Open Access

ORIGINAL ARTICLE

Medical student syndrome: Health anxiety in medical and allied health sciences students

Minal Akbar[1], Momina Jilani[1], Hamza Shafique[1], Muhammad Daniyal Choudhary[1], Minahil Shahzad[1], Mehwish Qamar[2]

4th Year MBBS Student, Islam Medical & Dental College, Sialkot, Pakistan[1]
Department of Physiology, University Sains Malaysia, Kelantan, Malaysia[2]

ABSTRACT

Background: Medical Student Syndrome (MSS) is a phenomenon in which medical students develop fears and symptoms related to the diseases they are studying, compromising their mental health and clinical performance.
Objective: To compare the presence of medical student syndrome among the students of medical sciences (MBBS and BDS) and allied health sciences (Pharm-D and DPT).
Methods: A cross-sectional study was conducted at Islam Medical and Dental College, Sialkot, Pakistan, from September to November 2024. The study population comprised first- to final-year medical sciences (MBBS and BDS) and Allied health sciences (Pharm-D and DPT) students, excluding those with a history of psychological or endocrinological disorders. MSS was assessed using the Short Health Anxiety Inventory (SHAI), a validated tool evaluating health-related anxiety specifically measuring components of hypochondriasis (excessive preoccupation with illness) and nosophobia (fear of developing serious diseases). A questionnaire was used to collect data, and data were analysed using SPSS version 21.
Results: Among 625 students, medical sciences students had significantly higher total SHAI and hypochondriasis scores compared to allied health sciences students ($p = 0.031$ and $p = 0.046$, respectively), with MBBS students having the highest scores (overall discipline effect: $p = 0.006$). The frequency of MSS was 20% and was not associated with socio-demographic variables, although students with MSS had significantly higher hypochondriasis and nosophobia scores ($p < 0.001$). Year of study showed contrasting trends: a non-significant negative association among medical sciences students and a significant positive correlation among allied health sciences students for SHAI total, hypochondriasis, and nosophobia scores ($p \leq 0.01$).
Conclusions: MSS frequency was similar in medical and allied health sciences students. However, medical sciences students—particularly males—demonstrated higher levels of hypochondriacal health anxiety. In contrast, an increase across years of study was more evident for both components of health anxiety among allied health sciences students.

Keywords: Medical Student Syndrome, Hypochondriasis, Health Anxiety, Anxiety Disorder

DOI: https://doi.org/10.53685/jshmdc.v6i2.375

Corresponding Author:
Dr Mehwish Qamar
PhD Scholar
Department of Physiology, University Sains Malaysia, Kelantan, Malaysia
Email address: dr.mehwish@student.usm.my
Received: 31-7-25, 1st Revision: 22-9-25,
2nd Revision: 20-10-25, Accepted 10-11-25

……..
……..
……..
How to cite this article: Akbar M, Jilani M, Shafique H, Choudhary MD, Shahzad M, Qamar M. Medical student syndrome: Health anxiety in medical and allied health science students. J Shalamar Med Dent Coll. 2025; 6(2): 104-111. doi: https://doi.org/10.53685/ jshmdc.v6i2.375

INTRODUCTION

Medical Student Syndrome (MSS) is a well-recognized psychological phenomenon frequently observed among students pursuing medical and other health-related degrees.[1] It is characterized by heightened health-related anxiety and the tendency to misinterpret normal or minor bodily sensations as signs of serious illness, often reflecting conditions recently encountered during academic training. Dr. George Lincoln Walton first described this phenomenon in his book *Why Worry?*, in which he observed that medical students frequently sought medical consultations because of fears of contracting diseases they had recently studied.[2] The syndrome was later more formally characterized in the academic literature by Woods and colleagues, who emphasized

its clinical relevance and implications for medical education.[3]

