.0	0.5	0.3			0.38	0.71	
The pace of BMI increase [BMI]	nHR	0.2	1.5	0.8	0.4	0.4	-0.19	0.66	-0.24	0.81	
	HR	0.2	1.4	0.8	0.4	0.2			-0.23	0.82	
The length of hospitalization [in months]	nHR	1.0	14.0	4.5	2.9	2.9	0.32	0.58	-0.24	0.81	
	HR	2.0	18.0	4.7	4.1	16.5			-0.21	0.84	
Total duration of illness [in months]	nHR	2.5	49.1	15.8	9.1	9.1	0.51	0.48	-0.41	0.68	
	HR	3.7	33.6	16.8	10.3	10.7			-0.39	0.70	
Number of hospitalizations	nHR	1	3	1.3	0.5	0.3	0.60	0.43	-0.48	0.67	
	HR	1	3	1.2	0.5	0.3			-0.48	0.67	

Table 2. Correlations of medical parameters and „Yes” Score and Interference Score of LOI-CV (all sample)

Medical Parameters		LOI-CV „Yes” Score			LOI-CV Interference Score		
		N	Pearson r	p	N	Pearson r	p
Before hospitalization	Age before onset [in years]	132	-0.09	0.38	132	-0.07	0.51
	Body mass before onset	133	-0.03	0.79	133	-0.07	0.49
	BMI before onset	135	-0.07	-0.07	135	0.73	0.42
	Weight loss [in kgs]	137	-0.01	0.95	137	0.06	0.56
	Weight loss [BMI]	137	0.001	0.10	137	0.13	0.23
	Pace of weight loss [kgs/mth.]	129	0.14	0.18	129	0.16	0.14
	Pace of weight loss BMI [BMI/mth.]	132	0.15	0.18	132	0.19	0.08
	Duration of illness [in months]	132	0.18	0.09	132	-0.15	0.16
During hospitalizat.	Age on admittance [in years]	137	-0.05	0.66	137	-0.04	0.73
	Body mass on admittance [in kgs]	137	-0.12	0.24	137	-0.09	0.40
	BMI on admittance [kgs/m ²]	137	0.07	0.40	137	0.07	0.40
End of hospitalization	Age on release [in years]	132	-0.35	0.05*	132	-0.35	0.05*
	Body weight on release [in kgs]	126	-0.08	0.65	126	-0.07	0.71
	BMI on release [kgs/m ²]	125	0.05	0.80	125	0.004	0.10
	Weight gain [in kgs]	126	-0.03	0.87	126	-0.10	0.60
	BMI increase [BMI/mth.]	126	-0.01	0.96	126	-0.03	0.80
	The pace of weight gain [kgs/mth.]	126	0.07	0.54	126	0.00	0.10
	The pace of BMI increase [BMI]	126	-0.09	0.70	126	0.01	0.96
	The lenght of hospitalization [in months]	137	0.12	0.48	137	0.67	0.70
	Total duration of illness [in months]	137	0.05	0.77	137	-0.09	0.61
Number of hospitalizations	112	0.03	0.73	112	0.03	0.75	

* significance $p < 0,05$

Discussion

Prevalence of OCD or OC symptoms

No patient met the criteria for the diagnosis of clinical OCD. The results of the reported study stand in contradiction to the results of other studies, which show that the prevalence of OCD among patients with AN is much higher than in general population. What can raise doubts, is how the results of questionnaire-based studies are interpreted. The methods used in a lot of research allow to verify whether a subject falls in high risk group for development for OCD rather than diagnose the presence OCD according to DSM-IV [17] criteria. A lot of studies do not re-confirm the presence of clinical OCD. It can be assumed, that a lot of studies assess the prevalence of OC symptoms, including cognitions about weight and appearance, which are, by definition, present in AN (according to criterion IV for OCD in DSM-IV), rather than OCD as a clinical disorder. Taking these remarks into account, it can be said that the results of the present study are comparable with other studies – 25% of subjects have been qualified to “high risk” group, although none of them got the actual diagnosis of OCD confirmed by objective psychiatric interview. Hypothetically, lack of clinical diagnosis can be explained also by lack of understanding of nature of obsessive-compulsive symptoms or tendency to conceal the presence of symptoms. The above-mentioned factors were controlled by observation of subjects in the hospital ward and the collection of psychiatric interview, which in our view adds to the reliability of the results.

