https://doi.org/10.35845/kmuj.2025.23673

ORIGINAL ARTICLE

Imposter syndrome and its association with burnout and psychological morbidity among undergraduate medical students in Sindh, Pakistan

Tariq Feroz Memon [1]✉, Manzoor Ali Jamali [2], Ambreen Qureshi [1], Ghulam Hussain Baloch [1], Saba Alam [3], Farah Deeba Shaikh [1]

1: Department of Community Medicine and Public Health Sciences, Liaquat University of Medical and Health Sciences, Jamshoro, Sindh, Pakistan
2: Department of Psychiatry, Isra University, Hyderabad, Sindh, Pakistan
3: Department of Community Medicine, Isra University, Hyderabad, Sindh, Pakistan

Email✉: drtariqferoz@gmail.com
Contact #: +92-322-3490040

Date Submitted: May 16, 2024
Date Revised: August 29, 2025
Date Accepted: September 06, 2025

ABSTRACT

Objectives: To investigate the relationship between psychological morbidity, burnout, and imposter syndrome (IPS) among undergraduate medical students in Sindh, Pakistan.

Methods: This cross-sectional study was conducted from February to July 2023 by the Department of Community Medicine, Liaquat University of Medical and Health Sciences (LUMHS), Jamshoro, and Isra University, Hyderabad in Sindh, Pakistan. Third- and fourth-year MBBS students without prior psychiatric illness or medication use were included through non-probability convenience sampling. Data were collected via Google Forms using four tools: a socio-demographic questionnaire, Young's Imposter Scale (IPS), Depression Anxiety Stress Scale (DASS-21), and Maslach Burnout Inventory. Statistical analysis was performed using SPSS v23. Chi-square test and multivariate logistic regression were applied, with $p<0.05$ considered significant.

Results: Out of 500 distributed forms, 289 valid responses were analyzed (response rate 61.2%). The mean age of participants was 20.8±3.4 years; 54% were female. IPS was prevalent in 58.5% of students, with higher rates in females and fourth-year students ($p<0.05$). IPS was significantly associated with age, residence, depression, and stress. Burnout was common, with 63.7% reporting high emotional exhaustion and 57.4% high depersonalization. Multivariate regression identified female gender (AOR=2.10, p=0.002), fourth-year status (AOR=1.75, p=0.018), rural residence (AOR=1.70, p=0.042), depression (AOR=2.60, p=0.001), stress (AOR=2.30, p=0.002), emotional exhaustion (AOR=2.95, p=0.001), and depersonalization (AOR=1.92, p=0.021) as significant predictors of IPS.

Conclusion: IPS is highly prevalent among undergraduate medical students and is strongly associated with burnout, depression, and stress. Early recognition and targeted interventions are essential to safeguard the psychological well-being and academic performance of future physicians.

Keywords: Burnout, Psychological (MeSH); Depression (MeSH); Imposter Syndrome (MeSH); Students, Medical (MeSH); Resilience, Psychological (MeSH); Maslach Burnout Inventory (MeSH); Self Report (MeSH); Psychological Tests (MeSH); Mental Health (MeSH).

THIS ARTICLE MAY BE CITED AS: Memon TF, Jamali MA, Qureshi A, Baloch GH, Alam S, Shaikh FD. Imposter syndrome and its association with burnout and psychological morbidity among undergraduate medical students in Sindh, Pakistan. Khyber Med Univ J 2025;17(3):266-72. https://doi.org/10.35845/kmuj.2025.23673

INTRODUCTION

Imposter syndrome (IPS) is characterized by perpetual feelings of incompetence and self-doubt despite clear evidence of ability. It is a behavioral phenomenon observed in otherwise successful individuals who struggle to internalize their achievements.[1] Common features include self-doubt, anxiety, low mood, and fear of being exposed as a fraud, with individuals often attributing their success to external factors such as luck or timing.[2] Although IPS is not formally classified as a psychiatric disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM) or the International Classification of Diseases (ICD), it has been widely recognized as a psychological phenomenon affecting individuals across diverse fields.[3] IPS is common among medical professionals, especially medical students, who are exposed to rigorous academic standards and clinical responsibilities.[4] The demanding nature of the curriculum, pressure to excel academically, and the added responsibility of patient care may exacerbate feelings of inadequacy and fear of failure.[5] Persistent self-doubt can lead to emotional distress, anxiety, and self-criticism, adversely impacting the mental health and productivity of affected students.[6] Reported prevalence rates of IPS among medical students are high; 64.8% in Pakistan, 63.5% in the United States, and 60.3% in Malaysia.[7-9] Research further indicates strong associations between IPS, burnout, depression, and anxiety. For example, a study among internal medicine residents reported burnout in 12.5% and IPS in 43.8%, with most medical students in clinical rotations endorsing at least some impostor feelings.[6]

