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ORIGINAL ARTICLE

Childhood Attention Deficit Hyperactivity Symptoms among Adult Patients with Obsessive Compulsive Disorder at Zagazig University Hospitals

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ABSTRACT

Background: Obsessive–compulsive disorder (OCD) and attention-deficit and hyperactivity disorder (ADHD) frequently coexist. Childhood ADHD symptoms have negative impact of on the clinical presentation of OCD. Our aim is to evaluate the prevalence of childhood ADHD symptoms among OCD patients and the effect of this on clinical characteristics of the disorder. Methods: We applied the Structured Clinical Interview for (DSM-5 to diagnose OCD on 100 OCD patients fulfilling our inclusion criteria .The Arabic-translated and validated version of the Wender Utah Rating Scale (WURS), was used to retrospectively assess childhood ADHD symptoms.The severity of OCD was assessed by the Yale–Brown Obsessive Compulsive Scale (Y-BOCS), severity of depression was assessed by the Hamilton Depression Rating Scale-17 (HDRS) and severity of anxiety was assessed by the Hamilton Anxiety Rating Scale (HAM-A). Barratt Impulsiveness Scale-11 (BIS-11) was used to assess impulsiveness . The adult ADHD was measured by the adult ADHD self-report scale Symptom Checklist. Results: 44% of the OCD patients had ADHD symptoms since childhood. Patients with childhood ADHD symptoms had an earlier onset of OCD, higher levels of depression, anxiety and impulsiveness. The scores of the Y-BOCS did not differ significantly between those having and not having childhood ADHD symptoms. Conclusion: Childhood history of ADHD symptoms is common in adult OCD patients. Childhood ADHD symptoms are associated with an earlier age of OCD, more severe depression, anxiety and higher impulsiveness.

Keywords: OCD; ADHD; Anxiety; Impulsiveness; Depression

INTRODUCTION

Attention-deficit/hyperactivity disorder is a disorder of childhood onset with dangerous effects allover life span. ADHD symptoms includes deteriorating symptoms of inattention, hyperactivity and impulsivity [1]. It has three clinical types defined in DSM-5 with predominantly inattentive, predominantly hyperactive/impulsive and combined types [2]. All over the world, meta-analysis was done that showed the prevalence of childhood onset ADHD was 5.3 % [3]. Residual symptoms and a thoroughgoing clinical syndrome persist into adulthood in about 66% of the cases [4]. Another meta-analysis that was done on the ADHD prevalence among adults estimated that 2.5 % of adults suffered from ADHD [5]. Among all physical and mental disorders all over the world, OCD is classified as one of the ten most deteriorating conditions [6]. The main symptoms of OCD are obsessions and/or compulsions as stated in the (DSM-5. It appears to be difficult to suppress, obsessive, and compulsive symptoms in those affected with OCD often, although patients usually feel that their obsessive, and compulsive symptoms are very unreasonable [7].

According to previous studies held among children or adolescents with ADHD, about Zero to 7.5 % have OCD [8]. Other studies stated that frequency of ADHD in children or adolescents with OCD is estimated to be above 20 % [9]. Various studies held to investigate OCD prevalence in adult with ADHD have found it 1–13 % [10]. ADHD in adults with OCD was estimated to be from near zero to as high as 23 % [9]. Recognizing comorbidity between OCD and ADHD in children and adults is very important because both disorders when comorbid cause clinical course to be unfavorable, more susceptibility to substance use, bad response to treatment, and different dimensions of obsessive–compulsive symptoms. So, to improve outcome of the disorder and patients' quality of life, we have to diagnose and manage ADHD symptoms in OCD patients [9].

METHODS

This study is a cross-sectional study. It was done at the Psychiatry department during the period from February 2018 to February 2019. 100 OCD patients from both sexes, (aged 18-45years) with DSM-5 diagnosis of OCD fulfill the inclusion criteria were selected from both the inpatient ward and the outpatient clinic by simple random sampling. Assuming that the prevalence of childhood ADHD symptoms in OCD patients is 40% and rate of admission is 240 cases | year , so sample size is calculated be Epi Info 6 will be 100 patients (estimated according to confidence interval C.I) with the diagnosis of OCD who fulfill the inclusion criteria will be recruited by systematic random sampling technique until the sample size is reached.

