Original Article

Prevalence and Correlates of Obsessive–Compulsive Symptoms in a Sample of Undergraduate Clinical Medical Students in Osogbo, Southwestern Nigeria

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ABSTRACT

Background: Obsessive–compulsive symptoms (OCS) may be common, yet, under-recognised and under-reported among medical students. Their presence is associated with other mental disorders which could have negative impacts on the academic functioning of medical students.
Objectives: The objective is to assess the prevalence and correlates of OCS in a sample of Nigerian clinical medical students.
Methods: This is a cross-sectional descriptive study conducted among 209 Nigerian medical students in their clinical training years. They completed a sociodemographic questionnaire, the Obsessive-Compulsive Inventory-Revised, the Depression and Anxiety Stress Scale – 21 and the Rosenberg Self-Esteem Scale.
Results: The prevalence of OCS was 32.1%. Depression, anxiety and stress were present in 13.9%, 27.8% and 35.4% of the respondents, respectively. The presence of OCS was associated with stress, anxiety, depression and low self-esteem among the medical students.
Conclusions: OCS is relatively common among clinical medical students. Their presence may worsen the difficulties experienced among medical students in the course of their training. There may be a need to be screening clinical medical students for the presence of OCS.

Key words: Correlates, Nigerian medical students, obsessive–compulsive symptoms, prevalence

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INTRODUCTION

Medical training is perceived as being intense and demanding to a significant population of students undergoing such training.[1,2] Medical training is statistically associated with significant psychological distress.[2] Therefore, there is a high probability of medical students having their mental health being adversely affected and subsequently their academic performance.[3] Some of the common mental disorders reported among medical students include anxiety and depression.[2] Etiologically, these disorders could be due to the high academic pressure associated with medical school education, increased responsibility, exposure to body fluids and various morbid states and competition for grades.[4,5] Other identified stressors include time pressure, the need to assimilate a large amount of new information in a relatively short span of time, and the prospective knowledge that at the end of their training they will be directly responsible for the health and welfare of others.[6]

The prevalence of common mental disorders among medical students has been reported to be higher when compared with the general population- and age-matched peers.[2] The prevalence of common mental disorders among medical students ranges from 20% to 40% in the western countries[7-9] 11%–51.8% in the Middle East,[10-12] 32.6%–35.2% in Africa[13,14] and 6.3%–61.6% in Nigeria.[15,16]

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The increased responsibility and high academic demands of medical education have been associated with anxiety symptoms in general and obsessive–compulsive symptoms (OCS) in particular.[17] Obsessive-compulsive symptoms are the symptoms of Obsessive-compulsive Disorder.[17] They are psychological manifestations closely related to anxiety.[17] Obsessions are unpleasant and recurrent ideas, mental images, doubts or impulses that generate anxiety or emotional distress, while compulsions or compulsive rituals are open or covert behaviours that individuals perform repeatedly in response to an obsession or according to rigid rules, in order to neutralise or reduce anxiety/distress or to prevent in an excessive or unrealistic way some dreaded events.[18] The presence of OCS significantly contributes to elevated stress and makes the process of adaptation rather difficult for students undergoing medical training.[17] OCS has been shown to have significant associations with depressive symptoms.[17] Studies have repeatedly reported that depressive disorder is the most common comorbidity in obsessive–compulsive disorder (OCD).[19-21] OCS has also been reported to be associated with perfectionism and increased risk for suicidal behaviours among students and is also associated with significant impairments in functioning and poorer quality of life.[17,22] A study also reported reduced levels of self-esteem in patients with OCD symptoms when compared to those without such symptoms.[23] Furthermore, there is a relationship between OCD and other anxiety disorders.[24]

The presence of OCS may be common, yet under-recognised and under-reported among medical students.[17,25] The prevalence rate of OCS among medical students ranges from 3.8% to 35.7% across different western countries and cultures.[10,17,26] The prevalence is not <40% in Africa, with a study conducted more than a decade ago reporting a prevalence of 28.3% in Nigeria.[25] However, despite the high prevalence and negative impact of OCS among medical students, there is a dearth of studies in Africa and Nigeria in particular.

In Nigeria, there is still scantiness of information regarding the presence and factors associated with OCS among medical students. An extensive literature search revealed only one study of OCS among Nigerian medical students conducted more than a decade ago.[25] However, one of the shortcomings of the study is that the author did not evaluate the correlates of OCS in this population. Second, the sample size in the study was relatively small. We are of the opinion that this current study will yield some additional information that will further add to the literature regarding OCS among Nigerian medical students. In addition, there is the plausibility that the findings may assist those responsible for medical education in Nigeria to plan and create mental health services specifically directed at this population. Therefore, the primary aims of this study are to assess the prevalence and correlates of OCS in a sample of Nigerian medical students in Southwestern Nigeria using a scale that is valid and reliable.

