

BEYOND THE WHITE COAT: A COMPARATIVE CROSS-SECTIONAL STUDY OF THE PREVALENCE AND SEVERITY OF IMPOSTER PHENOMENON AMONG FIRST-YEAR AND THIRD-YEAR MEDICAL STUDENTS AT A TERTIARY CARE TEACHING INSTITUTION IN NORTHERN INDIA

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ABSTRACT

Background: Imposter phenomenon (IP), often referred to as imposter syndrome, is a psychological pattern in which individuals doubt their competence and fear being exposed as intellectual frauds despite objective evidence of their abilities. Medical students, particularly those in the first professional year, are highly vulnerable owing to the change in academic environment, repeated evaluations, and exposure to exceptionally talented peers. Reported rates of IP among medical trainees range from 22% to 60%, and the phenomenon has been associated with anxiety, burnout, depression, reduced academic performance, and impaired professional identity formation. The aim is to compare the prevalence and severity of imposter phenomenon between first-year and third-year medical students at a tertiary care teaching institution in Northern India. **Materials and Methods:** A comparative cross-sectional study was conducted from July 2025 to December 2025 among 200 undergraduate medical (MBBS) students of this institution, comprising 100 first-year and 100 third-year students. The Clance Imposter Phenomenon Scale (CIPS), used with permission from its original author, categorised participants into four severity levels: few imposter characteristics (score 40 or below), moderate (41-60), frequent (61-80), and intense (above 80) imposter experiences. Data were summarised as frequencies and percentages, and the chi-square test was used to compare categorical variables between the two groups, with $p < 0.05$ considered statistically significant. **Results:** Among first-year students, few imposter characteristics were observed in 10 (10%), moderate imposter experiences in 25 (25%), frequent in 40 (40%), and intense in 25 (25%), whereas among third-year students the corresponding figures were 25 (25%), 35 (35%), 30 (30%), and 10 (10%), respectively. The overall distribution of severity differed significantly between the two groups ($\chi^2 = 15.95$, $df = 3$, $p = 0.001$). Clinically significant imposter phenomenon (CIPS score above 60, i.e., frequent or intense imposter experiences) was present in 65 (65%) first-year students compared with 40 (40%) third-year students ($\chi^2 = 12.53$, $df = 1$, $p < 0.001$). Moderate-to-intense imposter symptoms (CIPS score above 40) were observed in 90 (90%) first-year students compared with 75 (75%) third-year students ($\chi^2 = 7.79$, $df = 1$, $p = 0.005$). **Conclusion:** Imposter phenomenon is widely prevalent among medical students and is significantly more frequent and more severe during the first year of medical school than in the third year. Early identification and targeted, institution-specific interventions such as mentorship, peer support, and cognitive behavioural approaches may improve psychological well-being and academic performance.

INTRODUCTION

Medical education is widely recognised as one of the most demanding forms of professional training. Students entering medical school are typically the highest achievers of their previous educational settings, with exceptional academic records and high aspirations. After entering medical school, however, many begin to question their competence and achievements, a change that may be attributed to a new academic environment populated by equally accomplished peers, intense competition, and repeated high-stakes assessment.^[1,2]

The term imposter phenomenon (IP) was first described by the psychologists Pauline Clance and Suzanne Imes in 1978, who observed that high-achieving individuals attributed their success to luck, timing, or other external factors rather than to their own ability, and believed that they were deceiving others regarding their competence despite excellent objective records.^[3] IP differs from ordinary self-doubt in that it persists despite repeated success and objective evidence of competence. Affected individuals fear being exposed as frauds, discount positive feedback, set unrealistically high standards, and experience chronic self-doubt.^[3,4] Although the phenomenon was first described among successful women, subsequent research has shown that it is prevalent across genders and across professions, including law, engineering, and medicine.^[4,5]

