

Original Research Article

Mapping the relationship: a cross-sectional analysis of obsessive-compulsive symptoms and mindfulness in undergraduate medical students from Central India

Jayprakash Gupta*, Vipul Deotale, Sarita Wadhva, Pragati Rathod,
Ujwala Ukey, Neethu Baby, Uday Narlawar

Department of Community Medicine, Government Medical college Nagpur, Maharashtra, India

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*Correspondence:

Dr. Jayprakash Gupta,

E-mail: guptajp210@gmail.com

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ABSTRACT

Background: Obsessive-compulsive disorder (OCD) is a chronic psychiatric condition characterized by intrusive thoughts (obsessions) and repetitive behaviours (compulsions) performed to relieve the associated distress. Medical education is known to be intellectually and emotionally demanding, often leading to increased levels of stress, anxiety, and symptoms of psychological disorders. This study aimed to assess the relationship between obsessive-compulsive symptoms and mindfulness among undergraduate medical students in central India.

Methods: A cross-sectional study was conducted involving 240 undergraduate medical students and interns, using convenience sampling. A self-administered questionnaire based on two validated scales: the obsessive-compulsive inventory-revised (OCI-R) to assess obsessive-compulsive symptoms and the mindful attention awareness scale (MAAS) to measure mindfulness was used. Data were collected using paper-based forms and analysed for gender differences and correlation between OCI-R and MAAS scores.

Results: Among the 240 participants, 130 were males and 110 were females, males reported a higher mean OCI-R score (27.4) compared to females (24.3), with median values of 29.0 and 24.5, respectively. It was observed that as individuals' OCI scores increase their MAAS scores, tend to slightly decrease. However, the association appears weak.

Conclusions: The findings support the growing evidence that mindfulness is negatively associated with obsessive-compulsive symptoms. Incorporating mindfulness-based interventions in medical training may help reduce psychological distress. Further research is needed to explore causality and long-term benefits of mindfulness practices in this population.

Keywords: OCD, OCI-R, MAAS, Medical students, Mindfulness

INTRODUCTION

Obsessive-compulsive disorder (OCD) is a chronic psychiatric condition characterized by intrusive thoughts (obsessions) and repetitive behaviours (compulsions) performed to alleviate the distress caused by these thoughts.¹ While the lifetime prevalence of OCD is estimated at 2-3%, subclinical obsessive-compulsive symptoms (OCS) are more prevalent in the general

population and particularly among medical students, who often experience high levels of academic and psychological stress.² Medical education is known to be intellectually demanding and emotionally taxing, often leading to elevated stress levels, anxiety, and symptoms of psychological disorders among students.³ Studies from India have reported a significant burden of OCS among medical undergraduates, potentially interfering with academic performance, interpersonal relationships, and

overall well-being.^{4,5} Mindfulness- a psychological process involving non-judgmental awareness of the present moment- has gained empirical support as a potential protective factor against various mental health issues, including anxiety, depression, and OCD.^{6,7} Mindfulness-based interventions have been shown to reduce obsessive-compulsive symptoms and improve cognitive and emotional regulation.^{8,9} Despite growing interest in mindfulness and mental health, the association between trait mindfulness and obsessive-compulsive symptoms (OCS) in non-clinical populations- especially among Indian medical students- has not been thoroughly examined. OCS are increasingly prevalent as a mental health issue, and recent findings indicate that reductions in these symptoms may correlate with higher levels of mindfulness.¹⁰ Understanding the potential inverse relationship between mindfulness and obsessive-compulsive symptoms may offer novel insights into preventive and therapeutic strategies for medical students.

This study aimed to map this relationship through a cross-sectional analysis among undergraduate medical students in central India, contributing to both the psychological literature and practical mental health interventions in academic settings.

