

# Medical Student Syndrome: A Hypochondriacal Distress In Undergraduates– Verity Or Myth

Sana Akbar, Misbah Riaz, Lalarukh Munawar, Shazia Shakoor

## ABSTRACT:

**Objective:** The purpose of this study was to correlate the hypochondriacal concerns related to diseases with level of anxiety and depression symptoms among medical and engineering undergraduates.

**Study design and Setting:** Cross sectional study was conducted among undergraduates of final year students of BUMDC (Bahria University Medical & Dental College) and engineering students from NUST- PNEC (NUST – Pakistan Navy Engineering College).

**Methodology:** In this study; (99) final year medical students and (92) engineering students were recruited. In order to maintain consistency of age, students aging between 21–26 years were selected. Selected students were handed to fill the required ‘Self-administered Questionnaire’ comprising of demographic details, short health anxiety inventory, medical history and DASS (depression, anxiety and stress scale) which were completed on-site. Data was entered in SPSS version 21 and analyzed using Fisher’s exact test. P value < 0.05 was considered as statistically significant.

**Result:** Out of 191 students in total from both the groups n=86 (45%) were females and n=105(55%) were males. There were 99 participants from MBBS and 92 from engineering. The participants’ ages ranged from 21-26 years with a mean= 23.95 (SD±2.29), both the cohorts belonged to approximately same age group. While assessing depression the responses were not very different for both the groups. When responses of depression scale were related to visits to psychiatrists or psychologist or psychotherapist a strong relationship was observed (p=0.012) in medical students cohort.

**Conclusion:** The results of the study reflected comparable psychosocial strain at an elevated level among both student groups.

**Keywords:** Hypochondriacal symptoms, Medical Student Syndrome, cognitive, distress, student health questionnaire, DASS, incidence, prevalence, coping strategies.

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## INTRODUCTION:

Medical student syndrome is a constellation of psychosomatic symptoms resulting from studying of a disorder recently learned during lectures or encountered in hospital wards<sup>1,2</sup>. In this disorder, students noticed something innocuous about their health and they correlate their vague symptoms with the disease they have studied<sup>2</sup>. A stomach gurgle becomes appendicitis. A mosquito bite herald’s hemorrhagic fever and a minor headache becomes a brain tumor, bipolar disorder

or some serious illness.<sup>2,3</sup> Worldwide Medical student syndrome is divided into two components: Cognitive and Distress, the first one includes the thought of a student that he has the disease being studied and second one includes the anxiety due to cognitive component. Comparison of these two shows that cognitive component is present in all students which progresses from the start of their education to the senior level where as the distress component is significantly more in the younger students as older students get more knowledge with time along with the increase the maturity level<sup>4,5,6</sup>. “Hypochondriasis” a term used for medical student syndrome; and was diagnosed by using the Diagnostic and Statistical Manual of Mental Disorders (DSM) criteria<sup>7</sup>. The DSM diagnostic criteria for hypochondriasis includes: Preoccupation with fears that the patient has, or will have, a serious illness based on their misinterpretation of symptoms, that fear is not relieved by appropriate medical reassurance, and that lasts for at least 6 months<sup>7</sup>. The personality features were found to be common among patients with hypochondriasis like obsessive compulsion, avoidance, self-defeating and aggression<sup>8</sup>.

The mission of medical school is to ensure the production of skillful, knowledgeable and professional graduates and

**Sana Akbar**  
Senior Lecturer, Department of Physiology  
Bahria University Medical & Dental College, Karachi  
Email: sana.rudani@gmail.com

**Misbah Riaz**  
Senior Lecturer, Department of Physiology  
Bahria University Medical & Dental College, Karachi

**Lalarukh Munawar**  
Senior Lecturer, Department of Physiology  
Bahria University Medical & Dental College, Karachi

**Shazia Shakoor**  
Professor, Department of Physiology  
Bahria University Medical & Dental College, Karachi

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for this purpose curriculum, mentoring and hands on experience is designed to raise the undergraduates but unfortunately sometimes this exposure results in negative outcome on student's individual health<sup>9</sup>. Another factor unique to medical students is the intensive clinical and pre-clinical exposure of medical knowledge. In addition to this; academic pressure causes the fear to what they have perceived after observing some harmless bodily dysfunction, either modeled after a patient they have examined during their clinical rotation, or a family member who has been ailing<sup>10</sup>.