Conceptually, MSS is understood to encompass two principal psychological components: hypochondriacal health anxiety and nosophobia.[4,5] Hypochondriacal health anxiety refers to excessive preoccupation with one's current health status, including increased vigilance to bodily sensations and the persistent misinterpretation of benign symptoms as indicators of severe disease.[6] Nosophobia, in contrast, reflects an irrational and persistent fear of developing a serious illness in the future, commonly arising from repeated exposure to critical and life-threatening diseases during medical training.[7] These two components closely correspond to the domains assessed by the Short Health Anxiety Inventory (SHAI), which evaluates both current health-related preoccupation and fear of future illness. Persistent manifestations of MSS may adversely affect students' psychological well-being, academic performance, clinical reasoning, and attendance. Prolonged health anxiety may ultimately undermine confidence and professional development among future healthcare providers.[6,7]

Studies have reported an alarmingly high prevalence of anxiety among medical students, ranging from 44% to 70%, reflecting a significant burden on their mental health.[8,9]

The present study was conducted to compare the presence of MSS among undergraduate students enrolled in medical (MBBS and BDS) and allied health sciences (Pharm-D and DPT) programs. By better understanding the scope and effects of MSS, this study aimed to contribute to the development of targeted mental health support strategies and educational interventions, ultimately improving student well-being and healthcare outcomes.

METHODS

A cross-sectional study was conducted using a non-probability convenience sampling technique at Islam Medical and Dental College, Sialkot, Pakistan, from September to November 2024, with approval from the institution's Ethical Review Board.

The study population comprised first- to final-year medical sciences (MBBS and BDS) and Allied health sciences (Pharm-D and DPT) students. The sample size was calculated using OpenEpi, based on a total population of approximately 1,900 students at a medical college. Assuming a 44% prevalence of anxiety, a 95% confidence level, and a 5% margin of error, the minimum required sample size was 316.[8] To increase reliability and reduce the risk of potential non-responses, the sample size was doubled, and 632 questionnaires were distributed between September and November 2024.

Before data collection, students were informed about the study objectives, procedure, and the voluntary nature of participation. Students who consented to participate in the study completed the questionnaires. Students with known or pre-existing psychological or endocrinological disorders, any trauma, or a surgical procedure performed in the last six months. A higher proportion of participants were from the preclinical years, as senior students (third to final year) had limited availability due to their clinical rotations and hospital duties. Data were collected using a validated tool to measure health-related anxiety.[10]

The questionnaire consisted of two sections. The first section assessed demographic characteristics (age, gender, academic discipline, and year of study), prior awareness of MSS, and the presence or absence of psychological disorders. The second section comprised 18 items from the SHAI tool,[10] a validated instrument for measuring health-related anxiety. The SHAI comprises 18 items, each scored on a 4-point Likert scale (0–3), yielding a total possible score of 0-54, with higher scores indicating greater health anxiety.

The SHAI captures two core psychological dimensions relevant to MSS. The first dimension, hypochondriacal health anxiety, encompasses Items 1–14 and assesses excessive concern about current health, increased attention to bodily sensations, and misinterpretation of minor or everyday physical experiences as signs of serious illness. This subscale has a maximum score of 42. The second dimension, assessed by items 15–18, reflects fear of developing severe disease in the future, often referred to as nosophobia, and has a maximum score of 12. Subscale scores were obtained by summing responses within each domain, while the total SHAI score was calculated as the sum of all item scores. Based on established scoring thresholds, a total SHAI score ≥27 was used to identify students with MSS, whereas scores <27 indicated the absence of MSS.

This scoring framework enabled assessment of both the presence and severity of health anxiety and its potential impact on students' academic and psychological well-being.

Ethical Approval

Ethical approval for the study was obtained from the Ethical Research Committee of Islam Medical College, Sialkot, Pakistan (# 900/IMC/ERC/000103) dated 10th September 2024.

Data Analysis

Data analysis was performed using SPSS version 21. The normality of the data was confirmed prior to analysis. Categorical variables were summarized as frequencies and percentages, whereas quantitative variables were expressed as mean ± SD. Group comparisons were conducted using the independent t-test and one-way ANOVA followed by Tukey's post hoc test. A chi-square test was used to compare the frequencies of socio-demographic and psychological variables between students with and without MSS. Pearson's correlation coefficient was applied to assess the correlation between variables.

RESULTS

The study included 625 undergraduate students, with nearly equal representation from medical sciences (n=313) and allied health sciences (n=312) programs. The mean age of the study population was approximately 20.89 ± 2.05 years. There was no significant difference in the mean age of students in medical and allied health sciences (20.83 ± 1.86 and 20.96 ± 2.23, respectively; p = 0.44).

