

Impostor Syndrome among Female vs. Male Medical Students: A Cross-Sectional Study at LUMHS, Jamshoro

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ABSTRACT

OBJECTIVE: To assess the prevalence and severity of impostor Syndrome among MBBS students at LUMHS, Jamshoro, with a specific focus on gender differences. The study also identify associated factors and examine the relationship between impostor syndrome and academic performance.

METHODOLOGY: A cross-sectional study was conducted at (LUMHS) Jamshoro. A total of 312 MBBS students from all academic years participated in this survey over a period of four weeks. Random stratified sampling based on gender was applied. Data was collected anonymously using a self-administered online questionnaire distributed via Google Forms. The survey included demographic information, the outcome of the most recent examination, and the validated Clance Impostor Phenomenon Scale (CIPS). Data was analyzed using SPSS version 20, employing descriptive statistics to estimate prevalence and chi-square tests and logistic regression to determine predictors.

RESULTS: A total of 312 students participated (105 males, 207 females). Overall impostor syndrome prevalence was 92.3% (28.8% males, 63.4% females). Among male students (n=105), intense impostor symptoms were 2.9%. Among female students (n = 207), a slightly higher percentage of females experienced intense impostor feelings (7.2%). Chi-square analysis showed a statistically significant association between gender and impostor syndrome severity ($p = 0.005$).

CONCLUSION: Impostor syndrome was highly prevalent among female medical students, with females exhibiting greater severity. Although males were also affected, they generally reported milder symptoms. These findings highlight the need for supportive measures for all medical students.

KEYWORDS: Impostor syndrome, medical students, gender differences, predictors, LUMHS, Pakistan

INTRODUCTION

Impostor Syndrome (IS), Pauline Clance and Suzanne Imes originally used the term "impostor phenomenon" in 1978 denotes a persistent experience of intellectual fraudulence, characterized by self-doubt, undervaluing one's accomplishments, and attributing success to external factors, despite objective evidence of competence¹.

People with impostor syndrome see themselves as less skilled or qualified than others think they are and therefore believe they are misleading those in their vicinity². Although this syndrome is not recognized as a mental disorder according to the Diagnostic and Statistical Manual of Mental Disorders (DSM) it is a psychological experience that can significantly impact mental well-being and in certain situations, as it has been associated with anxiety, stress, burnout, depression, decreased self-confidence, and diminished academic performance³.

Several studies report IS prevalence in medical students ranging between 30% and 60%, with significant psychological consequences such as burnout, anxiety, depression, and poor academic self-

efficacy⁴. Numerous scales have been created to assess impostor syndrome. The initial tool was the Harvey Impostor Scale (HIPS), a 14-item instrument developed by Joan Carol Harvey in 1981. In 1985, Pauline Rose Clance created the Clance Impostor Phenomenon Scale (CIPS), which continues to be the most commonly utilized scale for recognizing and evaluating impostor syndrome⁵.

Medical students face an increased risk of encountering Impostor Syndrome when they start medical school or move from the preclinical phase to the clinical phase. In institutions marked by academic pressure and competition, the impostor phenomenon adversely affects medical undergraduates and trainees in a significant, enduring manner⁶. Empirical evidence shows significant statistically gender-related differences in the occurrence and intensity of Impostor Syndrome among medical students. Female students tend to achieve higher scores on validated measures like the CIPS, indicating a greater prevalence and intensity of impostor feelings. Earlier research indicated that females generally received higher scores than males, a trend noted across various educational and cultural settings⁷. A comprehensive review and meta-analysis showed a combined global prevalence of around 62% (95% CI: 52.6–70.6%) for impostor syndrome in health service providers, such as medical students⁸. Likewise, a study carried out in Rawalpindi, Islamabad, and Lahore revealed that

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62.65% of medical and dental students suffered from impostor syndrome⁹.

Despite numerous studies, very little information available about impostor syndrome among medical students in Sindh, Pakistan, particularly at Liaquat University Of Medical and Health Sciences, Jamshoro. Region-specific institutional, cultural, and curricular elements might affect the occurrence and determinants of this syndrome. The aim of this research is to assess the prevalence and predictors of impostor syndrome among medical students at LUMHS, aiming to inform effective mental health interventions and student support.