All patients were subjected to the following assessment procedures:

1. Full Psychiatric Examination through Semi-structured Interview (including specific data regarding socio demographic data using sheet of the Department of Psychiatry, Zagazig University:(age, sex, marital state, education, occupation, and residence) and age of onset.
2. General Medical Examination:

   General medical examination of patients was done to exclude the presence of severe physical disorders, inflammation or organic brain disease.
3. Yale–Brown Obsessive Compulsive Scale (YBOCS)

   This scale is used to rate the severity of (OCD) symptoms. This scale, which measures compulsions separately from obsessions, measures specifically the symptoms' severity of obsessive–compulsive disorder but not being biased about compulsions or obsessions type. It is self-rating scale containing 10-items, each item rated from 0 to 4 according to severity of symptoms, yielding a total possible scoring from 0 to 40. Questions ask about the time spent on obsessions, how much distress they have, and how much they can control thoughts. Compulsions are asked about by the same questions. The results are analyzed according to the total score: sub-clinical scoring from 0–7; mild from 8–15 is; moderate from 16–23; severe from 24–31; extreme from 32–40. [11].
4. The Hamilton Depression Rating Scale (HDRS)

   Clinician-rated scale, administrated in 20–30 minutes to assess severity of, and change in, depressive symptoms in adults. The HDRS (known also as the Ham-D) is considered the most worldwide used scale to assess depression. 17 items (HDRS17) forming the original version referring to symptoms of depression experienced over the last week. The HDRS was used at first for hospital inpatients, and so focus on physical and melancholic symptoms. Scoring varies by version. For the HDRS17, the normal range score is from 0–7 (or in clinical remission), moderate severity score begins from 20 or higher [12].

   5. Hamilton Anxiety Rating Scale (HAM-A)

   It is clinician-rated scale providing an analysis of anxiety severity. It is scored based on the rating of 40 individually assessed criteria. Scoring of each item based independently on a five-point, scale .Each question (statement) is answered using (likert scale), the score of each statement ranges

between (0-4), 0 refers to not present in the patient and 4 refers to very severe. A total score calculated by the summation of each of the 14 items. This calculation will yield a comprehensive score in the range (0 to 5). [13].

6. The Wender Utah Rating Scale for the retrospective assessment of symptoms of childhood ADHD:

   The 61 questions were answered by the adult patient remembering his or her behavior during childhood with five possible answers scored from 0 to 4. The minimum score for 25 questions was 0 and the maximum score was 100. 46 refers to a cut-off score, 86 of the ADHD patients, 99 of the normal persons, and 81% of depressed individuals were classified correctly [14].
7. The adult ADHD self-report scale Symptom Checklist

   It is an instrument including 18 criteria based on DSM-IV-TR. The most predictive symptoms of ADHD were found to be within six questions of the eighteen. Part A containing these six questions. The other 12 questions form Part B. If four or more marks appeared in the dark boxes of Part A, this indicate the patient's symptoms to be highly consistent with adult ADHD. Part B scoring can serve as further tool to understand the patient's symptoms. The six questions consisting Part A are the most predictive of the disorder. [15].
8. Barratt Impulsiveness Scale, Version 11(BIS-11):

   The current version of BIS-11 and its predecessors were developed to assess impulsivity. The BIS 11 looks at 3 domains of impulsivity; Motor, Planning, and Attention impulsiveness.The BIS-11 is a self-rating questionnaire with 30 items scored ranging from 1=rarely/never, to 4= almost always/always. Its scoring (total impulsivity score) is as follow; 60-70 mild, 70-80 moderate and if more than or equal 80 then impulsivity is sever. Administration time is not specified, yet estimated to be 10-15 minutes. The test requires fifth grade reading level and is intended for individuals ages 8 and older[16].

After collecting data from all participants:

* Firstly to find the frequency of childhood symptoms of ADHD in patients with OCD. Then Patients were divided in 2 groups:

(1) OCD patients with childhood symptoms of ADHD
(2) OCD patients without childhood symptoms of ADHD

We made comparison study between both groups as regarding the age of onset, and the severity of impulsiveness, depression and anxiety.

