



PREVALENCE AND SEVERITY OF OBSESSIVE-COMPULSIVE SYMPTOMS AMONG MEDICAL STUDENTS IN PAKISTAN

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KEYWORDS	ABSTRACT
obsessive-compulsive symptoms, medical students, prevalence, severity, OCI-R, Pakistan	Obsessive-compulsive symptoms (OCS) are frequently reported among medical students, yet evidence from Pakistan is scarce. This cross-sectional study examined the prevalence, severity, and demographic correlates of OCS among medical students in Rawalpindi and Islamabad. Using convenience sampling, 499 MBBS and BDS students (69.1% male; $M_{age} = 20.38$ years, $SD = 1.50$) completed a demographic sheet and the Obsessive-Compulsive Inventory-Revised (OCI-R). Clinically significant OCS ($OCI-R \geq 21$) were present in 37.5% of students (95% CI [33.3, 41.8]). The mean total score was 18.42 ($SD = 9.87$), and the OCI-R showed good internal consistency ($\alpha = .84$). Severity was distributed across the normal (19.6%), mild (26.5%), moderate (16.4%), severe (23.8%), and extreme (13.6%) bands. OCI-R scores did not differ significantly by gender, $t(485) = 1.214$, $p = .225$, $d = 0.12$; academic year, $F(4, 494) = 0.872$, $p = .481$, $\eta^2 = .007$; or age, $t(497) = .04$, $p = .420$. Prevalence was well above general-population estimates and within the range reported for medical students internationally. These findings support routine mental health screening and accessible psychological support for medical students across all years of study. Limitations include convenience sampling and reliance on a self-report screening measure.
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Introduction

Obsessive-compulsive symptoms (OCS) include recurrent, intrusive, and unwanted thoughts, urges, or images (obsessions) and repetitive behaviors or mental acts performed to reduce the distress they provoke (compulsions; American Psychiatric Association [APA], 2013). Symptoms

that fall short of full diagnostic criteria for obsessive-compulsive disorder (OCD) are far more common than the disorder itself, yet they are associated with anxiety, depression, and lower quality of life, and they can impair concentration and study efficiency (Shaheen et al., 2026). The lifetime prevalence of OCD in the general population is approximately 2.3%, with a mean age of onset of about 19.5 years (Al-Awad et al., 2024).

This age of onset coincides with the years of medical education, which makes medical students a particularly vulnerable group. Medical training emphasizes precision, responsibility, and sterility, involves heavy workloads, sleep deprivation, and repeated exposure to illness, and may therefore foster obsessional thinking and contamination-related fears (Khalaf et al., 2021; Madoro et al., 2025; Shaheen et al., 2026; Taher et al., 2021).

Studies using the Obsessive-Compulsive Inventory-Revised (OCI-R; Foa et al., 2002) with the conventional cut-off of 21 have reported probable OCD in 28.4% of students in Ethiopia (Madoro et al., 2025), 46.4% in Saudi Arabia (Al-Awad et al., 2024), and 51.1% in Egypt (Shaheen et al., 2026). Studies using a stricter cut-off of 27 have reported 36.2% in Riyadh (Khalaf et al., 2021) and 43% among Iraqi students during the COVID-19 pandemic (Taher et al., 2021), and a study in Iran using the Maudsley Obsessive-Compulsive Inventory reported 54.4% (Kamali Ardakani et al., 2020). Estimates therefore vary widely with instruments, cut-offs, and context, and OCS appear sensitive to environmental stressors such as the pandemic (Abba-Aji et al., 2020; Pacitti et al., 2022). Severity indicators and symptom-dimension profiles are reported far less consistently than prevalence (Al-Awad et al., 2024; Taher et al., 2021).

Findings on correlates are also mixed. Higher OCS among women were reported by Khalaf et al. (2021), Al-Awad et al. (2024), and Shaheen et al. (2026), whereas Taher et al. (2021) and Kamali Ardakani et al. (2020) found no gender difference. Younger age and earlier academic years were associated with more symptoms in several studies (Al-Awad et al., 2024; Shaheen et al., 2026; Taher et al., 2021) but not in others (Kamali Ardakani et al., 2020; Khalaf et al., 2021). Evidence from Pakistan using a standardized instrument remains scarce, which limits the design of evidence-based screening and support for this high-risk group.