Burnout, characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment, has increasingly been documented among medical professionals and students.[10] When co-existing with IPS, burnout can create a vicious cycle, as impostor feelings amplify stress and feelings of inadequacy. This interaction may significantly impair the psychological health and academic performance of medical undergraduates.[9] Despite increasing global recognition, evidence

on IPS and its association with burnout and psycho-morbidity remains limited in low- and middle-income countries, including Pakistan. Most available research originates from Western contexts, whereas cultural and academic pressures in South Asian medical education may shape IPS differently. Understanding its prevalence and correlations in this setting is essential to design targeted interventions, foster resilience, and safeguard the mental health of future healthcare professionals. Considering these implications, this study aimed to examine the relationship between IPS, burnout, and psycho-morbidity, with the goal of identifying potential risk factors and informing strategies to support the psychological well-being of undergraduate medical students.

The phenomenon of IPS may bear noteworthy consequences for the psychological and overall well-being of undergraduate medical students, given their demanding professional and academic schedules.

METHODS

This cross-sectional study was conducted from February to July 2023 by the Department of Community Medicine, LUMHS Jamshoro, in collaboration with Isra University, Hyderabad, after obtaining approval from the Research Ethics Committee of LUMHS, Sindh (letter #: LUMHS/REC/-12 dated: January 16, 2023). The study population comprised third- and fourth-year MBBS students of either gender, aged 18 years or above, who had no history of mental health problems and were not taking any psychiatric medications. Participants were recruited using a convenient non-probability sampling technique. The sample size was calculated using OpenEpi (Version 3), with an anticipated prevalence of 65.4%,[11] a 95% confidence interval, and a 5% margin of error, yielding a minimum required sample of 233. To enhance validity and compensate for potential attrition, incomplete responses, and variability, 500 questionnaires were distributed among eligible students at LUMHS, Jamshoro.

Data were collected using Google Forms, and the survey link was shared with third- and fourth-year MBBS students of LUMHS through email, social media platforms (WhatsApp, Facebook), and official university groups. Prior to completing the questionnaire, participants were provided with an easy-to-read information letter outlining the study objectives and procedures. Submission of the completed form was considered as provision of informed consent. Participation was voluntary and conducted in accordance with the ethical principles of the Helsinki Declaration.

The questionnaire consisted of four sections. The first section included a self-designed instrument to record socio-demographic details such as age, gender, year of study, residence, and accommodation status. The second section comprised the Young's Imposter Scale (YIS), a validated screening tool for imposter syndrome.[12] This eight-item, dichotomous (yes/no) questionnaire identifies imposter tendencies, with a score of ≥5 indicating the presence of imposter syndrome. The third section assessed psychological morbidity using the Depression, Anxiety, and Stress Scale-21 (DASS-21),[13] a widely used instrument for measuring these three domains.

Positive screening for psychological morbidity was defined as a DASS-21 score of >14 for depression, ≥10 for anxiety, and ≥19 for stress. The final section assessed burnout using the widely accepted and validated Maslach Burnout Inventory for Students (MBI-SS). This instrument consists of 22 items covering three domains: personal accomplishment, depersonalization, and emotional exhaustion. For the purposes of this study, burnout was defined as a low sub-score on personal accomplishment (<33 points) combined with high sub-scores on emotional exhaustion (≥27) and depersonalization (≥10), in line with previously established cutoffs.[9]

Data were analyzed using SPSS software (version 23). Descriptive statistics, including frequencies and percentages, were used to summarize the data. The Chi-square test was applied to assess associations between study variables. Multivariate logistic regression was performed to identify independent predictors of imposter syndrome, with variables significant in univariate analysis included in the model. A p-value of <0.05 was considered statistically significant.