Statistical analysis

Statistical analyses were calculated using version 24 of IBM SPSS Statistics (IBM; Armonk, New York, USA). Continuous variables were presented as mean±SD or median (range). Presentation of categorical variables was by the frequency and percentage. Shapiro-Wilk test was used to check normality. Levene's test checked Homogeneity of variance. Independent samples t-test: is used to detect difference between the means of two independent groups on a continuous dependent variable. Chi-squared test of association can discover the relationship between two categorical variables. Correlation coefficient assesses the direction and strength of correlation between different quantitative variables. P value ($\leq$ 0.05) was considered statistically significant difference.

Written informed consent was obtained from all participants and the study was approved by the research ethical committee of Faculty of Medicine, Zagazig University. The work has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.

RESULTS

We found that 44% of the OCD patients had ADHD since childhood, while the remaining 56% didn't have it at all. From 44% of those had child ADHD, 68.2% of

them were still have adult ADHD. There was significant relation between age of onset and child ADHD. Also, there was significant relation between occupation and child ADHD, where employees were the most associated with child ADHD. However, there was non-significant relation between the studied groups as regarding sex, marital status, age and residence. (Table 1).

There were highly significant differences between OCD patients who had child ADHD symptoms and those who didn't have regarding impulsivity, attention, non-planning and motor skills. It was noticed that all of them were found to be significantly higher among those with child ADHD symptoms when compared to those without.(Table 2).

There were non- significant differences between the studied groups as regarding Y-BOCs, HAMD and HARS scores. However it was noticed that HAMD and HARS were found to be higher among those with child ADHD symptoms when compared to those without ADHD (21.5 and 35.5 versus 17 and 26.5 respectively).(Table 3).

There was non-significant negative correlation between age of onset and ADHD score. There was non-significant positive correlation between ADHD score and Y-BOCS, HARS and HAMD. A significant positive correlation between ADHD score and impulsivity, motor, attention, non-planning was found.(Table 4) .

Table 1. Relationship between demographic characteristics and childhood ADHD symptoms among the studied groups:

Variable	OCD without child ADHD (n=56)		OCD with child ADHD (n=44)		χ^2	P
	No.	%	No.	%		
Sex:						
Female:	18	32.1	14	31.8	0.001	0.972
Male:	38	67.9	30	68.2		(NS)
Marital status:						
Divorced:	2	3.6	4	9.1		
Married:	32	57.1	22	50	1.500	0.472
Single:	22	39.3	18	40.9		(NS)
Residence:						
Rural:	40	71.4	26	59.1	1.671	0.196
Urban:	16	28.6	18	40.9		(NS)
Occupation:						
Employee:	4	7.1	12	27.3		
Manual worker:	20	35.7	12	27.3	**8.197**	**0.04**
Student:	10	17.9	4	9.1		**(S)**
Unemployed:	22	39.3	16	36.4		
Age:						0.418
Mean ± SD	30.03 ± 6.88		31.2 ± 7.13		-0.813*	(NS)
Range	20 - 45		19 - 43			
Age of onset:						
Mean ± SD	21.4 ± 6.08		19.2 ± 3.63		**2.109***	**0.01**
Range	10 - 35		14 - 30			**(S)**

Table 2. Relationship between impulsivity and child ADHD among the studied groups:

Variable	OCD without child ADHD (n=56)	OCD with child ADHD (n=44)	MW	P
Impulsivity: Mean ± SD Median Range	 52.7 ± 23.7 43.5 32 - 112	 78.5 ± 22.3 85 31 - 107	**-4.892**	**<0.001 (HS)**
Attention: Mean ± SD Median Range	 16.4 ± 7.69 14.5 8 - 30	 22.6± 5.25 22 8 - 30	**-4.029**	**<0.001 (HS)**
Planning: Mean ± SD Median Range	 18.9 ± 9.26 14.5 11 - 42	 30.04 ± 11.4 35 11 - 42	**-4.056**	**<0.001 (HS)**
Motor: Mean ± SD Median Range	 17.3 ± 8.29 13 10 - 40	 25.7 ± 10.1 30.5 11 - 40	**-3.541**	**<0.001 (HS)**

