Original Article

Association of Imposter phenomenon and Burnout with mode of education among Medical Students of Pakistan

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ABSTRACT

Objectives: To determine the association of imposter syndrome and burnout in medical students during online and face-face education in Pakistan.

Methodology: A cross-sectional study was conducted at CMH Lahore Medical College and Institute of Dentistry during the months of May to June 2021. Participants belonged to any academic year of either the MBBS (a five-year program) or BDS (a four-year program) disciplines were included. Students of Nursing and Allied Health Sciences were excluded. The sample size was 282. Non-probability convenient sampling technique was used to enroll participant after taking Ethical approval by a local ethical review board of CMH Lahore Medical College. Oldenburg Burnout Inventory was used for identifying burnout and Clance Impostor Phenomenon Scale was used for identifying imposter characteristics in students. Data was analyzed using SPSS version 22. Categorical data are shown as percentages and frequencies and compared by Chi-square test. P-value < 0.05 was taken as statistically significant.

Results: The mean impostorism score was higher in face-to-face (in-class education) education however, analysis of the Clance Impostor Phenomenon Scale (CIPS) showed no significant association of imposter characteristics with the mode of education with a p-value of 0.053. The mean score for total burnout was higher during online education. The difference in burnout, exhaustion, and disengagement during the online mode of education and face-to-face mode of teaching was significant with a p-value of 0.001, 0.001, 0.002 respectively.

Conclusion: Imposter characteristics are an intrinsic factor not affected by external environment. However, burnout is higher during online education which can be overwhelming and should be taken into consideration when designing curricula.

KEYWORDS: Imposter phenomenon, Burnout, Online Education, Traditional Education.

INTRODUCTION

Burnout, which is characterized by emotional distress and cynicism, has been a source of debate in recent years, particularly among medical students and physicians. Medicine requires motivated, competitive students who can cope with rigorous schooling, high levels of stress, and disappointments. These characteristics, unfortunately, also contribute to the development of burnout. Insomnia, increased drinking, poor marital and family issues are all common symptoms of burnout**.** [1] This has become much more alarming because of the pandemic, particularly among younger people.[2] Medical students are in danger of weariness and burnout as a result of increased stress and anxiety especially due to increased screen time owing to tele-education during lockdowns. Another topic gaining popularity recently is Imposter Phenomenon, characterized by chronic feelings of self-doubt intellectually.[4] These individuals consider are skeptical about their intelligence and competency which leads lack of accomplishment and incompetence.[5] A study among internal medicine residents, 43.8% were found to have imposter syndrome while only 12.5% reported burnout.[4,6] Majority of medical students on the clinical phase of their training indicate moderate-to-strong impostor feelings.[7] Literature on imposter syndrome regarding education during the pandemic is limited. Burnout and

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imposter phenomenon can significantly impact medical education. Those suffering are less likely to speak up, clarify their queries, or volunteer answers and information, especially during digital education.[5] Due to the surge in COVID-19 most schools and universities closed and shifted from face-to-face teaching to online education, also called tele-education, as a simple and convenient solution. Education was continued using digital platforms including Zoom, Skype, Google Classroom, pre-recorded video lectures, etc. However, as described by Mohammad H Rajab et. al. this solution came with many challenges including problems related to communications, student assessments, pandemic-related anxiety or stress, time management, and problems with technology.[8] Tele-education negatively impacts mental health and increases cynicism as shown by Panagiotis Zis et al.[9] This suggests that there is a need for consideration of a curriculum that takes into account these factors, especially during the era of tele-education. Implementing a mental health education course in the medical curriculum has shown to decrease academic burnout and psychological distress.[10] This study seeks to explore imposter syndrome and burnout in medical students during online and face-face education in Pakistan.