METHODS

Study population

This cross-sectional descriptive study was conducted among undergraduate medical students undergoing their clinical rotations in different specialties at the Ladoke Akintola University of Technology Teaching Hospital (LTH), Osogbo, Osun State.

Measures

Sociodemographic questionnaire

This consisted of variables such as the age, gender and marital status.

Obsessive-Compulsive Inventory-Revised

This was used to quantitatively assess the OCS.[27] It is a subjectively completed scale for assessing symptoms of OCD. It consists of 18 questions that a person endorses on a 5-point Likert scale. Scores are generated by adding the item scores. The possible range of scores is 0–72. Mean score for persons with OCD is 28.0. The recommended cutoff score is 21, with scores at or above this level indicating the likely presence of OCD.[27] This instrument will be used to define the type and severity of the OCS. The psychometric characteristics of this instrument have been reported to be satisfactory among the Nigerian population.[28,29]

Depression, Anxiety and Stress Scale - 21

This is a set of three self-report scales designed to measure the negative emotional states of depression, anxiety and stress with seven items per scale, the depression scale assesses dysphoria, hopelessness, self-deprecation and lack of interest.[30] The anxiety scale assesses autonomic arousal, skeletal muscle effect. The stress scale assesses relaxing difficulty, nervous arousal and agitation. It has been used in Nigeria.[31] In our study, we scored and graded severity of the scales according to the original developers of the instrument.[30]

The Rosenberg Self-Esteem Scale

The self-completed Rosenberg Self-Esteem Scale (RSES) is a 10-item questionnaire with items scored on a 5-point Likert scale from strongly agree to strongly disagree. Five of the scale's items are reversed scored. Higher scores on the scale reflect higher levels of self-esteem.[32] Satisfactory reliability and validity have been described among Nigerian adolescents.[33]

Procedure

Approval for the study protocol was granted by the Research and Ethics Committee of the LTH, Osogbo, Osun state. Permission was also obtained from the school authority. All the clinical medical students who consented were consecutively recruited into the study after the aims of the study have been explained to them. Those who did not give consent and those who indicated the presence of any pre-existing mental disorder were excluded from the study. A total of 247 students were approached. Three of them indicated that they were on treatment for mental disorders and were excluded. Thirty-five students refused to give their consent. Thus, data from 209 students (84.6% response rate) were available for analysis.

Data analysis

Statistical analyses were performed with the Statistical Product and Service Solutions software, 21st version (IBM Corp, Armonk, New York, USA). Descriptive statistics such as the mean (standard deviation) and frequency (percentages) were utilised in depicting the students' sociodemographic variables and scores on the Obsessive-Compulsive Inventory-Revised (OCI-R) and the other study measures. The dependent variable was OCS as measured with the OCI-R, while the other study measures were exploratory variables. The directions and strengths of the relationship between OCI-R score and the other measures were evaluated applying correlational analyses. A multivariate linear analysis was conducted to identify the variables that are significantly associated with the OCI-R subscale scores among the study respondents. The level of statistical significance was set at a $P < 0.05$ and all tests were two-tailed.

RESULTS

In Table I, the mean age of the respondents was 27.49 (2.57) years. Males constituted 57.4% of the sample, and the majority (80.9%) of the respondents was single. The overall mean of the OCI-R was 16.33 (11.81). OCS was reported by 32.1% of the respondents. The prevalence rates of depression, anxiety and stress were 13.9%, 27.8% and 35.4%, respectively. Table II shows statistically significant higher mean scores in all the OCI-R subscales among respondents with OCS. Table II also shows that there were statistically significantly higher mean depression, anxiety and stress scores among medical students with OCS than in those without OCS. However, self-esteem was lower in respondents with OCS.

Table III shows that there were statistically significant positive correlations between the OCI-R total score and its subscales. There were also statistically significant positive correlations between the OCI-R and depression, anxiety along with stress subscales. In addition, there was a statistically significant negative correlation between the OCI-R and self-esteem scores. Table IV shows the explanatory variables that remained associated with the OCI-R subscale scores in the multiple linear regressions. In Table V, the depression, anxiety and stress scales as well as RSES significantly contributed about 28% to the variance in the OCI-R scores.