METHODS

A cross-sectional study design was utilized to conduct this research. The study included a total of 240 undergraduate students from a medical college and hospital, selected from a first to fourth academic years and interns. The age range of the participants was between 17 and 25 years. Participation in the study was voluntary, and all participants were recruited using a convenience sampling method.

Prior to data collection, participants were provided with detailed information about the purpose, objectives, and nature of the study. They were assured of the confidentiality and anonymity of their responses. Written informed consent was obtained in a language that was clearly understood by each participant. Additionally, all questions or concerns raised by participants were addressed before the commencement of the survey. The entire research process was conducted in compliance with the ethical standards laid down in the ensuring respect, safety, and rights of all participants. A paper-based administration of the obsessive-compulsive inventory-revised (OCI-R) and the mindful attention awareness scale (MAAS) was employed for data collection

Obsessive-compulsive inventory- revised (OCI-R)

The OCI-R is an 18-item self-report scale designed to assess the severity and type of obsessive-compulsive symptoms in individuals. It measures symptoms across six domains: washing, checking, ordering, obsessing, hoarding, and neutralizing. Each item is rated on a 5-point Likert scale, ranging from “not at all” (0) to “extremely”

(4). Higher scores indicate greater symptom severity. A total score below 21 typically suggests the absence of clinically significant obsessive-compulsive symptoms.

Mindful Attention Awareness Scale (MAAS)

The MAAS is a 15-item self-report measure that assesses dispositional mindfulness, specifically an individual's open and receptive awareness of, and attention to, present-moment experiences. Items are rated on a 6-point Likert scale, ranging from “almost always” to “almost never.” The overall score is calculated by averaging responses across all 15 items, with higher scores indicating greater levels of mindfulness.

Methodology

Study design and participants

This study employed a cross-sectional design to explore the relationship between obsessive-compulsive symptoms and mindfulness among undergraduate medical students. A total of 240 students, enrolled from the first to fourth academic years and including interns, were recruited from a medical college and hospital in Central India. Participants were aged between 17 and 25 years. The study was conducted over a period of three months, from October to December 2024.

Sampling technique

A convenience sampling method was utilized to recruit participants. Inclusion criteria consisted of: (1) currently enrolled undergraduate medical students or interns, and (2) willingness to provide informed consent. Exclusion criteria included students with a self-reported diagnosis of a major psychiatric illness.

Ethical considerations

The study was conducted in accordance with ethical standards outlined by the institutional ethics committee. All participants were provided with detailed written and verbal information regarding the study's purpose, procedures, and confidentiality assurances. Written informed consent was obtained in a language that was clearly understood by each participant. The anonymity of responses was strictly maintained. Participants were also given the opportunity to ask questions, and their concerns were addressed prior to the start of data collection.

Data collection procedure

Data were collected through paper-based administration of two validated self-report questionnaires: the obsessive-compulsive inventory-revised (OCI-R) and the mindful attention awareness scale (MAAS). The surveys were administered in classroom settings under supervision to ensure completeness and consistency.

Instruments

Obsessive-compulsive inventory-revised (OCI-R)

The OCI-R is an 18-item instrument designed to assess the severity and nature of obsessive-compulsive symptoms. It covers six symptom dimensions: washing, checking, ordering, obsessing, hoarding, and neutralizing. Each item is scored on a 5-point Likert scale ranging from 0 ("not at all") to 4 ("extremely"). The total score ranges from 0 to 72, with higher scores indicating more severe symptoms. A total score below 21 is considered indicative of non-clinically significant symptoms.

Mindful attention awareness scale (MAAS)

The MAAS is a 15-item self-report scale that measures dispositional mindfulness, specifically focusing on present-moment awareness and attention. Items are rated on a 6-point Likert scale, ranging from "almost always" to "almost never." The final score is the mean of all item responses, with higher scores reflecting greater mindfulness.

RESULTS

Figure 1 shows the gender of study subjects. The number of males was 130, while the number of females was 110.