The present study therefore examined the prevalence and severity of OCS among medical students in Rawalpindi and Islamabad and tested whether symptoms differed by gender, age, and academic year. We hypothesized that (H1) the prevalence of clinically significant OCS would be significantly higher than the general-population lifetime prevalence of OCD, (H2) female students would report higher symptom severity than male students, and (H3) younger students and those in earlier academic years would report higher severity than older students and those in later years.

Design and Participants

A cross-sectional descriptive design was used. Data were collected between January and March 2025 from public and private medical colleges in Rawalpindi and Islamabad using convenience sampling. Eligible participants were MBBS or BDS students aged 18–25 years who had been enrolled for at least one year and were willing to participate. Students with a physical disability,

those currently taking medication for a medical or psychological condition, and those who withdrew consent were excluded. The final sample comprised 499 students ($M_{age} = 20.38$ years, $SD = 1.50$; 345 men [69.1%], 142 women [28.5%], and 12 who selected “Other” [2.4%]). Table 1 presents the sample characteristics.

Measures

A demographic sheet recorded age, gender, marital status, socioeconomic status, academic year, and residence. OCS were measured with the OCI-R (Foa et al., 2002), an 18-item self-report scale rated from 0 (not at all) to 4 (extremely) for distress over the past month. It yields a total score (0–72) and six 3-item subscales (washing, obsessing, hoarding, ordering, checking, and neutralizing). A total score of 21 or higher indicates probable OCD. Severity bands were defined as normal (0–7), mild (8–15), moderate (16–23), severe (24–31), and extreme (32 and above). Internal consistency in the present sample was good ($\alpha = .84$ for the total score; $\alpha = .70$ – $.74$ for the subscales).

Procedure and Ethical Considerations

The study was approved by the Institutional Review Board of the National University of Medical Sciences, and permission was obtained from each participating college. Research assistants distributed questionnaire packets, comprising the consent form, the demographic sheet, and the OCI-R, during non-instructional time. Participation was voluntary, written informed consent was obtained, and responses were anonymous and confidential.

Data Analysis

Data were analyzed in IBM SPSS Statistics (Version 27). Prevalence was calculated as the percentage scoring 21 or higher, with a 95% confidence interval. Severity was described using means, standard deviations, and the five severity bands. Gender differences in total scores were tested with an independent-samples *t* test (excluding the “Other” group because of its small size), academic-year differences with a one-way ANOVA confirmed by a Kruskal–Wallis test, the association between age and total score with Pearson correlation, and the association between severity level and gender with a chi-square test. The significance level was set at $p < .05$.

Preliminary Analyses

Total OCI-R scores were approximately normally distributed (skewness and kurtosis within ± 1.0), and Levene’s tests supported equal variances for the gender ($p = .412$) and academic-year comparisons ($p > .05$).

Prevalence and Severity

Clinically significant OCS ($OCI-R \geq 21$) were present in 37.5% of the sample ($n = 187$; 95% CI [33.3, 41.8]), meaning that H1 was supported. Prevalence was 40.8% among women (95% CI [32.8, 49.3]), 35.9% among men (95% CI [30.9, 41.2]), and 41.7% in the “Other” group (95% CI [15.2, 72.3]); the confidence intervals overlapped substantially. The mean OCI-R total score was 18.42 ($SD = 9.87$, range = 2–48). Among the subscales, obsessing had the highest mean and washing

the lowest (Table 2). By severity band, 19.6% of students were in the normal range, 26.5% mild, 16.4% moderate, 23.8% severe, and 13.6% extreme (Table 3).

Group Differences

Total scores did not differ significantly between men ($M = 18.21, SD = 9.74$) and women ($M = 19.34, SD = 10.12$), $t(485) = 1.214, p = .225, d = 0.12$, so $H2$ was not supported. Scores also did not differ across academic years, $F(4, 494) = 0.872, p = .481, \eta^2 = .007$ (Kruskal–Wallis $p = .512$); first-year students had the highest mean ($M = 20.11, SD = 10.23$) and fifth-year students the lowest ($M = 17.55, SD = 9.88$). Age was not correlated with total score, $r(497) = .036, p = .420$, so $H3$ was not supported. Severity level was not associated with gender, $\chi^2(4, N = 499) = 1.876, p = .759$, Cramér's $V = .043$. Subscale intercorrelations were moderate ($r = .28-.41$), and all subscales correlated strongly with the total score ($r = .64-.72$, all $p < .001$).