Among medical trainees, reported rates of IP range from 22% to 60% depending on the population studied and the cut-off applied.^[5] Very high rates have been reported at entry into medical school; in one longitudinal study, 87% of students beginning their first year showed high or very high degrees of IP.^[6] Imposter feelings tend to emerge during admission, examinations, clinical postings, research activities, and interactions with faculty, and their severity appears to vary with the stage of training.^[7-9] IP has been increasingly recognised as a significant contributor to mental health challenges in medical education, with consistent associations reported between imposter feelings and anxiety, depression, psychological distress, and burnout in medical students, residents, and practising physicians.^[1,2,7,10-12]

The transition from being a top performer in school to joining a cohort of highly competitive peers frequently results in self-doubt and feelings of inadequacy. First-year students face challenges related to adaptation and academic transition, whereas third-year students, having begun clinical postings, have accumulated greater professional experience and a stronger professional identity.^[8,9,13] Understanding how IP differs between these two stages of training within a single institution can help identify vulnerable groups and inform the design of institution-specific interventions.^[5,14] The aim of this study was therefore to compare the prevalence and

severity of imposter phenomenon between first-year and third-year medical students of this institution.

MATERIALS AND METHODS

Study design and setting: This was a comparative cross-sectional study conducted among first-year and third-year undergraduate medical (MBBS) students at Government Medical College and Rajindra Hospital, Patiala, Punjab, India, a tertiary care teaching institution in Northern India that admits approximately 250 undergraduate MBBS students in an academic year and has approximately 1,636 beds. The study was conducted from July 2025 to December 2025. The study was approved by the Institutional Ethics Committee, Government Medical College, Patiala (approval number Trg.9(310)2025/21786-88, dated 02/05/2025), and written informed consent was obtained from all participants.

Participants: Students enrolled in the MBBS course, aged between 18 and 25 years, and willing to participate were included in the study. Students who were absent during data collection, who were not willing to participate, or who returned incomplete questionnaires were excluded. A total of 200 students were enrolled, comprising 100 first-year and 100 third-year MBBS students.

Sample size determination: The sample size was calculated for the comparison of two independent proportions. Based on previously reported prevalence rates of imposter phenomenon among medical trainees ranging from 22% to 60%,^[5] the study was designed to detect a minimum difference of 20 percentage points in the prevalence of clinically significant imposter phenomenon (CIPS score above 60) between first-year and third-year students (assumed 60% versus 40%). With a two-sided significance level (α) of 0.05 and a statistical power of 80%, the minimum required sample size was 97 students per group, which was rounded up to 100 students per group, giving a total sample of 200.

Study tool: Imposter phenomenon was assessed using the Clance Imposter Phenomenon Scale (CIPS), a 20-item self-report instrument developed by Clance, with each item rated on a five-point Likert scale (1 = not at all true to 5 = very true) to yield a total score ranging from 20 to 100.^[15] The CIPS is the most widely used measure of the imposter phenomenon and has demonstrated good reliability and construct validity [16,17]. Total scores were interpreted using the established cut-offs: a score of 40 or below indicated few imposter characteristics, 41-60 moderate, 61-80 frequent, and above 80 intense imposter experiences, with scores above 60 regarded as clinically significant.^[15,16] The scale is made available by its author for non-commercial academic and research use, and was applied in the present study in accordance with those terms; the individual scale items have not been reproduced in this article.

Statistical analysis

Data were entered into a Microsoft Excel spreadsheet (Microsoft Corp., Redmond, WA, USA) and analysed using IBM SPSS Statistics version 29.0 (IBM Corp., Armonk, NY, USA). Categorical variables, including sex, residential background, and CIPS severity category, were summarised as frequencies and percentages, presented as n (%). The chi-square test was used to compare the distribution of categorical variables between first-year and third-year students. A two-sided p value of less than 0.05 was considered statistically significant.

RESULTS

This study was conducted in a tertiary care hospital of Northern India that caters to about 250 undergraduate MBBS seats in an academic year and has approximately 1636 beds in its premises.