METHODOLOGY

Study Design and Setting: A quantitative descriptive analytical cross-sectional study was conducted at Liaquat University of Health Sciences, Jamshoro, to assess prevalence, severity, and associated factors of impostor syndrome (IS) in MBBS students.

Study Duration and Population: The Study was conducted over a period of 4 weeks (15-july-2025 to 8 -august-2025), and the study included male and female MBBS students of 1st to final year. Only those students who were present at the time of the data collection period and provided informed consent were included. Students from other departments were excluded i.e. DPT, PharmD, BDS etc.

Sample Technique and Size: A stratified random sampling was used by dividing into groups (strata) first by batch (1st, 2nd, 3rd, 4th, and 5th year batches), then by gender (male and female).

A total of 312 samples size obtained by using the single proportion sample size calculation formula with a confidence level of 95% and a precision of 5% and a total of 312 students participated in this study, and the final sample comprised 105 male and 207 female students.

Data Collection Tool and Technique: MBBS students from LUMHS were invited to fill out the questionnaire. Which were created through a Google form. The questionnaire consisted of:

Consent Form: Verify that the student has read the included consent form and has granted permission to take part in the research.

(a) Demographic sheet: The demographic profile included gender, age, year of study, residency(rural/urban), family income, result of recent professional exam.

(b) The CIPS, or Clance Impostor Phenomenon Scale: The existence and intensity of impostor sentiments were assessed using the validated 20-item CIPS. A five-point Likert scale is used to record responses. People who score ≥ 40 are classified as having few impostor feelings, those who score 41–60 as having moderate impostor feelings, those who score 61–80 as having frequent impostor feelings, and those who score ≥ 80 as having intense impostor sentiments¹⁰.

Analysis: The collected data were analyzed using Statistical Package for Social Sciences (SPSS)version

2,0 (IBM Corp., Armonk, New York, USA). Basic Statistics (e.g., frequency, percentage, means, standard deviation) were used to describe the demographic data of the study sample. The Statistical Chi-square test was used to examine the difference between impostorism and non-impostorism among MBBS students of LUMHS. A binary logistic regression model was employed to identify significant predictors of experiencing clinically significant IS (e.g., combining 'Frequent' and 'Intense' categories).

RESULTS

A total of 312 MBBS students participated in this study. Among them, 207 (66.3%) were females and 105 (33.7%) were males.

IMPOSTER SYNDROME SEVERITY

Male Students (n = 105): 47.6% of males experienced Frequent Impostor Syndrome, while 35.2% reported Moderate Impostor Syndrome.

Only 14.3% of men had Few Impostor Characteristics, and only 2.9% had Intense Impostor Syndrome.

In general, more male students had Frequent Impostor Syndrome than Intense Impostor Syndrome.

There were 207 female students: Seventy percent of the female students had Frequent Impostor Syndrome, and thirty-one percent had Moderate Impostor Syndrome.

Only 4.3% of women said they had Few Impostor Characteristics, but 7.2% of women said they had Intense Impostor Syndrome, which is more than the number of men who said they had it.

This suggests that while both male and female students often experience Frequent Impostor Syndrome, females are more likely to experience its severe form.

It is evident from this statistic that both men and women experience impostor syndrome frequently, with a higher prevalence of intense impostor syndrome in women than in men.

Year of Study: 33.7% from this sample are in 5th year, being largest group among all, this was followed by 29.5% (92 students) in 1st year of their graduation, 18.9% (59 students) in 3rd year, 10.3% (32 students) in 2nd year and 7.7% around 24 students were present in 4th year.