METHODOLOGY

This was a cross-sectional study was done at CMH Lahore Medical College, Pakistan during May to June 2021. Participants, both male and female with age ranges, between 18-25years, belonging to any academic year of either the MBBS (a five-year program) or BDS (a four-year program) discipline were included in the study. Students of other disciplines i.e. Nursing and Allied Health Sciences were excluded. The participants were invited to fill the questionnaire after taking ethical approval from local ethical board of CMH Lahore Medical College (141/ERC/CMHLMC) by the non-probability convenience sampling technique. The estimated population size was 1050 and the calculated sample size was 282 using the Rao soft formula. The confidence interval is 95% and the margin of error is 5%.Microsoft Forms were used to collect data by sending the link for the form via WhatsApp. The questionnaire had 46 items divided into 3 sections; demographic profile, Oldenburg Burnout Inventory, and Clance Impostor Phenomenon Scale respectively. The demographic profile (10 items) inquired regarding age, gender, discipline and year of study, the preferred mode of education, current mode of education, and challenges faced during online learning. Oldenburg Burnout Inventory (OLBI), a 16-item scale was used to assess burnout.[11] The alpha Cronbach statistic for emotional exhaustion is 0.67 and for disengagement from work is 0.61. The combined alpha Cronbach statistic is 0.74.[12] OLBI measures two parameters; exhaustion and disengagement, each with 8 questions on a four-point Likert scale. Exhaustion refers to feelings of emptiness, overwork, a strong need for rest, and physical exhaustion while disengagement refers to distancing oneself from the objects and content of one's work.[13] Total scores for burnout ranged from 16 to 64. The degree of burnout was categorized as low, moderate, and high with a score <44, score 44-59, and score >59 respectively. Exhaustion was categorized as low, moderate, and high; score <21, score 21-29, and score >29 respectively. Disengagement was categorized as low moderate and high with a score <24, score 24-31, and score >31 respectively.[14] Clance Impostor Phenomenon Scale (CIPS), a 20-item 5-point Likert scale was used to quantify imposter characteristics.[15] The total score was additively ranging between 20 to 100. A score < 40 indicated few impostor characteristics; 41-60, moderate impostor characteristics; 61-80 frequent impostor experiences; and more than 80, intense impostor experiences. A score of 62 or higher indicated that the individual had imposter syndrome. The instrument has high internal reliability with Cronbach statistic of α=0.92.[16]

***Statistical Analysis*:** All data were analyzed using SPSS software (version 26; IBM). Results have been presented in frequency and percentages. The Chi-square test was used for the comparison of categorical variables. P-value < 0.05 is statistically significant.

RESULTS

In this study, the total number of participants was 282, out of which 56% were males and 44% were female students. The mean age ± SD of the study population was 20.66 ± 1.71years. The participants from the MBBS discipline were 85.1% and that of the BDS discipline were 14.9%. Distribution of students of basic sciences, preclinical and clinical sciences are shown in the table 1. Most of the students preferred combined face-to-face and online education (67.4%). However, the current mode of education was online for 42.4% of the population and face-to-face (in-class education) for 57.8% of the population. The demographic profile is shown in Table 1. The distribution of impostor scale scores for the mode of education is shown in Figure 1. The mean impostor score was 64.23 ± 15.66 (frequent impostor characteristic) for the entire sample.

Table 1: Demographic Profile of Study Population (N=282)	
Variable	**Population N (%)**
Gender	
Male	158(56%)
Female	124(44%)
Discipline	
MBBS	240(85.1%)
BDS	42(14.9%)
Year of study	
Basic sciences	142(50.4%)
Pre-clinical year	38(13.5%)
Clinical years	102(36.2%)
Preferred mode of education	
Face-to-face (in class education)	10(3.5%)
Combined face-to-face (in class education) and online education	190(67.4%)
Online education	82(29.1%)
Current mode of education	
Face-to-face (in class education)	163(57.8%)
Online education	119(42.4%)

It was higher in face-to-face (in class education) education. The percentage of the population meeting the threshold for imposterism was 55.0% with 34.0% in face-to-face education and 20.9% in online education. Analysis of the Clance Impostor Phenomenon Scale (CIPS) found no significant association of imposter characteristics with the mode of education with a p-value of 0.053. The detail is shown in Table 2. The mean score for total burnout was 33.63 ± 7.20 for the entire population. It was significantly higher during online education as compared to face to face teaching (p value = 0.001) as shown in Table 3.