A total of 200 students participated in the study, comprising 100 (50%) first-year and 100 (50%) third-year MBBS students. The mean age of first-year students was 18.1 ± 0.7 years (range 17-19 years), whereas that of third-year students was 20.6 ± 0.8 years (range 19-22 years). As expected from the difference in year of training, third-year students were significantly older than first-year students

(mean difference 2.5 years; independent-samples t-test, $t = 23.52$, $df = 198$, $p < 0.001$). The demographic characteristics of the two groups are summarised. [Table 1]

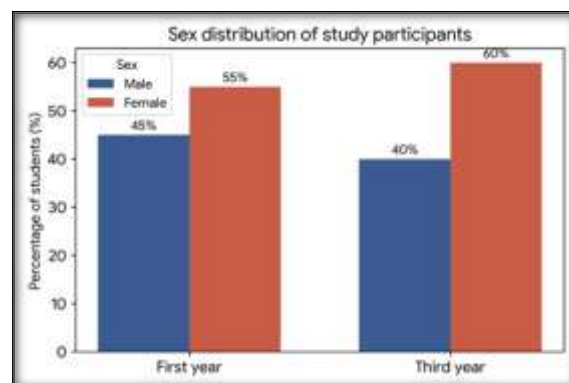


Figure 1: Sex distribution of first-year and third-year medical students

Residential background

In the overall study population, 156 (78%) students were from an urban background and 44 (22%) were from a rural background. [Table 2] This reflects the greater representation of urban students in medical training, possibly owing to better access to educational resources and coaching facilities.

Table 1: Demographic characteristics of first-year and third-year medical students

Characteristic	First year (n = 100)	Third year (n = 100)	Test statistic / P value
Age, years, mean $\pm$ SD	18.1 $\pm$ 0.7	20.6 $\pm$ 0.8	$t = 23.52$, $p < 0.001$
Sex, n (%)			$\chi^2 = 0.51$, $p = 0.47$
Male	45 (45.0)	40 (40.0)	
Female	55 (55.0)	60 (60.0)	

Table 2: Residential background of the study participants (N = 200), presented as n (%)

Residential background	n (%)
Urban	156 (78.0)
Rural	44 (22.0)
Total	200 (100.0)

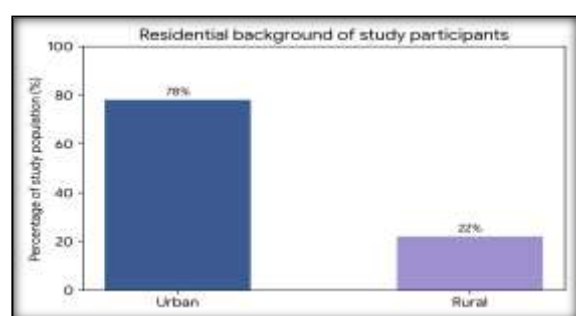


Figure 2: Residential background of the study participants

Severity distribution of imposter phenomenon

Few imposter characteristics were observed in 10 (10%) first-year students and 25 (25%) third-year students, moderate imposter experiences in 25 (25%) and 35 (35%), frequent imposter experiences in 40 (40%) and 30 (30%), and intense imposter

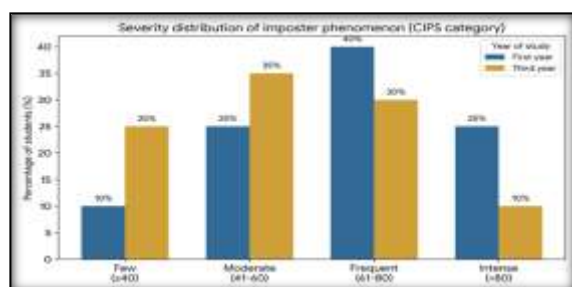
experiences in 25 (25%) and 10 (10%), respectively. [Table 3] The overall distribution of CIPS severity categories differed significantly between the two groups ($\chi^2 = 15.95$, $df = 3$, $p = 0.001$). Clinically significant imposter phenomenon (CIPS score above 60, i.e., frequent or intense imposter experiences) was present in 65 (65%) first-year students compared with 40 (40%) third-year students, a difference that was statistically significant ($\chi^2 = 12.53$, $df = 1$, $p < 0.001$). Similarly, moderate-to-intense imposter symptoms (CIPS score above 40) were observed in 90 (90%) first-year students compared with 75 (75%) third-year students ($\chi^2 = 7.79$, $df = 1$, $p = 0.005$). The proportion of students with intense imposter experiences was two and a half times higher among first-year students (25 [25%]) than among third-year students (10 [10%]). The severity distribution and the associated test statistics are presented in [Table 3].