RESULTS

Out of 500 distributed questionnaires, 306 were returned, yielding a response rate of 61.2%. After excluding 17 incomplete responses, the final analysis included 289 participants. Of these, 133 (46.0%) were male and 156 (54.0%) were female. The mean age of the study population was 20.8 ± 3.4 years. The prevalence of imposter syndrome was higher among fourth-year students compared to third-year students. Table I presents the association between IPS and demographic as well as psychological variables. Statistically significant relationships (p<0.05) were observed between IPS and age, year of study, and type of residence. Additionally, IPS showed a significant association with depression and stress among participants. Figure I presents

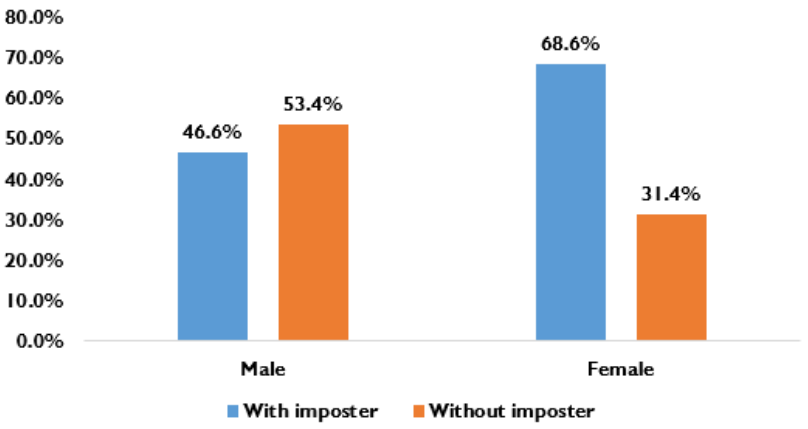

Figure 1: Male and Female wise distribution of imposter syndrome

Table I: Association of demographic and psychological variables with imposter syndrome among medical students (n=289)

Demographic Variables		Total n (%)	Imposter Syndrome [n (%)]		p-value
			Present [169 (58.5%)]	Absent [120 (41.5%)]	
Age group (in years)	≤ 20	108 (37.4)	46 (27.2)	62 (51.6)	0.001*
	>20 – 23	140 (38.0)	100 (59.2)	40 (33.4)	
	> 23	41 (24.6)	23 (13.6)	18 (15.0)	
Year of study (MBBS)	Third year	155 (53.6)	67 (39.6)	88 (73.3)	0.001*
	Fourth year	134 (46.3)	102 (60.4)	32 (26.7)	
Residence	Urban	172 (59.5)	141 (83.4)	31 (26.0)	0.001*
	Rural Stress	117 (40.5)	28 (16.6)	89 (74.0)	
Accommodation	Day Scholar	195 (67.5)	118 (69.8)	77 (64.2)	0.311
	Hostler	94 (32.5)	51 (30.2)	43 (35.8)	
Stress	Present	155 (53.6)	118 (69.8)	37 (30.8)	0.001*
	Absent	134 (46.4)	51 (30.2)	83 (69.2)	
Anxiety	Present	96 (33.2)	55(32.5)	41(34.2)	0.895
	Absent	193 (66.8)	114(67.4)	79 (65.8)	
Depression	Present	164 (56.7)	116 (68.6)	48 (40.0)	0.001*
	Absent	125 (43.3)	53 (31.4)	72 (60.0)	

MBBS: Bachelor of Medicine. Bachelor of Surgery *Significant P-value (<0.05) using Chi-Square test n: Frequency

Table II: Levels of burnout across different domains among medical students (n=289)

Burnout parameters	Mean Score	Burnout categories		
		Low	Moderate	High
Depersonalization	17.02±11.51	64 (22.2)	59 (20.4)	166 (57.4)
Personal Achievement	33.69±7.82	95 (33.0)	123 (42.5)	71 (24.5)
Emotional Exhaustion	25.45±12.80	58 (20.1)	47 (16.2)	184 (63.7)

the gender wise distribution of IPS. Among the participants, female show higher prevalence of IPS compared to males. This difference is statistically significant ($p < 0.001$).