All the baseline characteristics of the study population are given in Table 1. The sample was predominantly female, a trend observed across all disciplines, with the highest female representation in the Pharm-D program (Table 1). Students were distributed across all academic years; however, medical sciences students were more frequently enrolled in the earlier years of study, whereas allied health sciences students were more commonly enrolled in the later years of study (Table 1). Knowledge of MSS was generally high across the study population. The highest level of knowledge was observed among MBBS students (73.3%), whereas the lowest was among Pharm-D students (62.4%) (Table 1).

MSS was observed in 20% of the study participants. The frequency of MSS did not differ significantly across gender, disciplines, groups, year of study, or prior knowledge of MSS (p = 0.058, 0.939, 0.779, 0.715, 0.310, respectively). However, the students with MSS demonstrated significantly higher levels of hypochondriasis and nosophobia compared to those without MSS (p = <0.001) (Table 2).

Table 1: Characteristics of the Study Population

Variables		Medical sciences (313)		Allied health sciences (312)	
		MBBS n(%)	BDS n(%)	D-Pharm n(%)	DPT n(%)
Gender					
Female	(443)	140 (59.3)	58 (75.3)	169 (89.4)	76 (61.8)
Male	(182)	96 (40.7)	19 (24.7)	20 (10.6)	47 (38.2)
Year					
First	(173)	71 (30.1)	30 (39)	50 (26.5)	22 (17.9)
Second	(151)	70 (29.7)	21 (27.2)	37(19.6)	24 (19.5)
Third	(92)	28 (11.9)	11 (14.3)	28 (14.8)	24 (19.5)
Fourth	(119)	44 (18.6)	15 (19.5)	32 (16.9)	28 (22.8)
Fifth	(90)	23 (9.7)	-	42 (22.2)	25 (20.3)
Knowledge of MSS					
Yes	(432)	173 (73.3)	54 (70.1)	118 (62.4)	87 (70.7)
No	(193)	63 (26.7)	23 (29.9)	71 (37.6)	36 (29.3)
		mean±SD	**mean±SD**	**mean±SD**	**mean±SD**
Age (years)					
Average		20.8±1.5	20.9±2.8	20.8±2.0	21.3±2.5
Female		20.8±1.5	20.8±3.1	20.9±2.0	20.7±2.8
Male		20.9±1.4	21.1±1.6	20±1.3	22.1±1.9

MSS = Medical student syndrome.

Analysis of SHAI scores demonstrated that medical sciences students showed significantly higher SHAI total scores than allied health sciences students (p = 0.031) (Table 3). There were also significant discipline-related differences (p = 0.006), with MBBS students exhibiting the highest SHAI total scores; post hoc analysis showed significantly higher SHAI scores in MBBS students than in Pharm-D students (p = 0.04). In contrast, no significant differences in SHAI total scores were observed by gender or year of study (Table 3). Similar patterns were observed in hypochondriasis scores: medical sciences students had higher scores than allied health sciences students (p=0.046). Post hoc analysis revealed significant differences across disciplines (p = 0.01); MBBS students scored significantly higher than Pharm-D students (p = 0.008). Students who reported prior knowledge of MSS demonstrated significantly higher hypochondriasis scores compared with those without such knowledge (p = 0.002) (Table 3). For the nosophobia scores, no significant differences were observed across gender, discipline, or year of study. However, students who were aware of MSS had significantly higher nosophobia scores compared to those who were not aware of it (p = 0.010) as shown in Table 3.

