

ORIGINAL ARTICLE

Impostorism and its associated factors with Burnout among Students during Online and Traditional Medical Education

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ABSTRACT

The aim of this study is to identify imposter phenomenon and its relation to burnout in medical students during online and traditional education in Pakistan during corona pandemic as these are widely common in medical students and impact their academic outcomes. A cross-sectional study was conducted among MBBS and BDS students of CMH LMC & IOD using non-probability convenient sampling. Standardized questionnaires were used i.e., the Oldenburg Burnout Inventory for burnout and Clance Impostor Phenomenon Scale for impostorism. Gender had significant association with the degree of total burnout ($p=0.003$), exhaustion ($p=0.001$) and impostor characteristics ($p=0.001$). Discipline had significant association with exhaustion ($p=0.002$) and impostorism ($p=0.03$). Year of study also had significant association with exhaustion ($p=0.001$) and impostor characteristics ($p=0.001$). Current mode of education had significant correlation with total burnout ($p<0.001$), exhaustion ($p=0.002$), disengagement ($p<0.001$) and impostor characteristics ($p=0.027$). Covid-19 has significantly affected education worldwide including medical education. Impostorism and burnout are higher during online education. 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.

Key Words: CMH Lahore Medical College and Institute of Dentistry, Imposter phenomenon, Burnout, Online Education, Traditional Education

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INTRODUCTION

Dr. Pauline Clance initially identified the imposter phenomenon (IP) as an experience in which people believe they do not deserve their accomplishments despite objective evidence to the contrary, and that they would be revealed as incompetent or imposter [1] Resultantly, those with IP become anxious when given a task and therefore either they believe in working harder than peers or excessively procrastinate leaving tasks for the last minute. They are thus unable to accept any positive criticism and believe as though anxiety and stress are necessary for success. They are unable to internalize success, externalizing it to factors like luck or chance [2].

Burnout characterized by emotional exhaustion and cynicism has been a matter of contention in research during recent years, especially in medical students and physician. The specialty of medicine requires driven, competitive pupils who can handle intense schooling, high levels of stress and disappointments. Unfortunately, these qualities also contribute to the development of burnout. It is associated with absenteeism, low morale, personal distress, including physical exhaustion, insomnia, increased use of alcohol and drugs, and marital and family problems [3]. The pandemic has made this even more concerning especially in younger individuals [4]. Medical students are at a risk of exhaustion and burnout as the face prolonged screen time due to tele-education, increasing stress and anxiety [5]. Jonathan Kajjimu et. al in 2020 reported that 93.1% of medical students experienced high degree emotional

exhaustion and 97.2% had high levels of cynicism. More than half of the students had burnout with a higher prevalence in males [6]. These statistics are alarmingly high and a point of concern.

Literature available on imposterism suggests high imposter experiences in medical students. A study on imposterism in American medical students found 51% of students meeting the criterion for the impostor phenomenon with a slightly higher percentage of women [7]. The findings were supported by another American study [8]. Rosenthal et. al. reported 87% of medical students with high degrees of imposter experiences. Similar patterns were described by Qureshi et. al. in final year medical students at one college in Pakistan [9]. Burnout has been a widely discussed topic in medical literature. Many studies report high degrees of burnout in medical students with higher rates in males and senior years [6, 10-13]. One study by Yumna Muzafer et. al found 47% of medical students at a college in Pakistan, met the criterion for moderate or high burnout; however, many of them were unaware of their own burnout [14]. Literature correlating IP and burnout is scarce however, one study by Jennifer A. Villwock et. al. reported a significant association between the two.

Imposter phenomenon, especially in consideration with burnout, remains an area lacking literature among the medical student population. This study seeks to explore imposter syndrome and its relation to burnout in medical students during online and traditional education in Pakistan.

MATERIAL AND METHODS

We conducted a cross-sectional study after ethical approval by local ethical review committee of CMH Lahore Medical College and Institute of Dentistry. Participants between age 18-25years, both male and female, belonging to CMH Lahore Medical College, Pakistan were invited to participate. They could either belong to the MBBS or BDS discipline. Responses belonging to any other discipline were excluded. The estimated population size was 1050 and the sample size was calculated to be 282 using the Rao soft with a prevalence of 50%, confidence interval as 95% and the margin of error 5%.

Questionnaires were administered online by non-probability convenience sampling. Participants were invited to fill the questionnaire on Microsoft Forms through WhatsApp. The participation was voluntary. Informed consent was obtained prior to administration of the survey. Each response was given an identification number to maintain anonymity and confidentiality. 282 participants filled out the survey. The present study was approved by the Institutional Review Board of CMH Lahore Medical College. Each questionnaire consisted of 3 parts; demographic profile, Oldenburg Burnout Inventory and Clance Impostor Phenomenon Scale respectively.