Table 3. Relationship between severity of OCD, depression, anxiety and child ADHD among the studied groups:

Variable	OCD without child ADHD (n=56)	OCD with child ADHD (n=44)	MW	P
Severity of OCD (Y-BOCs): Mean ± SD Median Range	 26.2 ± 9.26 24 9 - 40	 24.3 ± 9.58 21 11 – 40	-0.962	0.336 (NS)
depression (HAMD): Mean ± SD Median Range	 20.9 ± 10.7 17 8 - 37	 22.3 ± 9.51 21.5 9 – 38	-0.808	0.419 (NS)
Anxiety (HARS): Mean ± SD Median Range	 27.1 ± 14.5 26.5 9 - 50	 31.6 ± 15.4 35.5 9 – 50	-1.199	0.231 (NS)
Severity of OCD (OCSS): Mean ± SD Range	 244.2 ± 60.1 168 - 428	 272.9 ± 84.7 146 - 428	-1.977*	0.05 (NS)

Table 4. The correlation between ADHD score and different parameters among the studied group:

Variable	ADHD score	
	r	p
Age of onset:	**-0.184**	**0.067**
Y-BOCs	**0.038**	**0.702**
HARS:	**0.039**	**0.697**
HAMD:	**0.067**	**0.510**
Impulsivity:	**0.412**	**<0.001**
Attention:	**0.315**	**<0.001**
Motor:	**0.365**	**<0.001**
Non-planning :	**0.419**	**<0.001**

DISCUSSION

In this study we explored childhood symptoms of ADHD in an adult sample of OCD patients. We also compared the levels of impulsiveness, anxiety and depression between obsessive–compulsive adults having and not having childhood ADHD symptoms.

Our results revealed that 44% of the OCD patients had ADHD symptoms since childhood, while the remaining 56% didn't have it at all. From 44% of those had child ADHD symptoms, 68.2% were still have adult ADHD. In other words about 30% of OCD patients have adult ADHD.

These results are coincident with previous studies where rates of childhood ADHD among OCD patients were 40% and 40.9% respectively[17,18]. Prevalence of ADHD among those suffering from pediatric OCD has been estimated between above 40:60 % in a child and adolescent psychiatry clinic [19]. 59 % within a sample of pediatric psychopharmacology clinic [20], 51 % in a child OCD clinic [21], 43 % among the sample of a genetic study in families [22], and 42 % in a specialty clinic of OCD [23]. Our results are coincident with other studies where rates of adult ADHD among OCD patients were 19% and 23% respectively [24, 25]. This finding confirms the idea that the co-occurring between these disorders continue until adulthood. Our results are higher than the studies of previous studies where rates of adult ADHD among OCD patients were 13.7%, 13%, 8% and 10% respectively [26-29]. They used different sample characteristics with different age ranges (18 – 80).

Regarding sociodemographic data:

The ratio of obsessive–compulsive females and males with childhood ADHD symptoms did not differ significantly. This finding is consistent with Tan O. et al. [18].We differ from those of Nussbaum [30], who found that in children, ADHD was diagnosed 2-3 times among males in epidemiological samples and in clinical samples, 2-9 times. Also Biederman et al. [31] has reported that in adulthood similar numbers of males and females come to clinics with the ADHD complaints to be diagnosed and treated, contrary to male dominance in childhood. This difference can be attributed to referral bias caused by the underdiagnosis of ADHD in girls.

Another finding of our study was that there is significant relation between age of onset and child ADHD. There is also negative non-significant correlation between age of onset and ADHD score. Our results are coincident with previous results who found that the history of childhood ADHD in adults with OCD, , is associated an earlier onset of OCD reflecting a more chronic illness[18,29].

Our results are also consistent with other results who have found an earlier age at onset of OCD in patients with comorbid ADHD than in patients with OCD only [32-35].

Regarding impulsivity scores:

OCD adults with childhood ADHD symptoms show higher significant total impulsivity scores and also higher attentional, non-planning and motor subtypes.