Table I: Socio-demographic and study measure characteristics of the respondents (n=209)

Variable	n (%), mean (SD), range
Age	27.49(2.57) years, 24-40
Gender	
Male	120 (57.4)
Female	89 (42.6)
Marital status	
Single	169 (80.9)
Married	40 (19.1)
OCS present	67 (32.1)
OCS total	16.33 (11.81), 0-52
Checking	2.75 (2.50), 0-12
Hoarding	3.03 (2.17), 0-12
Neutralising	1.99 (2.31), 0-10
Obsessing	2.14 (2.25), 0-12
Ordering	4.17 (2.93), 0-12
Washing	2.25 (2.37), 0-9
Depression present	29 (13.9)
Anxiety present	58 (27.8)
Stress present	74 (35.4)
RSES	32.32 (4.08), 20-40

OCS: Obsessive-compulsive symptoms, SD: Standard deviation, RSES: Rosenberg Self-Esteem Scale

Table II: Comparison of the mean Obsessive-Compulsive Inventory-Revised subscales and other study measures between the respondents with and without obsessive-compulsive symptoms

Variable	OCS absent	OCS present	T	df	P
Checking	1.49 (1.54)	5.42 (1.99)	−15.64	207	<0.001
Hoarding	1.99 (1.46)	5.24 (1.74)	−14.10	207	<0.001
Neutralising	0.80 (1.09)	4.51 (2.19)	−16.38	207	<0.001
Obsessing	1.11 (1.22)	4.34 (2.35)	−13.09	207	<0.001
Ordering	2.88 (2.14)	6.92 (2.44)	−12.22	207	<0.001
Washing	1.14 (1.56)	4.60 (2.08)	−13.37	207	<0.001
Depression	2.83 (4.06)	5.37 (6.11)	−3.57	207	<0.001
Anxiety	3.87 (3.68)	8.69 (7.05)	−6.49	207	<0.001
Stress	4.58 (4.15)	8.93 (6.30)	−5.94	207	<0.001
RSES	33.19 (3.75)	30.48 (4.16)	4.71	207	<0.001

OCS: Obsessive-compulsive symptoms, RSES: Rosenberg Self-Esteem Scale

DISCUSSION

The main objectives of this study were to determine the prevalence and correlates of OCS in a sample of Nigerian medical students. This is the first Nigerian study to report the correlates of OCS among medical students.

In this study, the prevalence of OCS among our respondents was 32.1%. This is within the range reported across different countries. Studies conducted among medical students in Brazil and India reported lower rates of 3.8% and 23.3%, respectively.[17,26] However, our finding is comparable to a prevalence rate of 35.7% reported among the American university students.[22] A similar study conducted in Nigeria more than a decade ago also reported that 28.3% of the 138 medical students interviewed had OCS.[25] The variation in prevalence rates across different countries may be explained by cultural differences and differences in the health-care systems.[34] The magnitude of the difference also suggests that genetic, cultural and environmental factors could affect the expression of OCS.[35]

In addition, 13.9%, 27.8% and 35.4% of the clinical medical students in our study experienced depression, anxiety and stress, respectively. These are within the reported findings of 12%–30%,[36] 9.5%–56.7%[15,36] and 11.8%–51.9%[16,36]

Table III: Correlational analysis between the Obsessive-Compulsive Inventory-Revised, its subscales and other study measures (*n*=209)

	Variable	1	2	3	4	5	6	7	8	9	10	11
1	OCS total	1										
2	Checking	0.860*	1									
3	Hoarding	0.817*	0.692*	1								
4	Neutralising	0.836*	0.668*	0.605*	1							
5	Obsessing	0.731*	0.503*	0.540*	0.562*	1						
6	Ordering	0.817*	0.639*	0.628*	0.584*	0.497*	1					
7	Washing	0.810*	0.679*	0.548*	0.678*	0.506*	0.548*	1				
8	Depression	0.352*	0.213*	0.354*	0.292*	0.490*	0.154*	0.262*	1			
9	Anxiety	0.493*	0.354*	0.395*	0.437*	0.565*	0.335*	0.347*	0.704*	1		
10	Stress	0.488*	0.334*	0.472*	0.386*	0.569*	0.342*	0.308*	0.831*	0.806*	1	
11	RSES	−0.331*	−0.177*	−0.316*	−0.352*	−0.356*	−0.143*	−0.317*	−0.510*	−0.415*	−0.488*	1

*P<0.001. OCS: Obsessive-compulsive symptoms, RSES: Rosenberg Self-Esteem Scale

Table IV: Multiple linear regression (multivariate analyses of continuous outcomes) showing factors associated with the Obsessive-Compulsive Inventory-Revised subscale scores (*n*=209)

Variable	Coefficient	95% CI	*P*	R^2
Checking				
Anxiety	0.16	0.10-0.22	<0.001	0.13
Hoarding				
Stress	0.19	0.14-0.24	<0.001	0.22
Neutralising				
Anxiety	0.15	0.09-0.20	<0.001	0.23
Self-esteem	−0.12	−0.19-(−0.04)	0.002	
Obsessing				
Stress	0.14	0.06-0.22	0.001	0.36
Anxiety	0.12	0.05-0.20	0.002	
Ordering				
Stress	0.30	0.15-0.44	<0.001	0.19
Depression	−0.26	−0.40-(−0.13)	<0.001	
Anxiety	0.11	0.00-0.23	0.047	
Washing				
Anxiety	0.11	0.05-0.17	<0.001	0.16
Self-esteem	−0.12	−0.20-(−0.04)	0.003	