Peers' performance and grades: Regarding academic performance, the majority of students reported a reported in "Good GPA", 50.3% were in GPA of 3.0-3.69 range, followed by 41.7% means 130 students reporting an "Excellent GPA" of 3.7 - 4.0. While 7.4 % (23 students) fell into category of "Average GPA" and only 0.6% (2 students) have a "Below Average GPA"

Highest concentration of income came in range of 1-5 lakh with 40.1% (125 students) reporting. Second most common range is 5-10 lakh with 24.7% (77 students) reporting it, followed by 22.8% (71 students) reporting "Less than 1 Lakh" and fewer students reported family income exceeding 10 Lakh (12.5% or 39 students).

In nutshell, sample is predominantly composed of female students, with the largest group in the 5th year. Most of students reported “Good GPA” and family income of “1-5 lakh”. This data reflects a higher frequency of participants in good academic standing with relatively modest incomes.

Table I: Stratification of the sample (n = 312)

Parameters	Categories	N (total n = 312)	Percentage
Gender	Male	105	33.7 (p value = 0.0053)
	Female	207	66.3 (p value = 0.0053)
Year of study	1 st year	92	29.5 (p value = 0.0586)
	2 nd year	32	10.3 (p value = 0.8234)
	3 rd year	59	18.9 (p value = 0.1009)
	4 th year	24	7.7 (p value = 0.3228)
	5 th year	105	33.7 (p value = 0.2638)
GPA	Excellent (3.7 - 4.0)	130	41.7 (p value = 0.2660)
	Good (3.0 - 3.69)	157	50.3 (p value = 0.5403)
	Average (2.5 - 2.99)	23	7.4 (p value = 0.0579)
	Below average (2.0 - 2.49)	2	0.6 (p value = 0.00)
Income	Less than 1 lac	71	22.8 (p value = 0.4595)
	1-5 lac	125	40.1 (p value = 0.7242)
	5-10 lac	77	24.7 (p value = 0.9155)
	More than 10 lac	39	12.5 (p value = 0.1623)

Table I provides the stratification of the sample (n = 312) by various parameters, including gender, study year, GPA, and income.

Chi-square test also confirms a statistically significant relationship between gender and the intensity of Impostor Syndrome ($p = 0.005$). This shows that gender has an impact on how bad and how often students experience Impostor Syndrome, with females showing more severe experiences. The results show that both male and female students experience Impostor Syndrome, with females showing a greater tendency for its more severe forms. This highlights the importance of considering gender in the study of the prevalence and impact of Impostor Syndrome, as female students may be more vulnerable to its severe manifestations.

DISCUSSION

Impostor Syndrome (IS) is a psychological phenomenon in which people doubt their abilities and fear being exposed as frauds, despite achieving success. Among medical students, these feelings are particularly common due to the highly competitive and demanding nature of medical training. Addressing IS is very important because it can negatively affect confidence, mental health, and academic performance of students. In this context, our study explored the prevalence of Impostor Syndrome among 312 medical

students, focusing on gender-based differences and their possible influence on academic performance. The study was conducted at Liaquat University of Medical and Health Sciences, Jamshoro. A total of 53.8% students experienced *frequent impostor syndrome (IS)*, with 5.8% experiencing *Intense Impostor symptoms* 32.7% in Moderate Experiences, and 7.7% in the Few Impostor Characteristics category. Females showed a slightly higher prevalence of intense impostor symptoms (7.2%) than males (2.9%), and in both sexes most were in the Frequent Experiences category. These findings indicate that Impostor Syndrome is common and that females are more likely to experience severe forms, echoing patterns seen in prior studies.

Our findings on the high prevalence of frequent to intense IS symptoms are consistent with other studies from South Asia, UAE and Pakistan. For example, a study conducted at University of Sharjah showed that moderate and frequent symptoms accounted for most of the sample size¹¹. Similarly, another study conducted at a government medical college in West Bengal, India, suggested that 58% of students had frequent or intense experiences¹². With respect to gender difference in the severity of Impostor symptoms, our finding that females more frequently have intense IS and are more affected than males aligns with the results reported in a study from Saudi Arabia, where positive IS symptoms were more common among female students¹³. Similar outcomes were reported from a local study conducted in a medical college in Lahore, Pakistan. Their results showed female medical students had significantly higher impostor phenomenon scores than male students¹⁴. Collectively, these studies indicate that our observed prevalence reflects both national and international regional patterns, where IS is widespread among medical students and tends to impact females more severely.