Burnout was examined in three domains: depersonalization, emotional weariness, and personal accomplish. The majority used to quantify burnout. Majority of the participants reported high emotionally exhausted feelings and reported a significantly higher degree of depersonalization. While a smaller proportion of participants reported feeling less personal achievement (Table II). Table III is presenting the relationship between burnout domains with imposter syndrome and psychological morbidity. A statistically significant relationship ($p<0.05$) of imposter syndrome with all three domains of burnout. Whereas except for the relationship between anxiety and depersonalization, the relationship between psychological morbidity parameters and all parameters of burnout was found statistically significant ($p<0.05$) [Table III].

Several significant predictors of IPS among individuals were identified by the multivariate logistic regression analysis presented in (Table IV). IPS is 2.1 times more common in females than in males. The odds for fourth-year students are 1.75 times greater than those for third-year students. Living in a rural area is linked to a 70% higher risk compared to urban areas. While depression increases IPS risk by 2.6 times and stress increases it by 2.3 times. Strong depersonalization increases the risk by 1.92 times, and emotional exhaustion almost quadruples it (Table IV).

DISCUSSION

The present study found a high prevalence of IPS among undergraduate medical students, with 58.5% of participants screening positive. IPS was also significantly associated with psychological morbidity, including depression and stress, as well as with burnout domains such as emotional exhaustion and depersonalization. These findings underscore the considerable mental health burden faced by medical students, who are often subjected to intense academic and clinical demands.

Imposter syndrome is characterized by persistent self-doubt and the belief that personal achievements are attributable to external factors such as luck rather than ability. Individuals affected often

Table III: Association of burnout domains with imposter syndrome and psychological morbidity among medical students

Depersonalization	Low	Moderate	High	p-value
	n=64	n=59	n=166	
IPS	6 (9.4)	25 (42.4)	138 (83.1)	0.001*
Stress	12 (18.7)	26 (44.0)	117 (70.5)	0.001*
Anxiety	24 (37.5)	26 (44.0)	46 (27.7)	0.051
Depression	12 (18.7)	38 (64.4)	114 (68.7)	0.001*
Personal achievement	**n=95**	**n=123**	**n=71**	
IPS	50 (52.6)	58 (47.1)	61 (86.0)	0.001*
Stress	63 (66.3)	29 (23.6)	64 (90.1)	0.001*
Anxiety	23 (24.2)	17 (13.8)	56 (78.8)	0.001*
Depression	21 (22.1)	78 (63.4)	65 (91.5)	0.001*
Emotional Exhaustion	**n=58**	**n=47**	**n=184**	
IPS	34 (58.6)	37 (78.7)	98 (53.2)	0.006*
Stress	9 (15.5)	41 (87.2)	105 (57.0)	0.001*
Anxiety	11 (23.4)	12 (25.5)	73 (39.7)	0.001*
Depression	35 (60.3)	8 (17.0)	121 (65.7)	0.001*

IPS: Imposter syndrome, *Significant P value (<0.05) using Chi-Square test, n: Frequency

Table IV: Multivariate analysis for identifying predictors of imposter syndrome (n = 289)

Variable	Adjusted Odds Ratio	95% CI	p-value
Female gender	2.10	1.30-3.41	0.002*
Age ≥ 24 years (vs. ≤ 20)	0.65	0.31-1.38	0.260
Fourth year	1.75	1.10-2.80	0.018*
Rural residence (vs. urban)	1.70	1.02-2.84	0.042*
Depression (yes	2.60	1.50-4.45	0.001*
Stress (yes vs. no)	2.30	1.35-3.92	0.002*
High emotional exhaustion	2.95	1.60-5.45	0.001*
High depersonalization (vs. low)	1.92	1.10-3.33	0.021*
Low personal achievement (vs. high)	1.55	0.89-2.71	0.116