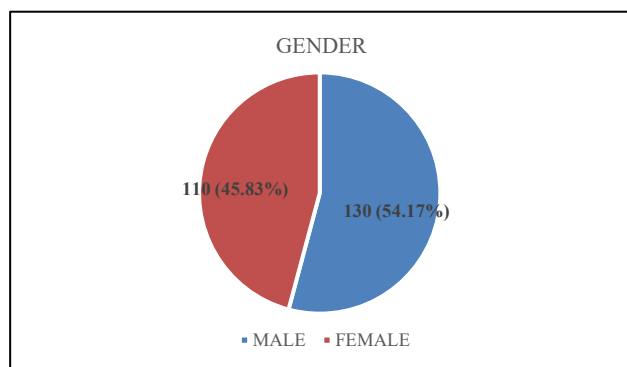


Figure 1: Gender distribution.

Table 1: Comparison of OCI scores and mass score between males and females.

	Gender	OCI score	Mass score
N	Male	130	130
	Female	110	110
Mean	Male	27.4	3.80
	Female	24.3	4.02
Median	Male	29.0	3.50
	Female	24.5	4.00
Standard deviation	Male	11.7	1.12
	Female	12.1	1.15

In Table 1 data compares OCI score and mass score between males and females.

For OCI score, males had an average of 27.4, while females had a lower average of 24.3. The median values reinforce this pattern, with males at 29.0 and females at 24.5. This suggested that males tend to have higher OCI Scores overall. The standard deviation was 11.7 for males and 12.1 for females, indicating that female scores vary slightly more. For mass score, the trend was different. Males had an average score of 3.80, whereas females had a slightly higher average of 4.02. The median values were 3.50 for males and 4.00 for females, again showing a general trend of females scoring higher. The standard deviation was 1.12 for males and 1.15 for females, meaning that both groups show similar levels of variation in their mass scores. Overall, males tend to have higher OCI scores, whereas females score slightly higher in mass score. The standard deviation suggested that females' OCI scores were slightly more spread out than males', while mass score variability is nearly the same for both groups.

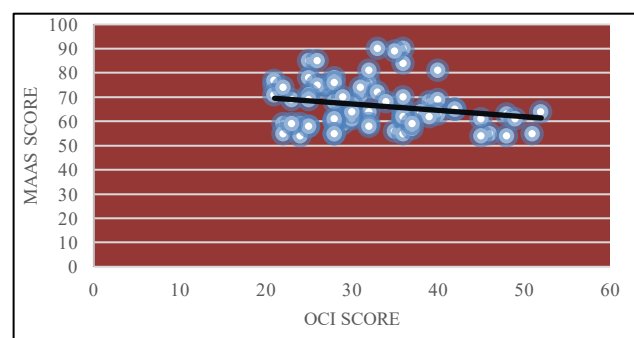


Table 1: Relationship between OCI score and mass score.

This scatter plot illustrates the relationship between OCI scores and MAAS scores. It shows that as individuals' OCI scores increase their MAAS scores, tend to slightly decrease. This suggested a mild negative relationship between the two variables: people who report more obsessive-compulsive traits may be somewhat less mindful or present in the moment. However, the association appeared weak, as the data points were fairly scattered, and the downward slope of the regression line was gentle. This implies that while there is a tendency for higher OCI scores to relate to lower mindfulness, it is not a strong or consistent pattern across all individuals in the sample.