Table 2: Comparison of socio-demographic and psychological variables between students with and without medical student syndrome (MSS)

Variables	(n)	SHAI score: MSS present (Score≥27) (n-125) n (%)	SHAI score: MSS absent (Score<27) (n=500) n (%)	χ^2/p-value
Gender				
Male	182	45(24.7)	137(75.3)	3.58[a]/0.058
Female	443	80(18.1)	363(81.9)	
Study groups				
Medical Science	313	64(20.4)	249(79.6)	
AHS	312	61(19.6)	251(80.4)	0.08[a]/0.779
Discipline				
MBBS	236	50(21.2)	186(78.8)	
BDS	78	14(18.2)	63(81.8)	0.41[a]/0.939
DPT	189	24(19.5)	99(80.5)	
Pharm-D	125	37(19.5)	152(80.4)	
Year of study				
First	173	29(51.4)	144(48.6)	
Second	151	31(56.3)	120(79.5)	
Third	92	19(58.7)	73(79.3)	2.11[a]/0.715
Fourth	119	28(47.1)	91(76.5)	
Fifth	90	18(45.6)	72(80)	
Knowledge of MSS				
Yes	432	91(21.1)	341(78.9)	0.91[a]/0.310
No	193	34(17.6)	159(82.4)	
		mean±SD	**mean±SD**	**p-value**
Age (years)		20.73±3.15	20.93±1.67	0.321[b]
Hypochondriasis (Score=0-42)		23.90±2.78	15.47±4.12	<0.001[b]
Nosophobia (Score=0-12)		6.13±1.52	3.60±1.80	<0.001[b]

*SHAI score=Short Health Anxiety Inventory, AHS=Allied health sciences.[a] Chi-square was applied. [b]Independent samples t-test was applied. *p<0.05 was taken as statistically significant.*

Medical sciences students demonstrated significantly higher SHAI total and hypochondriasis scores compared with allied health sciences students, whereas nosophobia scores did not differ significantly between groups (Table 4). Gender-stratified analyses showed that these differences were confined to male students, with male medical sciences students scoring higher on all SHAI measures (p = 0.003, 0.015, and 0.001 for SHAI, hypochondriasis, and nosophobia scores, respectively) while no significant differences were observed among female students. Year-wise comparisons indicated that significant differences were present only in second-year students, with higher SHAI total and hypochondriasis scores among medical sciences students (Table 4).

To further explore whether the observed differences in SHAI scores varied systematically with academic progression, Pearson correlation analyses revealed a non-significant negative association between year of study and total SHAI score, hypochondriasis, and nosophobia among medical sciences students. However, these relationships did not reach statistical significance, indicating a slight but non-significant decline in health anxiety measures with advancing academic years. In contrast, among allied health sciences students, year of study showed a significant positive correlation with SHAI, hypochondriasis, and nosophobia, scores, suggesting increasing health-related anxiety and disease-related fears across academic progression (Figure 1 & Table 5).

Table 3: Differences in short health anxiety inventory (SHAI) scores among different variables

Variable	Total n=625	SHAI score (mean±SD)	p-value	Hypochondriasis score (mean±SD)	p-value	Nosophobia score (mean±SD)	p-value
Gender							
Male	182	21.90±6.18	0.125[a]	17.75±4.97	0.061[a]	4.15±1.90	0.915[a]
Female	443	21.05±6.35		16.91±5.20		4.14±2.12	
Groups							
Medical sciences	313	21.84±5.70	0.031[a]*	17.57±4.56	0.046[a]*	1.91±0.11	0.103[a]
Allied health sciences	312	20.75±6.83		16.74±5.65		2.18±0.12	
Discipline							
MBBS	236	22.20±5.44		17.83±4.19		4.37±1.89	
BDS	78	20.72±6.35	0.006[b]*	16.74±5.51	0.01[b]*	3.99±1.96	0.100[b]
DPT	189	21.70±5.95		17.51±4.78		4.19±2.06	
Pharm-D	125	20.13±7.30		16.24±6.12		3.89±2.26	
Year of study							
First	173	21.12±6.29		17.07±5.42		4.07±2.22	
Second	151	20.69±7.11		16.70±3.98		3.98±2.14	
Third	92	20.50±6.63	0.105[b]	16.48±5.62	0.142[b]	4.03±1.96	0.407[b]
Fourth	119	22.30±5.47		17.89±4.26		4.41±1.85	
Fifth	90	22.14±5.42		17.84±4.10		4.30±1.93	
Knowledge of MSS							
Yes	432	21.87±6.19	0.001[a]*	17.58±5.07	0.002[a]*	4.28±2.05	0.010[a]*
No	193	20.02±6.40		16.20±5.20		3.82±2.04	