Oldenburg Burnout Inventory (OLBI), a 16-item scale with positively and negatively framed questions was used to assess burnout [15]. The alpha Cronbach statistic for emotional exhaustion is 0.67 and that for disengagement items is 0.61. The combined alpha Cronbach statistic is 0.74 [16]. Responses are marked on a four-point Likert-scale from strongly agree to strongly disagree. OLBI measures two parameters of burnout syndrome—8 items measure the exhaustion (Item 2, 4, 5, 8, 10, 12, 14, 16), and 8 items measure disengagement from work (Item 1, 3, 6, 7, 9, 11, 13, 15). Total scores range from 16 to 64. The degree of burnout was classified as low (score <44), moderate (score 44-59) and high (>59). Exhaustion was classified as low (score <21), moderate (score 21-29) and high (>29). Disengagement was classified as low (score <24), moderate (score 24-31) and high (score >31) [17].

Imposter phenomenon was measured using the Clance Impostor Phenomenon Scale (CIPS), a 20-item survey a Likert scale from 1 to 5 for not at all true, rarely true, sometimes true, often true, or very true, respectively. It was used with the permission from author. The total score is additive with a score between 20 to 100. A score of under 40 indicates few impostor characteristics; 41-60, moderate impostor characteristics; 61-80 frequent impostor characteristic; and more than 80, intense impostor characteristic. A score of 62 or greater was interpreted as indicating an individual having impostor phenomenon [18]. The instrument has high internal reliability with Cronbach's $\alpha=0.92$ [19].

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

RESULTS

The demographic frequency and percentages are shown in Table 1. The total number of participants were 282. The mean age \pm SD of the study population was 20.66 ± 1.71 years. 44% of the participants were female and 56% male. The participation from MBBS discipline was higher (85.1%) as compared to BDS discipline (14.9%). 50.4% belonged to basic sciences years (1st and second year), 13.5% belonged to pre-clinical year (3rd year) and 36.2% were from clinical years (4th and 5th year). The current mode of

education was online in 42.4% of responses and face-to-face (in class education) in 57.8% of the responses.

Table 1: Demographic frequency and percentages (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%)
Current mode of education	
face-to-face (in class education)	163(57.8%)
online education	119(42.4%)

Gender had significant association with the degree of total burnout ($p=0.003$), exhaustion ($p=0.001$) and imposter characteristics ($p=0.001$). A greater percentage of females reported moderate burnout while more males reported low degree of burnout. Exhaustion was also greater in females. Imposter characteristics were also higher in females as 30.9% identified intense feelings of imposterism while those from males were 25.5%.

Discipline had significant association with exhaustion ($p=0.002$) and imposterism ($p=0.03$). 76.2% of BDS students reported moderate exhaustion while 53.7% of MBBS students reported moderate to high exhaustion. Imposter experiences were also higher in BDS students as 76.2% reported frequent and intense imposter characteristics compared to 51.7% from MBBS.

Year of study also had significant association with exhaustion ($p=0.001$) and imposter characteristics ($p=0.001$). Exhaustion and imposterism were higher in pre-clinical years as 15.8% reported high degree of exhaustion and 42.1% reported intense imposter characteristics.

Current mode of education had significant correlation with total burnout ($p<0.001$), exhaustion ($p=0.002$), disengagement ($p<0.001$) and imposter characteristics ($p=0.027$). Burnout and disengagement were higher in online education while exhaustion was higher in traditional (face-to-face education). Imposterism was also higher in traditional education as 23.8% reported intense imposter experiences compared to 10.2% during online education. This data is represented in Table 2.

Table 2: Other factors significantly associated with Burnout and Imposter characteristics (percentage given by row)

	Burnout N (%)				Exhaustion N (%)				Disengagement N (%)				Imposter characteristics N (%)				
	low	moderate	high	P-value	low	moderate	high	P-value	low	moderate	high	P-value	few	moderate	frequent	Intense	P-value
Gender																	
Male (N=158)	150 (94.9)	6 (3.8)	2 (1.3)	0.003	97 (61.4)	55(34.8)	6(3.8)	0.001	153(96.8)	5(3.2)	0	0.696	20(12.7)	72(45.6)	53(33.5)	13(25.5)	0.001
Female (N=124)	106 (85.5)	18 (14.5)	0		24(19.4)	92(74.2)	8(6.5)		119(96.0)	5(4.0)	0		1(0.8)	33(26.6)	52(41.9)	38(30.9)	
Discipline																	
MBBS (N=240)	221(92.1)	17(7.1)	2(0.8)	0.105	111(46.3)	115(47.9)	14(5.8)	0.002	231(96.3)	9(3.8)	0	0.658	20(8.3)	96(40.0)	84(35.0)	40(16.7)	0.030