Our results are coincident with a previous study that found impulsivity to be higher in patients with childhood ADHD symptoms than in others. High impulsivity is caused by high motor impulsivity, whereas non-planning and cognitive impulsivity did not differ between groups [18]. Our results are also Consistent with another study that found the patients with ADHD and OCD had significantly higher total, attentional, and motor subscale scores of BIS-11 compared with pure OCD patients. Particularly, total scores of BIS-11 were strongly associated with comorbid diagnosis of OCD and ADHD [36]. Another study found that there were significant correlations between the attentional subscores of BIS-11 and total obsession and compulsion subscale scores of YBOCS among OCD patients [37].

Regarding depression and anxiety scores:

There is non- significant differences between the studied groups as regarding depression and anxiety scores. It was noticed that scores were found to be higher among those with history of childhood ADHD symptoms when compared to those without. We agree with Blanco-Vieira et al. [29]. , who found that OCD patients with comorbid ADHD presented more severe anxiety symptoms. The comorbidity between OCD and anxiety symptoms has been demonstrated over the years, with some papers reporting that anxiety disorders are the most frequent comorbid conditions in OCD [38], with frequencies that range from 62% [39], to 75.8% [24]. We agree also with a previous study found no significant differences in severity of depressive symptoms between OCD patients with and without childhood ADHD symptoms. On the contrary, individuals with childhood ADHD symptoms had significantly more severe anxiety [18].

According to a study that compared patients who had childhood ADHD or not in terms of the sociodemographic, psychiatric comorbidities and clinical features, the social anxiety disorder (SAD) comorbidity was much more in childhood ADHD group [17]. Presence of ADHD comorbidity in OCD might indicate the need to carefully assess patients for SAD comorbidity. We disagree with the findings of several studies that found that subjects with OCD had other mental disorders, mainly anxiety disorders (generalized anxiety disorder, social phobia, simple phobias, panic disorder and separation anxiety disorder), confirming that those disorders are much more co-occurring in childhood and adolescence [34,40]. However, this high co-occurrence was not affected by the ADHD comorbidity.

Our results are also inconsistent with those of Walitza et al [35], who found that no patient with OCD plus ADHD had depressive or anxiety disorders (in the adult group). It is noteworthy that no depressive or anxiety disorders occurred in the ‘‘OCD with ADHD’’ group (in the child group), although these disorders are common comorbid diagnoses in OCD.

Regarding severity of OCD:

We found that there is non- significant differences between the studied groups as regarding Y-BOCs scores.

We agree with Tan O. et al (2016) [18] who found the history of childhood ADHD in adults with OCD, not associated with a more severe OCD. According to another study, no significant differences were found between the OCD with ADHD and OCD without ADHD groups regarding mean Y-BOCS compulsion, obsession, and total scores [17]. Mersin Kilic [36] compared the OCD patients with and without adulthood ADHD in terms of several clinical and demographic variables. They found that both groups did not differ greatly in the current OCs severity.

Our results incoincident with the study of Blanco-Vieira et al. [29] who found higher total and obsession severity according to the Y-BOCS among OCD adults comorbid with ADHD. Our results are also coincident with a previous study who followed up adolescents and children having OCD with ADHD and having OCD without ADHD for about 5 years observed that the OCD severity did not differ at the beginning from the end of treatment between both groups; those with comorbid ADHD had higher scores of Y-BOCS at the end of treatment course [35].

Limitations:

This study is a cross sectional study; which eliminates the causal efficacy of all data therefore, we can only infer the direction of association between trait ADHD and OCD. The current study is sensitive to recall bias. The good psychometric properties of the WURS may somewhat balance this limitation. The sample size of the study was small, especially when dividing into groups. There was no healthy control group in this study, and such reports among the general population may get similar results found in the patients with OCD.

CONCLUSION

Childhood ADHD symptoms is experienced by a significant number of patients in this sample. The history of childhood ADHD in adults with OCD, though not associated with a more severe OCD, is associated with some features impairing the general clinical picture including higher levels of anxiety and impulsiveness and an earlier onset of OCD reflecting a more chronic illness. Our study suggests that childhood ADHD symptoms need more attention in psychiatric clinical practice and scientific research.

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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