*MSS= Medical student syndrome. [a]Independent samples t-test was applied, [b]One-way ANOVA test was applied, *p<0.05was taken as statistically significant.*

Table 4: Comparison of short health anxiety inventory (SHAI) scores between medical and allied health sciences students

Variable	Medical Sciences (mean±SD)	Allied Health Sciences (mean±SD)	p-value[a]
	Overall		
Total SHAI score	21.81 ± 5.7	20.75 ± 6.8	0.031*
Hypochondriasis score	17.57 ± 4.6	16.74 ± 5.3	0.046*
Nosophobia score	4.27 ± 1.91	4.01 ± 2.18	0.103
	Gender		
Females			
SHAI total score	21.2 ± 5.71	20.9 ± 6.8	0.656
Hypochondriasis score	17.1 ± 4.58	16.8 ± 5.7	0.577
Nosophobia score	4.13 ± 1.95	4.14 ± 2.3	0.971
Males			
SHAI total score	22.95 ± 5.5	20.10 ± 6.8	0.003*
Hypochondriasis score	18.43 ± 4.4	16.58 ± 5.6	0.015*
Nosophobia score	4.52 ± 1.84	3.52 ± 1.84	0.001*
	Year of Study		
First year			
SHAI total score	22.16 ± 5.6	20.49 ± 6.9	0.082
Hypochondriasis score	17.72 ± 4.6	16.71 ± 6.2	0.218
Nosophobia score	4.44 ± 2.01	3.78 ± 2.54	0.059
Second Year			
SHAI total score	22.00 ± 5.9	18.64 ± 8.2	0.004*
Hypochondriasis score	17.81 ± 4.5	15.03 ± 6.7	0.003*
Nosophobia score	4.19 ± 2.05	3.61 ± 2.25	0.101
Third Year			
SHAI total score	21.93 ± 5.3	19.98 ± 7.3	0.157
Hypochondriasis score	17.68 ± 4.4	15.88 ± 6.1	0.122
Nosophobia score	4.25 ± 1.81	4.10 ± 2.14	0.715
Fourth Year			
SHAI total score	21.63 ± 4.6	21.97 ± 5.2	0.705
Hypochondriasis score	17.34 ± 3.7	17.75 ± 4.1	0.566
Nosophobia score	4.29 ± 1.62	4.22 ± 1.79	0.820
Fifth Yea			
SHAI total score	20.78 ± 3.9	22.46 ± 5.7	0.194
Hypochondriasis score	16.83 ± 3.3	18.10 ± 4.3	0.192
Nosophobia score	3.96 ± 1.46	4.36 ± 2.05	0.389

*[a]Independent samples t-test was applied. *p<0.05 was taken as statistically significant.*

Table 5: Correlation of hypochondriasis and nosophobia with the year of study

Study variables	r	p-value
SHAI Score		
Medical Sciences	-0.06	0.29
Allied Health Sciences	0.15	0.007*
Hypochondriasis		
Medical Sciences	-0.05	0.34
Allied Health Sciences	0.15	0.01*
Nosophobia		
Medical Sciences	-0.05	0.38
Allied Health Sciences	0.18	0.001*

*Pearson's Correlation was applied. *p<0.05 was taken as statistically significant.*

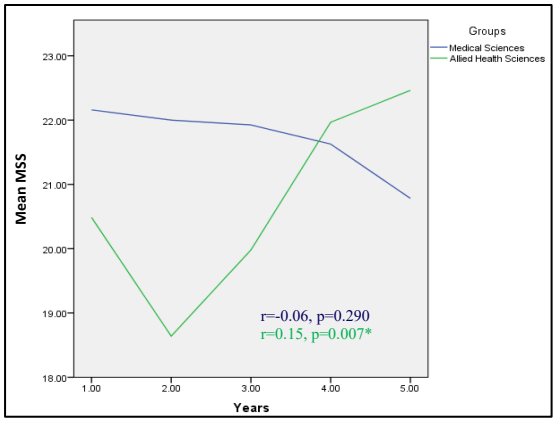

Figure 1: *Trends in mean SHAI scores across academic years among medical and allied health sciences students*

DISCUSSION

This study aimed to explore the prevalence of MSS and to compare levels of hypochondriasis and nosophobia among medical sciences and allied health sciences students. In the present study, MSS was observed in one fifth of the study population, with no significant difference in MSS presence between medical sciences and allied health sciences students when classified using the SHAI cut-off. However, medical sciences students demonstrated significantly higher SHAI total and hypochondriasis scores, indicating greater overall health anxiety. The findings suggest that the study of medicine, with its focus on life-threatening diseases may contribute to an elevated sense of health anxiety in students.