Table 3: Severity distribution of imposter phenomenon among first-year and third-year medical students

CIPS severity category	First year, n (%)	Third year, n (%)	χ^2 (df) / P value
Few characteristics (score ≤ 40)	10 (10.0)	25 (25.0)	15.95 (3) / 0.001
Moderate (score 41-60)	25 (25.0)	35 (35.0)	
Frequent (score 61-80)	40 (40.0)	30 (30.0)	
Intense (score > 80)	25 (25.0)	10 (10.0)	
Total	100 (100.0)	100 (100.0)	

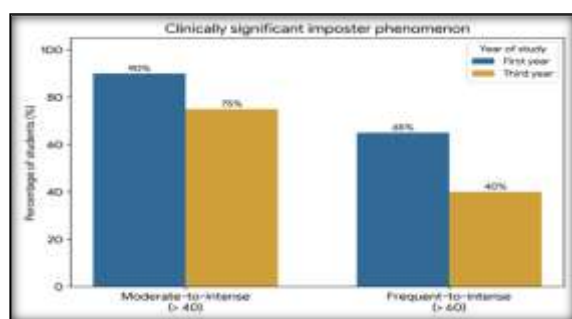
Table 4: Comparison of clinically significant imposter phenomenon at established CIPS thresholds between first-year and third-year medical students

Threshold	First year, n (%)	Third year, n (%)	χ^2 (df) / P value
Moderate-to-intense (CIPS > 40)	90 (90.0)	75 (75.0)	7.79 (1) / 0.005
Frequent-to-intense (CIPS > 60)	65 (65.0)	40 (40.0)	12.53 (1) / < 0.001

**Figure 3: Severity distribution of imposter phenomenon among first-year and third-year medical students.**

Clinically significant imposter phenomenon

When severity categories were collapsed at the established clinical thresholds, both indicators were significantly more frequent among first-year students than among third-year students, as shown in [Table 4].

**Figure 4: Prevalence of clinically significant imposter phenomenon at established CIPS thresholds.**

DISCUSSION

This comparative analysis demonstrates that first-year medical students experience imposter phenomenon significantly more frequently and more severely than third-year students of the same institution. Clinically significant imposter phenomenon was present in nearly two-thirds of first-year students compared with two-fifths of third-year students, and intense imposter experiences were two and a half times more common in the first year. This observation is consistent with psychological models that identify transition-related stress and identity disturbance during the early stages of professional education as key drivers of imposter feelings.^[1,6,13] It is also concordant with reports of very high imposter

phenomenon rates at entry into medical school,^[6] although the literature is not uniform: some longitudinal work in Western cohorts has found that imposter scores may rise again or peak in later clinical years,^[7,8] suggesting that the trajectory of imposter feelings may be shaped by curriculum structure, assessment patterns, and local academic culture. Several factors may explain the higher prevalence among first-year students. The first is academic transition: virtually all students entering medical school have exceptional academic records, and on joining a cohort of similarly high achievers, many experience a fall in their relative ranking. Students report feeling less intelligent than their classmates, fearing exposure as inadequate, and struggling to adapt to a new academic workload; this discrepancy between previous and current competitive standing may fuel imposter feelings.^[1,6] The second is the new learning environment itself, characterised by a vast curriculum, frequent examinations and assessments, exacting laboratory work, and heightened professional expectations, all of which can overwhelm first-year students and reinforce a sense of inadequacy.^[1,5] The third is social comparison: students of varied socio-economic backgrounds routinely compare themselves with peers in terms of examination scores, communication abilities, presentation skills, and research achievements, and such continuous comparison can substantially strengthen imposter beliefs.^[1,5]