*Significant P value (<0.05) using logistic regression analysis

engage in self-criticism, which negatively impacts their mental health and contributes to heightened burnout.[14] The relevance of these findings lies in the fact that medical students represent a particularly vulnerable population in Pakistan, where excessive study loads and limited mental health resources compound the problem. Our results are consistent with both national and international studies reporting high rates of IPS and its close links with depression, anxiety, and burnout among medical learners.[11,15-17]

Several studies worldwide have highlighted the role of gender in the development of imposter syndrome.[18-20] In our study, IPS was notably more prevalent among females, with 63.3% affected, over two-thirds of the female participants. Similar findings have been reported by Bhatti MUD, et al., who observed a prevalence of 76% among female medical students,[21] as well as by Holliday MA, et al., Al Lawati A, et al., and Saad A, et al.[6,17,22] This higher prevalence among women may be attributed to greater concern with self-image, heightened sensitivity to external evaluation, and a tendency toward overthinking. In collectivist societies like Pakistan, where social comparison and family expectations are strong, female students may be particularly vulnerable. IPS can thus act as a psychological barrier, especially for women pursuing medical careers, underscoring the need for early identification and support strategies in medical institutions where female enrollment is substantial.

Advancing years of study often unfold new challenges, with students in senior classes developing more pronounced impostor features, accompanied by higher levels of fatigue and exhaustion. As professional life approaches, students may become increasingly preoccupied with their academic standing to secure future success, leading to self-esteem issues, study-related stress, and psychological distress. Consistent with this pattern, our study observed a higher prevalence of IPS among fourth-year students compared to their juniors, a finding also supported by Mashhadi et al. and Ijaz et al.[11,16]

IPS has been strongly linked to psychological problems such as anxiety, stress, depression, and negative self-perceptions. In our study, psychological morbidity was assessed in terms of these dimensions, revealing that more than half (56.7%) of students with IPS experienced depression, followed by stress (53.6%) and anxiety (33.2%). These results align with international studies that have reported similarly high rates of psychological distress associated with IPS.[15,19,23]

Imposter syndrome has been consistently linked with higher rates of burnout, elevated stress, anxiety, depression, and reduced self-esteem.[24] Among medical students, these effects are compounded by academic demands, examinations, time constraints, and social pressures. The coexistence of IPS with a rigorous medical curriculum can further diminish

quality of life and adversely impact career progression. High-performing students, in particular, may intensify pressure on themselves to achieve better grades, thereby increasing exhaustion and vulnerability to burnout.[2,25] In the present study, burnout was assessed across three domains: depersonalization, emotional exhaustion, and personal accomplishment. The majority of participants reported high levels of emotional exhaustion (63.7%) and depersonalization (57.4%), while one-third (33%) experienced reduced personal accomplishment. A statistically significant association ($p<0.05$) was observed between burnout domains and IPS. These results are in line with previous studies by Bhatti MUD, et al., Rosenthal S, et al., and Alsaleem L, et al.[21,26,27] Potential contributing factors include academic overload, chronic sleep deprivation, inability to manage tasks effectively, and emotional instability. Conversely, students with fewer imposter traits reported lower levels of burnout, fatigue, and disengagement, suggesting that reduced preoccupation with self-doubt enhances productivity. Targeted strategies such as peer mentoring, resilience training, and counseling programs tailored to medical students' stressors could help mitigate IPS-related burnout and promote psychological well-being.

The present study only begins to uncover the complexity of imposter syndrome among medical students, leaving much to be explored regarding its underlying factors. As a cross-sectional study conducted in a single public-sector institution, the findings are constrained by limited generalizability. Although the sample size achieved exceeded the calculated requirement, the response rate of 61.2% raises the possibility of non-response bias, as students who did not participate may have had different stress levels or academic engagement. Additionally, the use of convenience sampling further restricts the ability to extrapolate results to broader populations.

CONCLUSION

This study demonstrates that imposter syndrome is highly prevalent among undergraduate medical students in Sindh-Pakistan, particularly in Jamshoro, and shows significant associations with burnout and psychological morbidity. These findings highlight the urgent need for early identification of IPS and related distress within medical education. Proactive integration of structured mental health interventions, peer-support systems, and resilience-building programs into medical training could play a crucial role in safeguarding students' psychological well-being and optimizing their academic performance.