Relationship between clinical characteristics of OCD symptoms and AN clinical factors

The present study showed some relationship between the presence of obsessive-compulsive symptoms and medical parameters associated with the course of AN. Differences, between HR and nHR groups, founded based on the criterion of number and severity of the OC symptoms, were found between duration of anorexia before hospitalization, age and body mass after release from hospital. nHR group patients were admitted to hospital after shorter period of duration of illness and they were both older and heavier when released from hospital. The relationship between the number of OC symptoms, lower weight on-release and longer duration of illness before hospitalization has been reported in other studies [23-25]. The bulk of studies shows that obsessive-compulsive traits observed in AN take form of ritualized and rigid behaviors connected with reduction of body weight [4, 13]. These behaviors are characteristic for restrictive subtype of AN and their presence can negatively influence the duration and course of illness. They contribute to the risk of faster weight loss and longer time necessary for the restoration of required body weight, mainly due to the involvement in weight reducing behaviors. This tendency has been shown in the current study as well. Results of studies on prognostic factors in AN

are ambiguous and often contradictory. It is possible, that the exploration of cause-result relationships requires that a considerable number of parameters be taken into account at the same time.

Characteristics of reported OC symptoms

A lot of research show that the characteristics of OCD symptoms in AN is somewhat different from the typical phenomenology of obsessive-compulsive disorder. In AN patients the following OC symptoms are most often observed: need for cleanness, order and symmetry, feeling of dread if something is not performed in a perfect way, the feeling of performing incorrectly [26, 27]. In our study, most subjects reported need for cleanness and excessive care about correct decision making and task performance. The results are comparable with adolescent general population studies with the application of LOY-CV [20, 28]. What differs the study group from the general population is the interference of OC symptoms with normal functioning rather than the type and number of them. In the present study the reported OC symptoms were marked as relatively low interfering with normal functioning on Interference Score scale. Although 25% of were randomized to group of increased risk of OCD on the basis of Interference Score, the majority had a score close to the threshold qualifying them to the group (48% of the HR group received 25-28 points; max score for Interference Score LOI-CV is 60 points).

The reported symptoms may, or may not, interfere with normal functioning for many reasons. Personal evaluation of the impact in OCD may be related with severe discomfort, caused by fear and anxiety accompanying ego-dystonic symptoms. On the other hand, perfectionistic personality traits which are seen as ego-syntonic as in AN, can cause a significant amount of time spending on compulsive activities, not rated as highly interfering with normal functioning. In our study, results of Interference Score of anorectic patients could be both caused by perfectionism and anxiety. The characteristics of reported OC symptoms in AN subjects (need for perfect appearance, need for cleanness and order, need for perfect decision making), in our view can reflect ego-syntonic perfectionistic personality traits [29]. The hypothesis of perfectionism related obsessiveness was confirmed by Halmi [30]. Probably, it is excessive conscientiousness, scrupulousness, and perfectionism, i.e. obsessive-compulsive personality traits, reflected in Interference Score of study sample. Such characteristics of observed traits and symptoms in AN patients justifies the placement of AN within OCD spectrum disorders.

Conclusions

The results of the study do not confirm greater prevalence of obsessive compulsive symptoms in patients with anorexia nervosa in comparison with general population. The results point to the presence of obsessive compulsive symptoms which do not

meet the criteria for clinical diagnosis. The characteristics of obsessive compulsive symptoms reported by subjects with anorexia nervosa was not different from symptoms reported by patients with OCD. The presence of obsessive compulsive symptoms was correlated with faster weight loss.

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