Face-to-face (in class) (N=164)		Online (N=118)		Current mode of education				Year and Study				BDS (N=42)	
164(100)	92(78.0)	0	24(20.3)	0	2(1.7)	89(87.3)	33(86.8)	134(94.4)	35(83.3)				
0	24(20.3)	0	2(1.7)	0	2(1.7)	13(12.7)	5(13.2)	6(4.2)	7(16.7)				
0	2(1.7)	0	2(1.7)	0	2(1.7)	0	0	2(1.4)	0				
<0.001		<0.001		0.073				0.001					
57(34.8)	64(54.2)	28(27.5)	10(26.3)	83(58.5)	10(23.8)	70(68.6)	22(57.9)	55(38.7)	32(76.2)				
95(57.9)	52(44.1)	4(3.9)	6(15.8)	4(2.8)	0	0	0	0	0				
12(7.3)	2(1.7)	0.002		0.001		0.650		0.001					
164(100)	108(91.5)	97(95.1)	37(97.4)	138(97.2)	14(97.6)	5(4.9)	1(2.6)	4(2.8)	1(2.4)				
0	10(8.5)	0	0	0	0	0	0	0	0				
0	0	<0.001		0.001		0.650		0.001					
10(6.1)	11(9.3)	2(2.0)	1(2.6)	18(12.7)	1(2.4)	30(29.4)	10(26.3)	65(45.8)	9(21.4)				
59(36.0)	46(39.0)	44(43.1)	11(28.9)	50(35.2)	21(50.0)	44(43.1)	11(28.9)	50(35.2)	21(50.0)				
39(23.8)	12(10.2)	26(25.5)	16(42.1)	9(6.3)	11(26.2)	26(25.5)	16(42.1)	9(6.3)	11(26.2)				
0.027		0.001		0.001		0.001		0.001					

The mean burnout score was 30.42 ± 5.90 in those without imposter phenomenon and 36.26 ± 7.03 in those with imposter phenomenon. Burnout score was 8.8% higher in those suffering impostorism than those without. Exhaustion is 9.3% higher for imposters. The mean score for imposters is 23.28 ± 3.61 whilst that for non-imposters in 19.33 ± 3.80 . Similarly, disengagement is greater when impostorism is present (mean= 12.97 ± 5.19) than when impostorism is absent (mean = 11.09 ± 3.62), a difference of 7.8%. This data is represented in Figure 1 and 2.

Figure 1: Stem and leaf diagram for total burnout and imposter phenomenon.

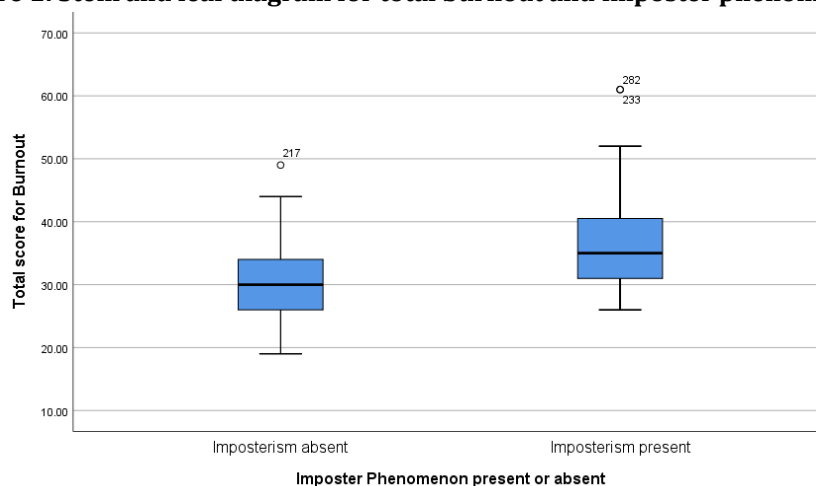
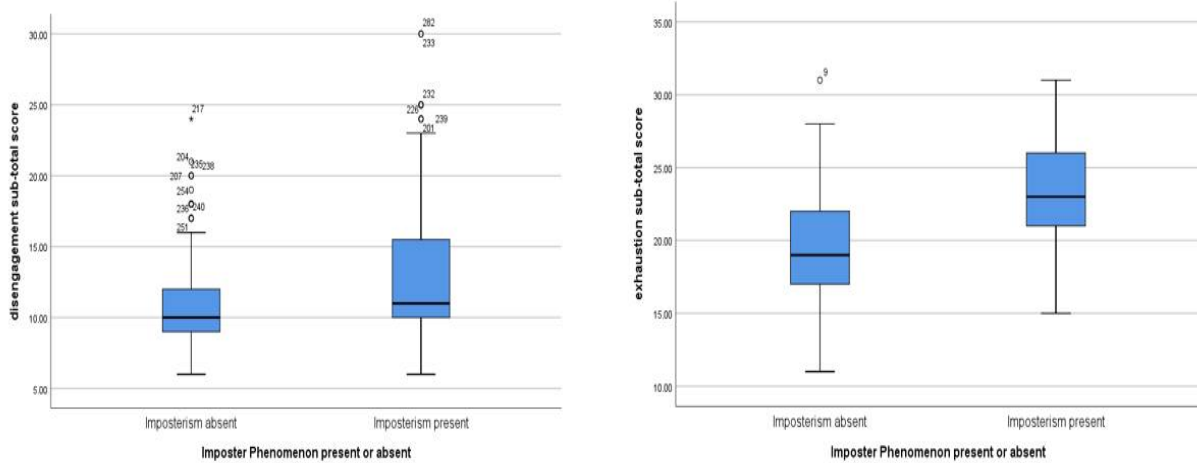