REFERENCES

1. Thomas M, Bigatti S. Perfectionism, impostor phenomenon, and mental health in medicine: a literature review. Int J Med Edu 2020;11:201. https://doi.org/10.5116/ijme.5f19.e9a6v
2. Levant B, Villwock JA, Manzar-do AM. Impostorism in third-year medical students: an item analysis using the Clance impostor phenomenon scale. Perspect Med Edu 2020;9:83-91. https://doi.org/10.1007/s40037-020-00562-8
3. Bravata DM, Watts SA, Keefer AL, Madhusudhan DK, Taylor KT, Clark DM, et al. Prevalence, predictors, and treatment of impostor syndrome: a systematic review. J Gen Intern Med 2020;35:1252-75. https://doi.org/10.1007/s11606-020-05298-9
4. Meghji KA, Talpur M, Khan A, Fatima H, Memon U. Screening student behavior: exploring the impact of daily screen time on sleep quality, mental distress, and academic performance in students: screening student behavior. Pak J Health Sci 2025:150-5. https://doi.org/10.54393/pjhs.v6i3.2745
5. Paladugu S, Wasser T, Donato A. Impostor syndrome in hospitalists-a cross-sectional study. J Community Hosp Intern Med Perspect 2021;11(2):212-5. https://doi.org/10.1080/20009666.2021.1887786
6. Al Lawati A, Al Wahaibi A, Al Kharusi F, Chan MF, Al Sinawi H, Krs II FS. Investigating impostorism among undergraduate medical students at Sultan Qaboos University: a questionnaire-based study. Cureus 2023;15(9):44753.https://doi.org/10.7759/cureus.44753
7. Ikbaal MY. Prevalence of impostor phenomenon among medical students in a Malaysian private medical school. Int J Med Stud 2018;6(2):66-70. https://doi.org/10.5195/ijms.2018.232
8. Rice J, Rosario-Williams B, Willi-ams F, West-Livingston L, Savage D, Wilensky JA, et al. Impostor syndrome among minority medical students who are underrepresented in medicine. J Natl Med Assoc 2023;115(2):191-8. https://doi.org/10.1016/j.jnma.2023.01.013
9. Meghji KA, Shaikh UM, Hiba U, Asif H. Prevalence of imposter phenomenon in students and its correlation with burnout syndrome: torn between perfection and exhaustion. Khyber Med Univ J 2025;17(1):19-25. https://doi.org/10.35845/kmuj.2025.23636
10. Di Vincenzo M, Arsenio E, Della Ro-cca B, Rosa A, Tretola L, Toricco R, et al. Is there a burnout epidemic among medical students? Results from a systematic review. Medicina. 2024;60(4):575. https://doi.org/10.3390/medicina60040575
11. Mashhadi SF, Khan N, Khalid RA, R-aza H, Hassan AU, Younas MF. Prevalence of imposter syndrome among medical students of Rawalpindi, Islamabad and Lahore: a cross-sectional study investigating a trending and pragmatic topic: we no longer have to live in pluralistic ignorance. Pak Armed Forces Med J 2022;72(SUPPL-4):S864-68. https://doi.org/10.51253/pafmj.v72iSUPPL-4.9681

12. Khan MNA, Miah MSU, Shahjalal M, Sarwar TB, Rokon MS. Predicting young imposter syndrome using ensemble learning. Complexity 2022;2022(1):8306473. https://doi.org/10.1155/2022/8306473

3. Zanon C, Brenner RE, Baptista MN, Vogel DL, Rubin M, Al-Darmaki FR, et al. Examining the dimensionality, reliability, and invariance of the Depression, Anxiety, and Stress Scale–21 (DASS-21) across eight countries. Assessment 2021;28(6):1531-44. https://doi.org/10.1177/1073191119887449

14. Siddiqui ZK, Church H, Jayasuriya R, Boddice T, Tomlinson J. Educational interventions for imposter phenomenon in healthcare: a scoping review. BMC Med Educ 2024;24(1):43.https://doi.org/10.1186/s12909-024-05036-7

15. Campos IFdS, Camara GF, Carneiro AG, Kubrusly M, Peixoto RAC, Peixoto AA. Impostor syndrome and its association with depression and burnout among medical students. Rev Bras Educ Méd 2022;46(02):e068.https://doi.org/10.1590/1981-5271v46.2-20210145