Conversely, several factors may account for the lower severity observed among third-year students. By the third year, students have passed numerous examinations and assessments and have acquired foundational medical knowledge, and this accumulating record of demonstrated capability provides evidence of successful adaptation that attenuates imposter feelings.^[8,9] Clinical exposure is likely to be equally important: from the third year onwards, students interact with real patients in hospital settings, which builds confidence, provides practical validation of skills, and reinforces an emerging professional identity in which students begin to perceive themselves as future physicians rather than mere learners.^[9,13] Finally, adaptation to medical culture through frequent contact with faculty, familiarity with examination patterns, and the sharing of study strategies with peers and teachers reduces uncertainty and self-doubt.^[13,14]

The psychological consequences of imposter phenomenon documented in the literature underline the importance of these findings. Affected students frequently report excessive worry, sleep disturbance, and examination stress driven by fear of negative evaluation, and this anxiety can create a vicious cycle with deteriorating academic performance.^[1,7] Persistent feelings of inadequacy contribute to depressive symptoms, including low mood, hopelessness, reduced motivation, and social isolation, and several studies have demonstrated a positive correlation between imposter scores and psychological distress.^[1,6,10] Imposter phenomenon is also consistently associated with burnout, manifesting as emotional exhaustion, depersonalisation, and a reduced sense of personal accomplishment; affected trainees frequently engage in compensatory overwork, which further predisposes them to burnout.^[7,10-12]

Imposter phenomenon also affects academic behaviour in characteristic ways. Some students adopt avoidant behaviour, unnecessarily delaying assignments, presentations, research activities, and study of the course material, a pattern of procrastination that paradoxically intensifies fear of failure and task avoidance.^[4,5] Others respond with habitual over-preparation, which leads to sleep disturbance, fatigue, increased psychological distress, and impaired work-life balance.^[1,4] Students with imposter feelings may also avoid class discussions, conferences, and research activities, thereby limiting their professional growth.^[1,5]

Although the imposter phenomenon was first described in successful women,^[3] current evidence suggests that it affects both genders, with some reviews reporting higher rates among women and others reporting no significant sex difference.^[4,18] Female students may experience greater self-scrutiny and stereotype-related pressure, whereas male students may conceal self-doubt and under-report symptoms, so that overall prevalence may be similar even though manifestations differ.^[5,18] In the present study, women formed the majority of both cohorts, but severity data were not stratified by sex, and no conclusion regarding sex differences can be drawn from our data. The factors associated with imposter feelings reported in the literature span individual, academic, and social domains. Individual factors include perfectionism, low self-esteem, fear of failure, and neurotic personality traits.^[1,2] Academic factors include a competitive environment, examination pressure, heavy workload, and continuous assignments and assessments.^[1,7] Social factors include high family expectations, peer comparison, social media influences, and lack of mentorship.^[5,14] Several strategies for prevention and management are supported by the literature and are feasible within the Indian medical education system. Structured mentorship programmes, which the National Medical Commission has mandated for Indian medical colleges, help students gain perspective, obtain guidance, and normalise self-

doubt.^[5,14] Cognitive behavioural approaches assist students in identifying irrational beliefs, challenging negative automatic thoughts, and developing realistic self-appraisal.^[4,5] Peer support groups allow affected students to share experiences, reduce isolation, and discover that their peers face similar feelings.^[14,19] Reflective practice, through learning portfolios and faculty-guided discussion, enables students to recognise their achievements and growth,^[13] and self-compassion training encourages students to accept imperfection, learn from mistakes, and reduce harsh self-criticism, with reported benefit for the well-being of students experiencing imposter feelings.^[5,19] Early screening of incoming batches using the CIPS, combined with these interventions, may allow vulnerable students to be identified and supported before psychological and academic consequences become established.^[14,20]

Limitations

This study has several limitations. It was a single-centre study based on a self-reported questionnaire, so the results may not be generalisable to all institutions, and psychological constructs may vary across cultural settings. The cross-sectional design compares two different cohorts at one point in time rather than following the same students longitudinally, so the observed difference between years cannot be attributed with certainty to progression through training. Severity data were not stratified by sex or residential background, and no multivariable analysis of predictors of imposter phenomenon was performed; the study should therefore be regarded as a comparison of prevalence and severity between training stages rather than a predictor analysis. Further longitudinal, multi-institutional studies with predictor modelling are required to assess the trajectory of imposter phenomenon and its impact on academic performance.