Previous studies from Saudi Arabia and Greece have reported MSS prevalence rates ranging from 65% to 75,[12,13] whereas studies from Iran and Taif reported substantially lower rates between 11% and 23.[14,15] The relatively lower prevalence observed in the present study may be attributed to methodological differences, particularly the use of validated SHAI cut-off values, whereas many prior studies identified MSS based on relative anxiety scores rather than standardized thresholds.

Analysis of SHAI scores revealed significant discipline-related differences, with MBBS students exhibiting the highest SHAI total scores and significant post hoc differences between MBBS and Pharm-D students. These findings are consistent with prior literature suggesting that early and repeated exposure to serious and life-threatening diseases during medical training increase health related cognitive vigilance.[16,17] Medical curricula emphasize diagnostic reasoning and disease recognition, which may heighten self-referential symptom interpretation, particularly among students still developing emotional regulation and clinical confidence.

An important finding was that students who reported prior knowledge of MSS demonstrated higher SHAI and hypochondriasis scores. Although earlier work suggested that educating students about MSS could reduce anxiety,[18] the present findings indicate a paradoxical association between awareness and anxiety. Awareness without structured psychological support may increase symptom monitoring and thereby amplify health anxiety rather than mitigate it.

Although no significant overall differences in SHAI scores were observed by gender or year of study, gender-stratified analyses revealed that discipline-related differences were confined to male students, with male medical sciences students scoring higher on SHAI total, hypochondriasis, and nosophobia measures. This is contrary to the findings of another study conducted in Pakistan reporting that female students indicate a higher level of anxiety as compared to males.[19] Mean while a study conducted in China reported that medical students and females had higher positive coping styles than non-medical students and males.[20] These patterns may reflect gender-based differences in coping strategies, emotional expression, or help-seeking behaviors, among medical and non-medical students

Despite higher continuous SHAI scores among medical sciences students, categorical MSS prevalence did not differ significantly between medical and allied health sciences groups. Similar findings have been reported at Taif University.[15] This difference highlights the limitation of dividing psychological traits into fixed categories and supports viewing health anxiety as a continuum, where meaningful differences can exist even below diagnostic cutoffs.

With respect to subscale analyses, MBBS students and medical sciences students exhibited higher hypochondriasis scores, while nosophobia differences were less pronounced, except among students aware of MSS. Similar to this a study conducted in Egypt also concluded that medical students are at higher risk for health anxiety and hypochondrial attitudes than non-medical students.[17] Hypochondriasis reflects persistent health-related worry, which may be more directly influenced by academic exposure.

One of the most notable findings was the divergent association between year of study and health anxiety measures across disciplines. Among medical sciences students, a weak, non-significant negative trend was observed, whereas among allied health sciences students, year of study showed a significant positive correlation with SHAI total, hypochondriasis, and nosophobia. This suggests that greater disease knowledge among medical students is associated with a lower likelihood of MSS development, consistent with findings from many previous studies.[21,22] Although a study from the University of Khartoum denies this fact and states that meeting the real-life patients, especially in 4th year, may lead to stress and increase concerns among the medical students.[23]

Overall, the study emphasizes the need for psychological support systems within educational institutions, particularly in medical and allied health sciences programs. The prevalence of MSS, hypochondriasis, and nosophobia among students underscores the importance of addressing mental health concerns and promoting coping strategies to manage stress and anxiety. As these conditions may adversely affect students' well-being and academic performance, early interventions and awareness programs could help reduce the psychological burden associated with medical education. Moreover, providing students with strategies to manage health anxiety could ultimately enhance their learning experience and improve their future clinical competencies.