Medical student disease is also known as noso-phobia meaning fear of disease<sup>11</sup>. It gained its attention in mid 1960s after the researchers reported that 70% students complained of various mental illnesses, they had during their psychiatry rotation<sup>12</sup>. The probable cause is stress which the medical students experiences from the beginning of the training process. This stress is thought to affect symptom detection by enhancing physical sensations through autonomic activation, making individuals more aware of their bodily state, particularly enhancing pain<sup>13,14</sup>.

A healthy body produces various "noises" including flutter, rippling and itches, but hypochondriacal concerns result when these harmless sounds are misinterpreted to indicate an illness which leads to physiological arousal of an atrocious cycle. Medical student usually develop emotional stress during cadaver dissection, exposure to death and human suffering. Exposure to real death for the first time makes the students fearful awkward, apprehensive, vulnerable and angry at the situation and may precipitate thoughts about one's own death thereby hesitating them to interact with the dying patient<sup>15</sup>.

Whether these developments are particularly pronounced in the course of medical education, Comparisons with other student groups (engineering) showed inconsistent result that is no statistically significant difference was found<sup>16</sup>. Results from other studies support that stress may not be particularly pronounced in medical education. Levels of distress were lower in medical than engineering students<sup>7</sup>. Prevalence of depression was lower or similar in both groups. Medical students spent significantly more hours studying than engineering students but it was claimed by students of non-medical course that a comparable amount of time was required for studying their subjects because of strictly-scheduled course and frequent testing system. More than a quarter of engineering students are at risk for burnout, and another quarter with reduced study motivation at the time of graduation, supports this impression of perceived stress. Therefore a comparable psychosocial strain at an elevated level in both student groups was found to be equal since there is no training for students to deal with these stresses and no systematic efforts are incorporated to reduce workload or optimize teaching conditions this might lead to higher anxiety, depression, burnout and suicide levels in both groups<sup>19</sup>.

The purpose of this study was to correlate the hypochondriacal concerns related to diseases with level of anxiety and depression symptoms among medical and engineering undergraduates. However, the evidence that this syndrome exists and is particularly more in medical than engineering students such that it contributes to an increased number of medical consultations is weak.

#### **METHODOLOGY:**

This was a cross sectional survey conducted through self-reported questionnaires among two study groups of students from a medical and engineering student. Final year medical and engineering students were recruited from Bahria University Medical & Dental College (BUMDC) and NUST – PNEC by purposive sampling technique. ERC was obtained from the ethical review committee of the institute. They research students were assured about the confidentiality of data and completed questionnaires were sealed in envelope. Data was collected over a period of two weeks. Students between the ages of 21-25 were included. Students with other tertiary education before their medical education were evicted, to maintain consistency of education level across groups. A total of 191 students were included in the study, out of which 99 were studying in a medical college whereas 92 were inducted from an engineering college. Prevalence of health anxiety among students is 30%<sup>20</sup>. Statistical condition used was proportion sampling with 95% confidence interval and 5% margin of error. Sample size was calculated from open epi software. The required sample size derived was 179 however, a sample of  $\pm 20$  was considered.