CONCLUSION

Imposter phenomenon is widely prevalent among medical students and is significantly more frequent and more severe during the first year of medical school than in the third year. The transition into a demanding academic environment, coupled with social comparison and uncertainty about competence, appears to intensify imposter feelings among first-year students, whereas third-year students generally exhibit lesser severity, plausibly reflecting academic adaptation, clinical exposure, and professional identity development. Early screening, mentorship programmes, peer support groups, and psychological interventions such as cognitive behavioural approaches and self-compassion training should be incorporated into the medical curriculum to mitigate imposter phenomenon and promote student well-being. Addressing imposter phenomenon during the formative years of medical education may enhance

academic performance, mental health, and professional development.

Additional Information

Author Contributions: All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work. **Concept and design:** Prateek Khanna, Nandini Duggal, Kuldip Sandhu, Daljinder Singh, Rahul Jindia, Pahul Singh Sandhu, Deepali Thakur, Dr Rajnish Raj, Annie Sandhu. **Acquisition, analysis, or interpretation of data:** Prateek Khanna, Nandini Duggal, Kuldip Sandhu, Daljinder Singh, Rahul Jindia, Pahul Singh Sandhu, Deepali Thakur, Dr Rajnish Raj, Annie Sandhu. **Drafting of the manuscript:** Prateek Khanna, Kuldip Sandhu, Daljinder Singh, Dr Rajnish Raj, Annie Sandhu. **Critical review of the manuscript for important intellectual content:** Prateek Khanna, Nandini Duggal, Kuldip Sandhu, Daljinder Singh, Rahul Jindia, Pahul Singh Sandhu, Deepali Thakur, Dr Rajnish Raj, Annie Sandhu. **Supervision:** Kuldip Sandhu, Daljinder Singh, Deepali Thakur, Dr Rajnish Raj. **Disclosures:** Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. Government Medical college, Patiala Ethics Committee issued approval Trg.9(310)2025/21786-88. **Animal subjects:** All authors have confirmed that this study did not involve animal subjects or tissue. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work. **Acknowledgements:** The authors express their sincere gratitude to the faculty members and administrative staff of Government Medical College, Patiala, for their continuous support and encouragement throughout the conduct of this study. We are especially thankful to the Department of Orthopaedics and the Department of Psychiatry for their guidance in study design, data collection, and interpretation of findings. We gratefully acknowledge the participation of the first- and third-year MBBS students who voluntarily contributed their time to complete the questionnaire and share their experiences, without whom this work would not have been possible. We also thank the Institutional Ethics Committee for reviewing and approving the study protocol and for their valuable recommendations during the research process. The authors appreciate the contributions of colleagues who assisted with data entry, preliminary statistical analysis, and manuscript proofreading but who did not meet the criteria for authorship; their support has been duly recognized in accordance with ICMJE and