Figure1: Imposter score in two modes of education in medical students. ($N_{face\ to\ face}$ =164 and N_{online} = 118)

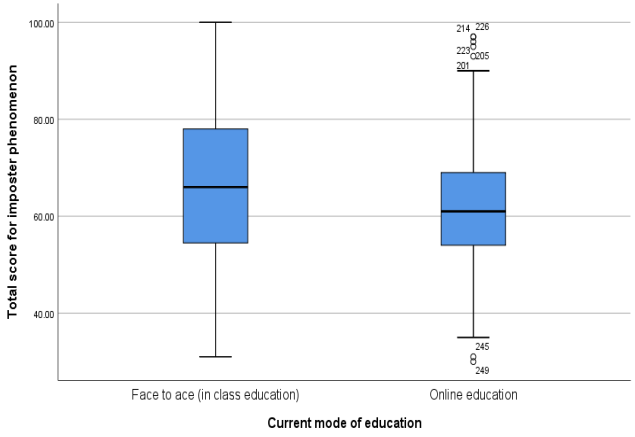

Table 2: Degree of Imposter Phenomenon and Its Association with Mode of Education (N= 282)			
Imposter characteristics	**Mode of education N (%)**		**p-value**
	Online (N=118)	**Face-to-face (N=164)**	
Few	11(9.3)	10(6.1)	0.053
Moderate	49(41.5)	56(34.1)	
Frequent	46(39.0)	59(36.0)	
Intense	12(10.2)	39(23.8)	

p value ≤ 0.05 taken significant, determined by Chi-square

The mean score for exhaustion was 21.50 ± 4.18 for the entire population. Exhaustion was comparatively higher in traditional (face-to-face) education than online education (p value =0.002) as presented in Table 3. The mean score for disengagement was 12.12 ± 4.64 for the entire population. Disengagement was significantly higher in online education than traditional

Table 3: Degree of Burnout and Its Association with Mode of Education (Total N=282, online=118, face to face= 164)					
Burnout Component	**Mean Score**	**Degree of Burnout N (%)**			**p-value**
		High	**Moderate**	**Low**	
Total burnout (N=282)	33.63±7.20	2(0.71)	24(8.51)	256(90.78)	
Online education	35.49±9.14	2(1.7)	24(20.3)	92(78.0)	0.001*
face-to-face (in class education)	32.29±4.90	1(0.6)	1(0.6)	162(98.7)	
Disengagement (N=282)	12.12±4.64	1(0.35)	10(3.5)	271(96.09)	
Online education	14.88±5.88	1(0.84)	10(8.5)	107(90.6)	0.001*
face-to-face (in class education)	10.14±1.68	1(0.6)	1(0.6)	162(98.7)	
Exhaustion (N=282)	21.50±4.18	14(4.9)	147(52.1)	121(43.06)	
Online education	20.61±4.20	2(1.7)	52(44.1)	64(54.2)	0.002*
face-to-face (in class education)	22.15±4.06	12(7.3)	95(57.9)	57(34.8)	

p value ≤ 0.05 taken significant, determined by Chi-square

(face-to-face) education with p value 0.001* (Table 3). The key outcomes include a higher mean total burnout and disengagement in online education but higher exhaustion in traditional education. There was a significant association between burnout, exhaustion, and disengagement and mode of education. Imposter Phenomenon and Mode of education showed no correlation.