The research mean selected was 'Student Health Questionnaire' which is used internationally recognized tool for assessing mental health of students, it is a detailed performa which helps in identifying health issue along with the performance of students in their educational careers<sup>21</sup>. After thorough literature search, the questionnaire was modified for achieving the aims of the study. The questionnaire inquired about basic socio-demographic information (age, gender, university) and screening questions to investigate about year of study, course enrolled in (medical or engineering), previous tertiary education and past medical history. Questions were asked about a close relative suffering from a serious health issue, visit to a doctor in last six months and its reason and any current or previous addiction. Addiction has a strong and proven relation with depression and anxiety<sup>22</sup>. Detailed questions were asked about medical illnesses and their perception about the symptom of neurological illnesses, diseases of musculoskeletal system, dermatological problems or respiratory disorders. Similarly, few questions about mental health of students inquired about psychiatric and psychological disorders.

Anxiety refers to a mixture of general distress such as irritability, agitation, difficulty relaxing, and impatience. For assessing anxiety on DASS, participants were asked

how they would react if they see someone dying in front of them, would they become apprehensive, get panicked or would they become upset but believe that it's a part of life?

Stress was measured by asking the subjects to assume a situation where they have to face a fatal road traffic accident on their way to routine work. Subjects had to select one of the given options like over aroused, unable to relax, irritable, nervy/fidgety or would they rush the victim to hospital or call an ambulance for help. Depression, anxiety and stress scale (DASS) was used to assess the phenomena (Anxiety, depression and stress) in both the groups<sup>23</sup>. The original DASS has 42 items measuring three most important aspects of negative emotional states, namely depression (DASS-D), anxiety (DASS-A), and stress/tension (DASS-S). Depression refers to low levels of positive affect, e.g., dysphoria, hopelessness, lack of energy. A hypothetical scenario was given to subjects to assess depression, which inquired about their response when they visit a relative in hospital who is suffering from a critical illness. Data was recorded using SPSS version 21 and evaluated using Fisher's Exact test.

### RESULTS:

Out of 191 students in total from both the groups n=86 (45%) were females and n=105(55%) were males. There were 99 participants from MBBS and 92 from engineering. The participants' ages ranged from 21-26 years with a mean=23.95 (SD±2.29), both the cohorts belonged to approximately same age group. While assessing depression the responses were not very different for both the groups. The responses of both the groups according to depression scale are given in table 1. When responses of depression scale were related to visits to psychiatrists or psychologist or psychotherapist a strong relationship was observed (p=0.012) in medical students cohort. This indicated that medical students with depressive symptoms tend to visit psychiatrist/ psychologists more frequently. But the relation of depression scale with psychiatrist/ psychologist visit in engineering students was not significant (p=0.135). (Table 1) The results of anxiety scenario on DASS revealed that a large percentage of subjects (MBBS=52% and Engineering 62%) said that they would become upset but believe that it's a part of life (table 2). When the level of anxiety was related to visits to mental health care visits in both the groups the relationship was not significant. It indicates that the subjects do not tend to visit doctors for anxiety. (Table 2). When stress was observed on the same scale p value was significant (p=0.009) for both groups of the study population. Greater number of MBBS students chose responses which indicated increased levels of stress when they were asked about their reactions on seeing a fatal road accident. Stress did not show strong association with psychiatrist/psychologist visits in medical cohort whereas engineering group had a significant relation of stress with visits to mental health consultants (p=0.019). (Table 3)

### DISCUSSION:

This study is one of its kind because it compares medical to engineering students to analyze the results of two different groups and find out the relation between visits by the undergraduate students to hospital and mental health care givers. In this study the relation is assessed on depression stress anxiety scale.

The geographical situation and political instability in Karachi Pak and high prevalence rate of depressive and anxiety symptoms coupled with extensive syllabus and challenging exams adversely affect academic performance and mental well-being of a student. The finding declines to support the notion that medical students seek to acquire more medical advice for hypochondriacal health concerns.