CONCLUSION

Medical and allied health sciences students exhibited a comparable frequency of medical student syndrome (MSS). However, medical sciences students—particularly those enrolled in MBBS—demonstrated significantly higher levels of health anxiety, predominantly driven by hypochondriasis. Although MSS was not associated with socio-demographic variables, students affected by MSS showed markedly higher hypochondriasis and nosophobia scores. Notably, contrasting trends were observed across years of study: health anxiety decreased among medical sciences students but increased significantly among allied health sciences students. These findings highlight discipline-specific patterns of health anxiety and underscore the need for targeted psychological support strategies within health professions education.

Limitations and future recommendations

This study has several limitations. First, it did not assess other potential contributors to health anxiety, such as personality traits, detailed socio-demographic factors, or family background, which may have influenced anxiety-related outcomes. Second, as the study was conducted in a single private institute in Pakistan, the findings may have limited generalizability to students from other institutions or educational settings. Additionally, the cross-sectional design precludes causal inferences regarding the observed associations.

Future studies should adopt a longitudinal design to examine changes in health anxiety over the year of the study and to better understand the contrasting trends observed between medical and allied health sciences students. Multicentre studies with more diverse student populations are required. Furthermore, interventional research evaluating stress-management workshops and individualized psychological support during medical training may help determine effective strategies for preventing health anxiety, nosophobia, and related psychological distress among students.

REFERENCES

1. Waterman LZ, Weinman JA. Medical student syndrome: fact or fiction? A cross-sectional study. J R Soc Med. 2014; 5(2):2042533313512480. doi:10.1177/204253331351240
2. Collier R. Imagined illnesses can cause real problems for medical students. Can Med Assoc J. 2008; 178(7): 820. doi: 10.1503/cmaj.080316.
3. Azuri J, Ackshota N, Vinker S. Reassuring the medical students' disease – health related anxiety among medical students. Med Teach. 2010;32(7): e270-e275. doi: 10.3109 /0142159X.2010.490282.
4. Zahid MF, Haque A, Aslam M, Aleem NA, Hussain S, Fahad H, et al. Health-related anxiety and hypochondriacal concerns in medical students: a cross-sectional study from Pakistan. Teach Learn Med. 2016; 28(3): 252-259. doi: 10.1080/ 10401334.2016.1155459.
5. Zhang C, Shi L, Tian T, Zhou Z, Peng X, Shen Y, Li Y, Ou J. Associations between academic stress and depressive symptoms mediated by anxiety symptoms and hopelessness among Chinese college students. Psychol Res Behav Manag. 2022; 15: 547-556. doi: 10.2147/ PRBM.S353778.
6. Szczurek K, Furgał N, Szczepanek D, Zaman R, Krysta K, Krzystanek M. "Medical student syndrome"—a myth or a real disease entity? Cross-sectional study of medical students of the medical university of Silesia in Katowice, Poland. Int J of Env Res Public Health. 2021; 18(18): 9884. doi: 10.3390/ijerph18189884.
7. Meng J, Gao C, Tang C, Wang H, Tao Z. Prevalence of hypochondriac symptoms among health science students in China: A systematic review and meta-analysis. PloS One. 2019; 14(9): e0222663. doi: 10.1371/journal.pone.0222663
8. Saravanan C, Wilks R. Medical students' experience of and reaction to stress: the role of depression and anxiety. ScientificWorldJournal. 2014; 737382. doi: 10.1155/2014/ 737382.