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REFERENCES

1. Thomas M, Bigatti S: Perfectionism, impostor phenomenon, and mental health in medicine: a literature review. *Int J Med Educ.* 2020, 11:201-213. 10.5116/ijme.5f54.c8f8.
2. Henning K, Ey S, Shaw D: Perfectionism, the impostor phenomenon and psychological adjustment in medical, dental, nursing and pharmacy students. *Med Educ.* 1998, 32:456-464. 10.1046/j.1365-2923.1998.00234.x
3. Clance PR, Imes SA: The impostor phenomenon in high achieving women: dynamics and therapeutic intervention. *Psychotherapy: Theory, Research & Practice.* 1978, 15:241-247. 10.1037/h0086006
4. Bravata DM, Watts SA, Keefer AL, et al.: Prevalence, predictors, and treatment of impostor syndrome: a systematic review. *J Gen Intern Med.* 2020, 35:1252-1275. 10.1007/s11606-019-05364-1
5. Gottlieb M, Chung A, Battaglioli N, Sebok-Syer SS, Kalantari A: Impostor syndrome among physicians and physicians in training: a scoping review. *Med Educ.* 2020, 54:116-124. 10.1111/medu.13956
6. Rosenthal S, Schluskel Y, Yaden MB, DeSantis J, Trayer K, Pohl C, Hojat M: Persistent impostor phenomenon is associated with distress in medical students. *Fam Med.* 2021, 53:118-122. 10.22454/FamMed.2021.799997
7. Villwock JA, Sobin LB, Koester LA, Harris TM: Impostor syndrome and burnout among American medical students: a pilot study. *Int J Med Educ.* 2016, 7:364-369. 10.5116/ijme.5801.eac4
8. Levant B, Villwock JA, Manzardo AM: Impostorism in third-year medical students: an item analysis using the Clance impostor phenomenon scale. *Perspect Med Educ.* 2020, 9:83-91. 10.1007/s40037-020-00562-8
9. Houseknecht VE, Roman B, Stolfi A, Borges NJ: A longitudinal assessment of professional identity, wellness, impostor phenomenon, and calling to medicine among medical students. *Med Sci Educ.* 2019, 29:493-497. 10.1007/s40670-019-00718-0
10. Legassie J, Zibrowski EM, Goldszmidt MA: Measuring resident well-being: impostorism and burnout syndrome in residency. *J Gen Intern Med.* 2008, 23:1090-1094. 10.1007/s11606-008-0536-x
11. Leach PK, Nygaard RM, Chipman JG, Brunsvold ME, Marek AP: Impostor phenomenon and burnout in general surgeons and general surgery residents. *J Surg Educ.* 2019, 76:99-106. 10.1016/j.jsurg.2018.06.025
12. Liu RQ, Davidson J, Van Hooren TA, Van Koughnett JAM, Jones S, Ott MC: Impostorism and anxiety contribute to burnout among resident physicians. *Med Teach.* 2022, 44:758-764. 10.1080/0142159X.2022.2028751
13. LaDonna KA, Ginsburg S, Watling C: 'Rising to the level of your incompetence': what physicians' self-assessment of their performance reveals about the impostor syndrome in medicine. *Acad Med.* 2018, 93:763-768. 10.1097/ACM.0000000000002046
14. Freeman J, Peisah C: Impostor syndrome in doctors beyond training: a narrative review. *Australas Psychiatry.* 2022, 30:49-54. 10.1177/10398562211036121
15. Clance PR: *The Impostor Phenomenon: When Success Makes You Feel Like a Fake.* Bantam Books, Toronto; 1985.
16. Chrisman SM, Pieper WA, Clance PR, Holland CL, Glickauf-Hughes C: Validation of the Clance Impostor Phenomenon Scale. *J Pers Assess.* 1995, 65:456-467. 10.1207/s15327752jpa6503_6
17. Mak KKL, Kleitman S, Abbott MJ: Impostor phenomenon measurement scales: a systematic review. *Front Psychol.* 2019, 10:671. 10.3389/fpsyg.2019.00671

18. Holliday AM, Gheihman G, Cooper C, et al.: High prevalence of imposterism among female Harvard medical and dental students. *J Gen Intern Med.* 2020, 35:2499-2501. 10.1007/s11606-019-05441-5
19. Atherley A, Meeuwissen SNE: Time for change: overcoming perpetual feelings of inadequacy and silenced struggles in medicine. *Med Educ.* 2020, 54:92-94. 10.1111/medu.14030
20. Elnaggar M, Alanazi T, Alsayer NA, et al.: Prevalence and predictor of impostor phenomenon among medical students at Jouf University, Saudi Arabia. *Cureus.* 2023, 15:48866. 10.7759/cureus.48866.