DISCUSSION

The present study investigated the association between obsessive-compulsive (OC) symptoms and mindfulness among undergraduate medical students using the obsessive-compulsive inventory (OCI) and the mindful attention awareness scale (MAAS). The results revealed a statistically significant inverse relationship between these two constructs. Individuals reporting higher levels of mindfulness exhibited fewer obsessive-compulsive symptoms and vice versa. These findings align with

existing theoretical frameworks suggesting that mindfulness- characterized by present-moment awareness and nonjudgmental attention- may help mitigate the maladaptive cognitive patterns characteristic of obsessive-compulsive symptomatology.^{11,12} Our findings are consistent with those of Shitole and Thakkar, who also reported a significant negative correlation between mindfulness and OC symptoms in undergraduate occupational therapy students.⁵ They concluded that mindfulness could serve as a protective factor, helping individuals become less entangled with intrusive thoughts. Similarly, Ebrahim et al observed that mindfulness training reduced OC symptoms and suicidal ideation in nursing students during the COVID-19 pandemic, reinforcing the therapeutic relevance of mindfulness-based interventions in academic populations.¹³ Moreover, Hanstede et al demonstrated the efficacy of mindfulness-based interventions in reducing OC symptoms among non-clinical student populations, echoing the mild-to-moderate negative correlation observed in our study.¹⁴ Micha et al and Külz et al further supported this by showing the effectiveness of structured mindfulness-based cognitive therapy (MBCT) in clinical OCD patients, including those with residual symptoms after traditional cognitive-behavioural therapy (CBT).^{8,15} However, while our study observed only a mild negative correlation between OCI and MAAS scores, the effect was less pronounced than in some intervention-based studies. This could be attributed to our cross-sectional design, which captures correlation rather than causality, and to the non-clinical nature of our sample. Additionally, our use of self-reported questionnaires may introduce subjective biases not present in clinician-administered tools like the Y-BOCS used in Micha et al.¹⁵ Gender differences also emerged in our data. Males reported higher average OCI scores whereas females had higher mindfulness scores (MAAS average of 4.02 versus 3.80 for males). This trend mirrors findings by Opakunle et al in Nigeria, where obsessive-compulsive symptoms were more prevalent among male medical students.¹² The higher mindfulness levels in females in our study may indicate greater emotional awareness or self-regulation capacities, a trend also observed in another psychological research. The scatter plot analysis in our study showed that while OCI and MAAS scores are inversely related, the relationship is weak and scattered, suggesting that other factors- such as coping style, academic stress, or personality traits- may mediate this association. Dyrbye et al and Ibrahim et al both highlighted that medical students are particularly vulnerable to psychological distress, which could influence both mindfulness and OCD symptoms independently.^{2,13} Taken together, our findings reinforce the growing body of literature advocating for the integration of mindfulness training in academic settings, particularly for high-stress groups such as medical students. While mindfulness is not a standalone cure, its incorporation into broader mental health strategies may help reduce OC symptoms and improve psychological resilience.

Since this was a cross-sectional study, we are not able to establish the causal relationship between mindfulness and OC symptoms. Longitudinal or experimental designs are needed to establish the directionality of this association. The data relied exclusively on self-report measures, which are susceptible to various biases such as social desirability, recall bias, and subjective interpretation. Participants may have underreported or overreported symptoms or mindfulness levels due to personal perceptions or stigma associated with mental health issues. The sample size and demographic characteristics may limit the generalizability of the findings. Potential confounding variables such as co-occurring mental health conditions (e.g., anxiety, depression), medication use, or prior therapeutic experiences were not controlled in the analysis.

CONCLUSION

This study adds to the existing empirical evidence indicating that mindfulness is inversely related to obsessive-compulsive symptoms. Future research should explore this relationship further to establish causality and to determine whether improvements in mindfulness lead to sustained reductions in OC symptoms. Incorporation of mindfulness-based interventions in treatment plans- mental health professionals should consider integrating mindfulness-based practices- such as mindfulness-based cognitive therapy (MBCT) or mindfulness-based stress reduction (MBSR)- into the treatment of individuals with obsessive-compulsive symptoms. These approaches may help individuals develop greater present-moment awareness and reduce the intensity of intrusive thoughts and compulsive behaviours. preventive mental health strategies using mindfulness- given the negative association between mindfulness and OC symptoms, mindfulness training could be introduced as a preventive tool in educational, workplace, or community settings.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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