DISCUSSION

This study was conducted to search for an association of burnout and impostor syndrome traits with discipline, year of study, and gender. It is seen that frequency of medical students with low total burnout is higher in face-to-face education than the online education which means that the students might have

had a lower burnout in the face-to-face education as they were less exposed to gadgets and lectures were more interactive which led to the fixation of attention to the actual lectures. These findings are consistent with Mheidly et al.[3] However, students were exhausted more in physical classes with a higher degree of burnout which might be because of constant lack of sleep, pretending to stay alert even though they are tired, inability to procrastinate, or roam around which leads to emotional instability.[17] Individuals having few or moderate imposter characteristics have a lower degree of burnout in domains of total burnout, exhaustion, disengagement, as seen by statistically significant results, which implies that the lesser the student is conscious of his activities or professional conduct, the better he works. Hence it shows having imposter characteristics may induce a higher degree of burnout, eventually leading him to abandon his job due to increased mental and physical stresses.[18] It is worrisome to observe that females have a higher risk of having intense imposter characteristics (13.84%) which lead to exhaustion caused by a high degree of burnout. This is similar to two studies, the first one conducted at University of Kansas Medical Center in which female students compared themselves more to others.[7] The other study was conducted in Lahore at a private medical college.[19] This certainly needs to be investigated to avoid any unprecedented, undiagnosed mental diseases which may hinder the medical department as women are a big part of the workforce there. It may be because females have an inherent ability to overthink others' perceptions, and also are more involved in maintaining self-image; this has also been noticed in another study by Beth Levant.[7] As the year of study progresses with its new challenges, the more the individuals get intense imposter characteristics, leading to a higher degree of exhaustion. This is because as soon as the professional life comes closer, the students tend to become over conscious about their current ranking in order to avoid future ordeals, which may perhaps lead them towards problems with lower self-esteem, work related stress and emotional distress.[20] Mental health problems are on the surge as the pandemic of Covid-19 aggravates. The most susceptible group amongst people are the medical students who have an intrinsic sense of competitiveness, ego, and hard work. Ever since day one of being admitted to medical colleges, medical students are enforced to work hard in various tests, clinical exams. This leads to the development of traits involving rigorous competitiveness and a hidden ego. Every student works hard to an extent that leads to a depressed, exhausted soul if one does not meet the demands of the profession. Every day there is a new challenge to solve, which eventually leads to exacerbation of the underlying undiagnosed burnout.[21] Covid-19 has led to a worldwide pronounced quarantine to avoid the spread of infection, which meant the closure of medical schools as well. It might seem feasible on the outside, but the education and clinical skills of students were compromised, which further led to an increased sense of insecurity about themselves despite of whatever efforts they did, in online lectures, regarding the field of medicine.[22]

Limitations: The limitations of this study were that it was restricted to a particular medical college. It is a cross-sectional study with a small sample size; bigger sample size and more students from different medical colleges will give more accurate results. Moreover, a comparison between public and private sector medical colleges may also better help establish an association between burnout and the imposter phenomenon. Association of age and degree of burnout could have been done as well to see from which age the intensity of imposter symptoms begins so that it could be caught there and treated especially through tailored and customized approaches. As students continue experiencing more severe imposter characteristics, if untreated it might affect their clinical skills and future competencies as well.

CONCLUSION

Significantly higher proportion of the imposter characteristics, burnout and disengagement was obser--ved in medical students during online education. However, Exhaustion was comparatively higher in traditional(face-to-face) education.

Recommendations: In short, it could be said that once a student begins his or her education, proper counseling must be done to avoid future low self-esteem and confidence problems. Medical students are most at risk of such psychological problems as they are exposed to huge responsibilities at a young age. Taking into consideration the importance of a patient's life, medical students tend to overwhelm themselves with knowledge and duties to better perform their duties. Therefore, relevant counseling should be provided timely to ensure the soundness of their mental health.

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Sehar Khauteja Khan	Literature search, data collection, drafting
Uswah Shoaib	Literature search, study design & concept, questionnaire design, data interpretation
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