The results showed that students do not visit physicians regarding the emotional–apprehensive component, as during the pre-clinical years, the levels of anxiety are slightly low, due to limited exposure to clinical content. However, with the advancement to clinical studies, there is a high level of anxiety with relative stability throughout the clinical years<sup>2</sup>. A study conducted in Pakistan reported that only few medical students with symptoms of depression approach a physicians or psychologists<sup>24</sup>. This study reveals that there is no significant difference between the two groups regarding perception of symptoms of diseases and help seeking behavior. Similar results were found in study of Saudi Arabia which also enforced that help seeking behavior does not depend on the type of curriculum the students are studying<sup>25</sup>. This finding is supported by another study in 2009 which states that medical students who are more prone to self-diagnosis tend to change their diagnosis with their rotations in different departments of hospital, which means self-diagnoses done by students are not a reliable criteria for labeling them hypochondriac.<sup>26</sup>

Previous studies which showed higher number of medical students with health related anxiety may be because medical students can approach doctors more easily and anxiety may have been reported in casual conversation but medical students are more specific about their self-diagnosis<sup>7</sup>. On the contrary, it was also reported in a multi-centered study that out of 45.5% of the medical students who suffered from anxiety only 3.6% had visited psychiatrists for medical assistance<sup>27</sup>. Perhaps internet is the most unreliable avenue for attaining the alarming medical information which has developed hypochondriacal concerns in them and general public. It is also known as “cyberchondria” in which people seek help from internet sources to explore about their symptoms and reach a diagnosis on their own and this can further lead to hypochondriasis<sup>28</sup>. The results of our study reflect a comparable psychosocial strain at an elevated level in both student groups. Since there is no training for students to deal with this stress adequately nor systematic efforts to reduce workload or optimize teaching conditions this might

Table 1: Comparing depression scale among medical and engineering Cohorts

		Hospital Visit In Past 3 Weeks		Total	P-value
		ENGR n(%)	MBBS n(%)		
Depression Scale	Self-disparaging	1 (2.3%)	2 (9.5%)	3 (4.6%)	0.012
	Dispirited, gloomy, blue	0 (0.0%)	2 (9.5%)	2 (3.1%)	
	Convinced that life has no meaning or value	0 (0.0%)	1 (4.8%)	1 (1.5%)	
	Pessimistic about the future	0 (0.0%)	0 (0.0%)	0 (0.0%)	
	Asking them if they need any of your help	20 (46.5%)	4 (19.0%)	24(37.5%)	
	Unable to experience enjoyment or satisfaction	2 (4.7%)	2 (9.5%)	4 (6.2%)	
	Assuring everyone that everything will be alright	20 (46.5%)	10 (47.6%)	30 (38.4%)	

Table 2: Comparison of medical and engineering students on anxiety scale

		Hospital Visit In Past 3 Weeks		Total	P-value
		ENGR n(%)	MBBS n(%)		
Anxiety Scale	Become apprehensive	1(2.3%)	0(0.0%)	1(1.5%)	0.735
	Start panicking	0(0.0%)	2(9.5%)	2(3.0%)	
	Tremble and shake	7(16.3%)	3(14.3%)	10(15.3%)	
	Become upset but believe that it's a part of life	31(72.1%)	11(52.4%)	42(64.6%)	
	Have pounding of the heart and sweatiness of the palms	1(2.3%)	4(19.0%)	4(6.15%)	
	Actively participate in the funeral proceedings	6(12.2%)	1(4.8%)	7(10.7%)	

Table 3: Responses of two study groups on the basis of stress scale

		Hospital Visit In Past 3 Weeks		Total	P-value
		ENGR n(%)	MBBS n(%)		
Stress Scale	Over-aroused, tense	1(2.3%)	2(9.5%)	3(4.6%)	0.446
	Unable to relax	0(0.0%)	2(9.5%)	2(3.1%)	
	Touchy & easily upset	1(2.3%)	0(0.0%)	1(1.5%)	
	Rushing the victim to the hospital	1(2.3%)	2(9.5%)	3(4.6%)	
	Irritable & startled	1(2.3%)	2(9.5%)	3(4.6%)	
	Nervy, jumpy & fidgety	0(0.0%)	0(0.0%)	0(0.0%)	
	Call the ambulance or for nearby help	30(90.7%)	13(61.9%)	43(66.1%)	

lead to higher anxiety, depression, burnout and suicide levels in both groups<sup>23</sup>.