16. Ijaz F, Bokhari U, Khan SK, Shoaib U, Tariq S, Haris RZ, et al. Association of imposter phenomenon and burnout with mode of education among medical students of Pakistan: imposter phenomenon and burnout with mode of education. J Aziz Fatimah Med Dent Coll 2022;4(1):12-7. https://doi.org/10.55279/jafmdc.v4i1.135

7. Saad A, Dar UF, Musab A, Ahmed A, Nouf A. Burnout and imposter syndrome among Saudi young adults. Saudi Med J 2020;41(2):189-94.https://doi.org/10.15537/smj.2020.2.24884

18. Armstrong MJ, Shulman LM. Tackling the imposter phenomenon to advance women in neurology. Neurol Clin Pract 2019;9(2):155-9. https://doi.org/10.1212/CPJ.0000000000000609

19. Maftei A, Dumitriu A, Holman A-C. "They will discover I'ma fraud!" the imposter syndrome among psychology Students. Stud Psychol 2021;63(4):337-51. https://doi.org/10.31577/sp.2021.04.827

20. Caprino K. Impostor syndrome prevalence in professional women and how to overcome it. Forbes Magazine. 2020.

21. Bhatti MUD, Ahmed I. Impostor phenomenon: a cross-sectional study of students and house officers from dental teaching institutes of Lahore. Pak Oral Dent J 2019;39(3):262-6.

22. Holliday AM, Gheihman G, Cooper C, Sullivan A, Ohyama H, Leaf DE, et al. High prevalence of imposterism among female Harvard medical and dental students. J Gen Intern Med 2020;35:2499-501. https://doi.org/10.1007/s11606-020-05729-x

23. Jesus Ad, Pitacho L, Moreira A. Burnout and suicidal behaviours in health professionals in Portugal: the moderating effect of self-esteem. Int J Environ Res Public Health 2023;20(5):4325.https://doi.org/10.3390/ijerph20054325

24. Kilic R, Nasello JA, Melchior V, Triffaux J-M. Academic burnout among medical students: respective importance of risk and protective factors. Public Health 2021;198:187-95. https://doi.org/10.1016/j.puhe.2021.07.025

25. Pokhrel NB, Khadayat R, Tulachan P. Depression, anxiety, and burnout among medical students and residents of a medical school in Nepal: a cross-sectional study. BMC Psychiatry 2020;20:1-18. https://doi.org/10.1186/s12888-020-02645-6

26. Alsaleem L, Alyousef N, Alkaff Z, Alzaid L, Alotaibi R, Shaik SA. Prevalence of self-esteem and imposter syndrome and their associated factors among King Saud University medical students. J Nat Sci Med 2021;4(3):226-31. https://doi.org/10.4103/jnsm.jnsm_24_21

27. Rosenthal S, Schlussel Y, Yaden M, DeSantis J, Trayes K, Pohl C, et al. Persistent impostor phenomenon is associated with distress in medical students. Fam Med 2021;53(2):118-22.https://doi.org/10.22454/FamMed.2021.799997

AUTHORS' CONTRIBUTION

The Following authors have made substantial contributions to the manuscript as under:

TFM: Conception and study design, acquisition, analysis and interpretation of data, drafting the manuscript, approval of the final version to be published

MAJ: Study design, acquisition, analysis and interpretation of data, drafting the manuscript, critical review, approval of the final version to be published

AQ & SA: Acquisition, analysis and interpretation of data, critical review, approval of the final version to be published

GHB & FDH: Acquisition, analysis and interpretation of data, drafting the manuscript, approval of the final version to be published

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

CONFLICT OF INTEREST

Authors declared no conflict of interest, whether financial or otherwise, that could influence the integrity, objectivity, or validity of their research work.

GRANT SUPPORT AND FINANCIAL DISCLOSURE

Authors declared no specific grant for this research from any funding agency in the public, commercial or non-profit sectors

DATA SHARING STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request

KMUJ web address: www.kmuj.kmu.edu.pk
Email address: kmuj@kmu.edu.pk