Table 1: Characteristics of the Sample (N = 499)

Characteristic	n	%
Gender: Male	345	69.1
Gender: Female	142	28.5
Gender: Other	12	2.4
Academic year: 1	36	7.2
Academic year: 2	230	46.1
Academic year: 3	159	31.9
Academic year: 4	34	6.8
Academic year: 5	40	8.0
Marital status: Single	397	79.6
Socioeconomic status: Middle	332	66.5
Residence: With family	344	68.9

Note. Age: $M = 20.38$ years, $SD = 1.50$. Only the largest category is shown for marital status, socioeconomic status, and residence.

Table 2: Descriptive Statistics and Reliability of OCI-R Scales

Scale	M	SD	Min	Max	α
OCI-R total	18.42	9.87	2	48	.84
Washing	2.71	2.14	0	10	.71
Obsessing	3.42	2.38	0	12	.74
Hoarding	3.18	2.21	0	12	.70

Ordering	3.05	2.29	0	12	.73
Checking	2.89	2.17	0	11	.72
Neutralizing	3.17	2.33	0	11	.70

Note. OCI-R = Obsessive-Compulsive Inventory-Revised. Subscale scores range from 0 to 12; the total score ranges from 0 to 72.

Table 3: Severity Distribution of OCI-R Total Scores

Severity level	Score band	n	%
Normal	0-7	98	19.6
Mild	8-15	132	26.5
Moderate	16-23	82	16.4
Severe	24-31	119	23.8
Extreme	32-72	68	13.6

Note. N = 499.

This study estimated the prevalence and severity of OCS among 499 medical students in Rawalpindi and Islamabad. More than one in three students (37.5%) scored at or above the OCI-R screening cut-off, no significant differences emerged by gender, age, or academic year, and the OCI-R showed good internal consistency.

Prevalence and Severity

The prevalence of 37.5% is far above the general-population lifetime prevalence of OCD of about 2.3% (Al-Awad et al., 2024), which supports H1, although the comparison is between a screening result and a diagnostic lifetime figure and should be interpreted cautiously. It lies within the 26%–54% range reported for medical students elsewhere. Among studies that also used the cut-off of 21, it was lower than the estimates from Saudi Arabia (46.4%; Al-Awad et al., 2024) and Egypt (51.1%; Shaheen et al., 2026) and higher than that from Ethiopia (28.4%; Madoro et al., 2025). The pressures of medical training, including academic demands, sleep deprivation, and high expectations, may help explain these elevated rates (Khalaf et al., 2021; Taher et al., 2021). The severity profile showed a substantial symptom burden: 37.4% of students scored in the severe or extreme bands, while another 16.4% scored in the moderate band. Obsessing was the most prominent dimension, consistent with Taher et al. (2021), and the moderate subscale intercorrelations support the multidimensional structure of the OCI-R.

Gender, Age, and Academic Year

H2 was not supported. The absence of a gender difference agrees with Taher et al. (2021) and Kamali Ardakani et al. (2020) but contrasts with studies reporting higher OCS among women (Al-

Awad et al., 2024; Khalaf et al., 2021; Shaheen et al., 2026). The predominantly male sample (69.1%) may have limited the power to detect a difference, and male and female students in this setting may face similar academic stressors. H3 was also not supported: neither age nor academic year was related to symptom severity, which is consistent with Khalaf et al. (2021) but not with Al-Awad et al. (2024) or Shaheen et al. (2026), who reported lower symptoms with increasing age and academic progression. Stress may remain consistently high across all years of medical education in this context, preventing the adaptation effect seen elsewhere.

Implications

The findings suggest that OCS affect medical students regardless of gender or year of study, so screening and support should not be limited to particular subgroups. Medical colleges in Pakistan could integrate routine screening with the OCI-R, together with accessible and destigmatized counseling services, into student wellness programs. Early identification may help prevent progression to full OCD and protect the academic and clinical performance of future physicians.

Limitations and Future Directions

Several limitations should be noted. The cross-sectional design prevents causal inference, and convenience sampling limits generalizability to other medical colleges. The sample was predominantly male. The OCI-R is a self-report screening measure, so the prevalence reflects probable rather than confirmed OCD, and correlates such as depression, anxiety, and sleep quality were not measured. Future studies should use clinical interviews to confirm diagnoses, include these correlates, develop and validate an Urdu version of the OCI-R, and follow students longitudinally across their training.

Conclusion

Clinically significant OCS were common among medical students in Rawalpindi and Islamabad, and they were not related to gender, age, or academic year. These findings provide local evidence for the introduction of mental health screening and psychological support for medical students.

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