It is advisable to teach about the existence and the benign nature of medical illness and the related phenomena elaborately along with correct interpretations of expanding medical knowledge. It can be explained to students that anxiety is a part of normal process of life and not a pathological one, so that the students would have better methods of coping up that would minimize a source of additional stress for already overburdened students<sup>2</sup>.

The strength of this study was to recruit the participants from two different groups of same ages but with different academic backgrounds and approach towards medical symptoms related to mental health provides a comparison. The engineering students serve the purpose of a control group.

As it was a cross-sectional study; the primary limitation is that exposure and outcome are simultaneously assessed, there is generally no evidence of a temporal relationship between exposure and outcome. Many of these study design limitations would overcome with a prospective longitudinal approach with greater sample size; which has yet to be used in researching the health concerns and reassurance seeking behavior of medical students.

However, the studies used the DASS-21 as a dependent variable. This is not reliable in validating the psychometric properties of the DASS-21 in an Asian sample, which can be compounded by social, cultural, and political variations between Asian countries. Hence without the use of confirmatory factor analysis to determine the factor structures of the DASS-21, it remains uncertain whether this scale is psychometrically sound and valid for use in Asian

populations. Therefore Medical student's disease should be regarded as a phenomenon by defining it as a normal process; one can assist in guiding students to reduce their level of anxiety and distress.

### CONCLUSION:

The results of the study reflected comparable psychosocial strain at an elevated level among both student groups. Since there is no training for students to deal with this stress adequately nor systematic efforts are there to reduce workload or optimize teaching conditions.

**Author Contribution:**  
 Sana Akbar: Principal investigator took part in conception and study design acquisition, analysis or interpretation of data for the work, compilation of write up and references.  
 Misbah Riaz: Took part in collection and interpretation of data.  
 Lalarukh Munawar: Took part in compilation of write up, drafting the article and worked on results and references.  
 Shazia Shakoor: Took part in reviewing it critically for important intellectual content.