9. Al-Faris E, Irfan F, Van der Vleuten C, Naeem N, Alsalem A, Alamiri N, et al. The prevalence and correlates of depressive symptoms from an Arabian setting: a wake-up call. Med Teach. 2012; 34(Suppl 1): S32-S36. doi: 10.3109/0142159X.2012.656755.
10. Salkovskis PM, Rimes KA, Warwick HM, Clark D. The Health Anxiety Inventory: development and validation of scales for the measurement of health anxiety and hypochondriasis. Psychol Med. 2002; 32(5): 843-853. doi: 10.1017/s0033291702005822.
11. Abdellatif MA, Abdel Salam HA, Ali HT, Hussein SM, Abdalla AA, Khorkhash MK, et al. The journey of medical field students: uncovering medical student syndrome, personality traits, and their interactions. BMC Psychol. 2025; 13(1): 490. doi: 10.1186/s40359-025-02788-9
12. Alzahrani MK, Alenazi SB, Alawlah AH, Almadhi AM, Albazie OS, Alharbi AM, et al. Prevalence of stress among students of the College of Medicine, Majmaah University, Saudi Arabia, 2019-20. Majmaah J Health Sci. 2022; 10(3): 57-60. doi: 10.5455/mjhs.2022.03.013
13. Papadopoulou A, Koureas M, Farmakis A, Sirakouli A, Papathanasiou IV, Gourgoulianis KI. Increased frequency of health anxiety in health science students: a cross sectional study in a Greek University. Med Arch. 2021; 75(3): 221. doi: 10.5455/medarh.2021.75.221-228.
14. Eslami M, Ahmadipour H, Bagheri F. Medical students' syndrome: a cross sectional study from south east of Iran. Shiraz E-Med J. 2018; 19(8): e65160. doi: 10.5812/semj.65160
15. Althagafi SS, AlSufyani MH, Shawky OA, Afifi OK, Alomairi N, Masoodi I. The health anxiety in medical students, a comparative study from Taif University: Medical student's syndrome revisited. Br J Med Pract. 2019; 12(1): a003.
16. Abdulghani HM, Marwa K, Alghamdi NA, Almasoud RN, Faraj AT, Alshuraimi AF, et al. Prevalence of the medical student syndrome among health professions students and its effects on their academic performance. Medicine (Baltimore) 2023; 102(43): e35594. doi: 10.1097/MD.0000000000035594.
17. Sherif HA, Tawfeeq K, Mohamed Z, Abdelhakeem L, Tahoon SH, Mosa M, et al. "Medical student syndrome": a real disease or just a myth? —a cross-sectional study at Menoufia University, Egypt. Middle East Curr Psychiatry. 2023; 30(1): 42. doi: 10.1186/s43045-023-00312-6
18. Sadiq S, Majeed I, Khawar F. Medical student syndrome; the affliction in medical students: medical student syndrome. Pak Armed Forces Med J. 2018; 68(2): 389-393.
19. Zaynab R, Bugti AG, Nazeer Z. Anxiety and Academic Performance: A Study of Pakistani Secondary School Students in Karachi. Indus J Social Sci. 2025; 3(1): 446-54.
20. Wu Y, Yu W, Wu X, Wan H, Wang Y, Lu G. Psychological resilience and positive coping styles among Chinese undergraduate students: a cross-sectional study. BMC Psychol. 2020; 8(1): 79. doi: 10.1186/s40359-020-00444-y
21. Rohilla J, Tak P, Jhanwar S, Hasan S, Gaykwad R, Yadav R, Kumar P. Health anxiety among medical students: A comparison between preclinical and clinical years of training. J Educ Health Promot. 2020; 9: 356. doi: 10.4103/jehp.jehp_491_20.
22. Robles-Mariños R, Angeles AI, Alvarado GF. Factors associated with health anxiety in medical students at a private university in Lima, Peru. Rev Colomb Psiquiatr (English ed.). 2022; 51(2): 89-98. doi: 10.1016/j.rcpeng. 2021.11.007
23. Elobaid MA, Abdelgyoum HA, Omer LM, Mohammed R, Musa ME, Taha AM. Prevalence, Knowledge, and Risk Factors of Medical Student Syndrome Among Medical Students at the University of Khartoum. Res Sq. 2022. doi: 10.21203/rs.3.rs-4546045/v1.

AUTHOR'S CONTRIBUTIONS:

MA: Conception of study, study design, data acquisition & analysis, manuscript drafting, final approval of the version to be published.
MJ: Design of work, interpretation of data, critical review, final approval of the version to be published.
HS: Data collection & analysis, critical review, manuscript drafting, final approval of the version to be published.
MDC: Data collection, data acquisition & analysis, manuscript drafting, final approval of the version to be published.
MS: Data collection, interpretation of data, critical review, final approval of the version to be published.
MQ: Design of work, data acquisition & analysis, manuscript drafting, critical review, final approval of the version to be published.
All authors agreed to be accountable for all aspects of the work, ensuring that any questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

CONFLICT OF INTEREST:

None

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 are available from the corresponding author upon request.

……..…….……