Figure 2: Stem and leaf diagrams for disengagement and exhaustion in relation to imposters.



Stratification of imposter characteristics by few, moderate, frequent and intense revealed a significant association with burnout and its components, exhaustion and disengagement. This data is represented by Table 3. Burnout, exhaustion and disengagement increase as imposter characteristics increase. These results are depicted by Figure 3 and 4.

Table 3: Burnout and its components stratified by imposter characteristics (percentage given by row)

Burnout Components	Degree of Burnout N (%)			Chi-square (p-value)
	High	Moderate	Low	
Total burnout	2(0.71)	24(8.51)	256(90.78)	
few imposter characteristics N = 21	0	0	21(100)	0.001
moderate imposter characteristics N=105	0	2(1.9)	103(98.1)	
frequent imposter characteristics N=105	0	14(13.3)	91(86.7)	
intense imposter characteristics N=51	2(3.9)	8(15.7)	41(80.4)	
Disengagement	0	10(3.55)	272(96.45)	
few imposter characteristics N = 21	0	0	21(100)	0.034
moderate imposter characteristics N=105	0	1(1.0)	104(99.0)	
frequent imposter characteristics N=105	0	4(3.8)	101(96.2)	
intense imposter characteristics N=51	0	5(9.8)	46(90.2)	
Exhaustion	14	147(52.13)	121(42.91)	
few imposter characteristics N = 21	0	3(14.3)	18(85.7)	0.001
moderate imposter characteristics N=105	1(1.0)	37(35.2)	67(63.8)	
frequent imposter characteristics N=105	4(3.8)	68(64.8)	33(31.4)	
intense imposter characteristics N=51	9(17.6)	39(76.5)	3(5.9)	

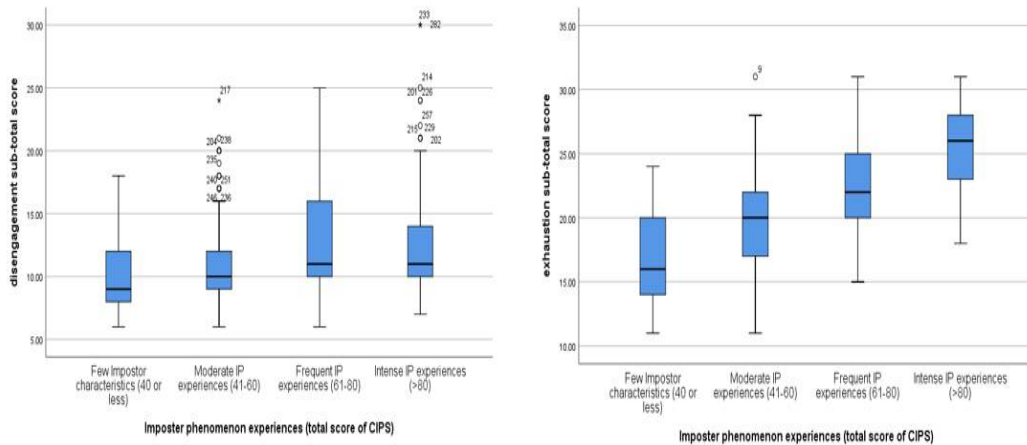


Figure 3: Stem and Leaf diagram showing relation of total burnout to stratified imposter characteristics.