### REFERENCES:

1. Morris M, Petrie K. J. Redefining medical students' disease to reduce morbidity. *Medical education* 2001; 35: 724-28.
2. Azuri J, Ackshota N, Vinker S. Reassuring the medical student's disease- Health related anxiety among medical students. *Medical teacher* 2010; 32: e270-75.
3. West CP, Dyrbye LN, Erwin PJ, Shanafelt TD. Interventions to prevent and reduce physician burnout: a systematic review and meta-analysis. *Lancet* 2016; 388(10057): 2272-81.
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. *Teaching and learning in medicine* 2016; 28(3): 252-9. 7.
5. Sharma B, Wavare R. Academic stress due to depression among medical and para-medical students in an indian medical college: Health initiatives cross sectional study. *J Health Sci* 2013; 3(5): 29-38. 8.
6. Iqbal S, Gupta S, Venkatarao E. Stress, anxiety & depression among medical undergraduate students & their sociodemographic correlates. *Indian J Med Res* 2015; 141(3): 354.
7. Waterman L Z, Weinman J A. Medical student syndrome: fact or fiction? A cross-sectional study. *Journal of royal society of medicine. OPEN* 2014; 5:1-9.
8. Hashmi A M, Aftab M A, Naqvi S H, Sajjad W, Mohsin M, Khuwaja I S. Anxiety in Pakistan Medical Students. A multi centered study. *Health MED.* 2014; 8: 813-20.
9. American Psychiatric Association. Diagnostic and statistical manual of mental disorder, 5th edition. Text Revision. Washington DC: American Psychiatric Association 2000.
10. Janssens T., Verleden G., De Peuter S., Van Diest I and Van den Bergh O. Inaccurate perception of asthma symptoms: a cognitive – affective framework for eczema treatment. *Clinpsychol Rev* 2009; 29 (4): 317-327.
11. Deo M.S and Lymburner J.A. Personality traits and Psychological health concerns: search for psychology student syndrome. *Teaching of psychology*, 2011 June: 38, 155-57
12. Woods S M, Natterson J and Silverman J. Medical student disease: hypochondriasis in medical education. *J Med Educ* 1966: 41 (8): 785-90.
13. Mechanic D. Social Psychological Factor effecting the presentation of bodily complaints. *N engl J Med* 1972; 286 (21): 1132-39.
14. Khasar S. G., Burkham J., Dina O. A et al. Stress induces a switch of intracellular signaling in sensory neurons in a model of generalized pain. *J Neurosci* 2008; 28(22): 5721-5730.
15. Health anxiety and hypochondriasis: Description and issues highlighted through a case illustration. *Bulletin of the Menninger Clinic.* 2010 June; 74(2): 122-40.
16. Curran TA, Gawley E, Casey P, Gill M, Crumlish N. Depression, suicidality and alcohol abuse among medical and business students. *Irish Med J.* 2009;102(8):249–52.
17. Leahy CM, Peterson RF, Wilson IG, Newbury JW, Tonkin AL, Turnbull D. Distress levels and self-reported treatment rates for medicine, law, psychology and mechanical engineering tertiary students: cross-sectional study. *Aust N Z J Psychiatry.* 2010;44(7):608–15.
18. Bargel T, Ramm M, Multrus F. Schwierigkeiten und Belastungen im Bachelorstudium – wie berechtigt sind die studentischen Klagen? *Beitr Hochschulforsch.* 2012;1(1):26–41.
19. Miller NM, McGowen RK. The painful truth: physicians are not invincible. *South Med J.* 2000;93(10):966–73
20. Weck F , Richtberg S, Neng JM: Epidemiology of hypochondriasis and health anxiety comparison of different diagnostic criteria. *Curr Psychiatry Rev.* 2014; 10: 14.
21. Boot CR, Donders NC, Vonk PK, Meijman FJ. Development of student health questionnaire: the necessity of a symbiosis of science and practice. *Global health promotion* 2009 Sep;16(3):35-44
22. Khan MS, Mahmood S, Badshah A, Ali SU, Jamal Y. Prevalance of depression, anxiety and their associated factors among medical students in Karachi. *Journal of the Pakistan Medical Association* 2006; 60:699-702.
23. Antony M M., Peter J.B., Brian J.C, Murray W.E. Psychometric properties of the 42-item and 21-item versions of the depression, anxiety, stress scale in clinical groups and a community sample. *Psychological assessment.* 1998 June; 10(2): 176-181.
24. Zahid M F, Haque A, Aslam M, Aleem N A, Hussain S, Fahad H et al. Health related anxiety and hypochondriacal concerns in medical students – a cross sectional study from Pakistan. *Teaching and learning in medicine* 2016, 28; 3, 252-259.
25. Althagafi S S, AlSufyani M H, Shawky O A, Afifi O K, Alomairi Naif, Masoodi Ibrahim et al. The health anxiety in medical students, a comprehensive case study from Taif University: Medical student's syndrome revisited. *BJMP* 2019; 12 (1):a003
26. Janssen T, Verleden N, Vinker S et al. Inaccurate perception of asthma symptoms: a cognitive –affective framework and implication for asthma treatment. *ClinPsychol Rev.* 2009 Jun;29 (4): 317-27.
27. Hashmi A M, Haque A, Aftab Awais, Khawaja I S et al. Anxiety and depression in Pakistani medical students: a multi-center study. *HealthMED –2014 Nov* 7, 8; 817-818.
28. Wickham S. The perils of cyberchondria. *Practicing Midwife.* 2009;12(2):