In addition to gender differences, a number of other student characteristics in our sample appear linked with higher impostor syndrome severity. For instance, students with good (3.0-3.6) GPAs in our study reported more frequent or intense impostor feelings, which parallels with findings from Jazan University, where a GPA in the mid-range (3.0–3.49) was associated with significantly greater odds of positive impostor syndrome compared to higher GPA bands. Similarly, academic year proved great importance in relation to IS; in our sample, senior year students (5th year) 33.7%, followed by (1st year) students 29.5% showed more frequent impostor experiences; similar echoing results from Jouf University were obtained, where first-year students were especially vulnerable, but other middle-year students also had elevated IP in relation to transitions and increased academic demands. Socioeconomic status also plays a major role; participants from more modest income and middle-class (1-5 lac income) backgrounds in our data seemed more likely to fall into higher IS categories,

and this is supported by several studies (Jazan University; Jouf University) where lower family income and lower parental educational level correlate with higher impostor syndrome risk^{7,15}.

The observed gender differences and high levels of IS in our sample could be due to a number of factors. Social expectations and gender norms may be to blame. Female students face higher expectations and feel internalized pressure to perform, to prove their worth in male-dominated society. This makes them more vulnerable to intense self-doubt. These societal pressures can be stronger in certain cultures and likely apply in our setting. Additionally, the competitive environment of medical education, frequent evaluations, and peer comparison may lead many students (both male and female) toward feeling that their achievements are not enough, or that they are "frauds." The fact that most of our sample falls into "Frequent Experiences" suggests this pressure is widespread. Moreover, the difference in how males and females seek feedback, respond to criticism, or access mentorship may influence the degree to which impostor feelings intensify. Female students might engage more in self-reflection and criticism, which can exacerbate intense impostor experiences when support is weak.

However, there are some limitations to our study. As a cross-sectional design, causality cannot be established; we cannot say whether certain factors caused higher IS, what we can only say is that they are associated. Another limiting factor is that students may over- or under-report their feelings of impostorism, which may cause bias in our study. Also, the small sample size of our study increases the risk of bias. Moreover, as a single-institution study, findings might not generalize if the same study is conducted in different cultural or socioeconomic settings. Additionally, psychological conditions, such as depression or anxiety were not assessed in our study, which often correlate with IS. Including such variables could give deeper insight into IS. Future studies should assess these associated factors in greater depth for better understanding of IS.

CONCLUSION

Imposter Syndrome is very common among medical students at LUMHS, Jamshoro. A large number of them have frequent imposter characteristics and women are more likely to report intense symptoms. This suggests a psychological burden that could affect academic performance and mental well-being. To address this, medical colleges need to put in place proactive support systems, especially early in training and with attention to gender differences. Future research studies could use longitudinal designs to understand how impostor feelings evolve over years, and to test effectiveness of interventions.

Future implications

Given that more than half of students fall into the

Frequent Experiences category, and a large proportion have Intense Impostor symptoms, there is clear need for future implications. Interventions like introducing psychological support, peer mentoring, stress management workshops, and self-esteem building programs early in medical training (e.g., first year) may help prevent escalation of impostor feelings. Also, since females in our study reported more Intense IS, interventions might need to address specific challenges female students face; such as beliefs about capability, stereotype threats, or expectations of perfection. More importantly, Faculties and administrations should be aware of how curriculum design (e.g. frequency of assessments, competitive ranking) and mentorship structures may increase impostor experiences. Adjusting how feedback is delivered, encouraging collaborative rather than purely competitive learning might help.

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AUTHOR CONTRIBUTION

Khatoon S: Overall supervision, critical guidance, and final manuscript approval.

Siyal R: Conceptualization, study design, data collection, data entry, manuscript drafting, manuscript editing.

Fatima R: Conceptualization, study design, data collection, data entry, manuscript drafting, manuscript editing.

Sheikh NA: Statistical analysis, data interpretation.

Ibrar R: Data collection, data entry.

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