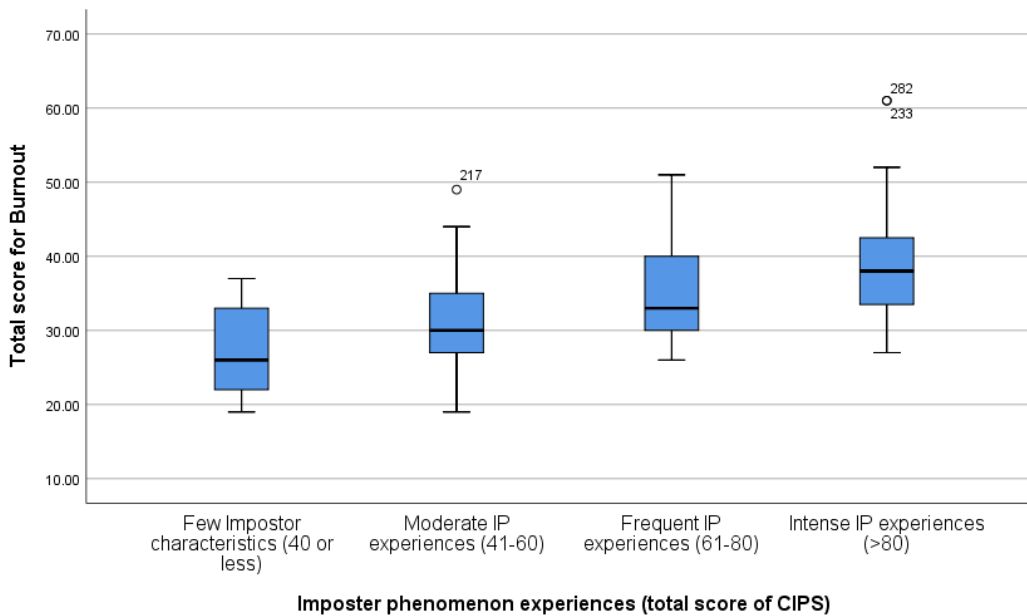


Figure 4: Stem and Leaf diagram showing relation of exhaustion and disengagement to stratified imposter characteristics.

DISCUSSION

This study was conducted to find an association of burnout and imposter syndrome traits with discipline, year of study, and gender. More male students (55.31%) experienced burnout than female students (40.42%). This could be due to the fact that the college of our study is a military college and 30 medical cadets make up 1/5th of all MBBS classes which increases the male percentage by 20% per class. More females (56.02%) experienced imposter characteristics than females (43.97%). 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 [20]. The other study was conducted in Lahore at a private medical college.⁹ It may be because females have an inherent ability to overthink about others’ perceptions, and also are more conscious about maintaining a self-image; this has also been noticed in another study by Beth Levant [20]. All students having face to face education experienced only low burnout where as 78% students having online classes experiences low burnout, 22% experienced moderate and high burnout. This could be because online medical education is a new concept in Pakistan and many students are used to traditional learning. Increased screen time added to health problems like visual strain and headaches which increased burnout as well as disengagement. However online education students experienced less imposter characteristics than students with face-to-face education. 49.2% of online education students

experienced frequent and intense imposterism as compared to 59.8% of students having face to face education. This could be because during online classes students were not surrounded by their peers which meant no chance for comparisons. Furthermore, hands on training were halted and therefore there was lesser room for committing gross mistakes and feeling incompetent. Our study also showed that students in pre-clinical years showed more frequent and severe (71%) imposterism than students in basic science (59%). This could be 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 [21]. 68.6% students in clinical years also experienced imposterism and this shows it should be treated before it worsens more.

A positive correlation between imposter characteristics and degree of burnout, disengagement and exhaustion is noted. Our finding suggests that Imposter phenomenon may be an independent factor contributing to burnout, disengagement and exhaustion. These findings are consistent with studies conducted in other countries [8,22, 23].

CONCLUSION

Covid-19 has led to a worldwide pronounced quarantine to avoid spread of infection, which meant 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.²⁴ Medical students are at a high risk of developing psychological problems as they are exposed to large responsibilities at a young age. Taking into consideration the importance of patient's life, medical students tend to overwhelm themselves with knowledge and duties to avoid future accidents.

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