CI: Confidence interval

among medical students with depression, anxiety and stress, respectively, across different countries. In this study, medical students who had OCS had significantly higher levels of stress, anxiety and depression when compared to those without OCS. This may be as a result of the burden of OCS, as these symptoms have been reported to significantly impair functioning, increase psychological distress and precipitate poor quality of life.[17] Our result also showed that OCI-R scores had positive correlations with the levels of stress, anxiety and depression. This is also in support of a study which reported that the presence of OCS increases the likelihood of the presence of stress, anxiety and depression.[17] Conversely, the presence of OCS among our respondents negatively affected their self-esteem. Lowered self-esteem among subjects with OCS has been reported.[23] Another study also reported that low personal disposition scores in fulfilment, flexibility and self-esteem and low peer relation scores in an academic environment were associated with a higher probability of having OCS.[37]

On regression analysis, anxiety was associated with all the symptoms of OCD except the hoarding symptom. This finding is similar to what has been previously reported.[17] This may be due to the high academic pressure associated with medical school education, increased responsibility and competition for grades.[4,5] In addition, some of the stressful conditions in medical students include long study hours, frequent continuous assessments and assignments, difficult examinations, relationship problems, high societal expectations, loneliness and lack of social life.[15] All these conditions could increase anxiety level and subsequently increase the expression of OCS among medical students.[17]

Stress was specifically associated with hoarding, obsessing and neutralising symptoms. As stated in a previous study, OCS especially obsessing symptoms, lead to greater interference and more help-seeking behaviours which in turn increase stress in the individuals.[38] However, ordering symptom was the only OCS associated with depression. This is not in keeping with what has been reported among Brazilian medical students that reported obsessing symptom as the OCS associated with depression.[17] The difference may be due to genetic, cultural and environmental factors.[35] On the other hand, self-esteem was independently associated with neutralising and washing symptoms. This finding is in agreement with what has been reported that perfectionism is required from medical students as a result of increased responsibility and exposure to body fluids.[17] Hence, feelings of the contamination may impair perfectionism and subsequently affect their self-esteem. Since this is the first study in Africa examining specific OCS dimensions in this population, these findings require replication.

Furthermore, among the Nigerian medical students, depression, anxiety, stress and low self-esteem all significantly contributed to the presence of OCS. This model also showed that the combination of stress, anxiety,

Table V: Linear regression analysis depicting the extent to which each variable contributed to the total Obsessive-Compulsive Inventory-Revised score among the respondents

Variable	*B*	SE	β	*T*	*P*	95% CI
Constant	23.921	6.926		3.454	0.001	10.265-37.577
DASS - stress	0.858	0.284	0.387	3.022	0.003	0.298-1.418
DASS - anxiety	0.649	0.215	0.301	3.018	0.003	0.225-1.074
DASS - depression	−0.618	0.260	−0.258	−2.378	0.018	−1.130-(−0.106)
RSES	−0.432	0.200	−0.149	−2.167	0.031	−0.826-(−0.039)
R^2=0.296						
Adjusted R^2=0.282						

CI: Confidence interval, RSES: Rosenberg Self-Esteem Scale, DASS: Depression, Anxiety and Stress Scale

depression and self-esteem contributed about 28% variance to the OCI-R. This is similar to what has been reported by other studies.[17,37]

In our study, further analysis showed that there was no statistically significant gender difference in relation to the presence of OCS; although females had higher mean OCS when compared to their male counterparts. Our findings on gender are similar to a previous study on OCS among Brazilian medical students.[17] The authors of the study also reported that females had more OCS than males; however, the finding was not statistically significant.[17]

This study is not without limitations. The study was conducted in a single medical school; therefore, caution needs to be exercised in generalising the findings to other parts of Nigeria. The study was also cross-sectional in nature, hence, the direction of causality between OCS and the other variables cannot be ascertained. Since the measures of OCS were based on self-report, respondents in this study might have been subjected to both recall and reporting bias regarding some of the study instruments. However, despite these limitations, findings from this study can serve as baseline statistics for comparison in future.

CONCLUSIONS

This study has shown that OCS is common among medical students. These symptoms worsen the difficulties experienced among medical students in the course of their training. OCS is positively correlated with stress, anxiety and depressive symptoms among medical students. OCS was also associated with reduced self-esteem. Therefore, there may be a need to routinely screen medical students for the presence of OCS. Furthermore, those affected should be offered psychosocial support services. There is also a need for more studies, preferably, multicentre and longitudinal studies, to further explore the relationships between OCS and other academic variables.

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Conflicts of interest

There are no conflicts of interest.

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