

ORIGINAL ARTICLE

IMPOSTER PHENOMENON: ITS ASSOCIATION WITH PERSONALITY TRAITS AND SELF-ESTEEM AMONG STUDENTS - AN OBSERVATIONAL STUDY

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ABSTRACT

Background: Imposter phenomenon is defined as a self-doubt of accomplishments among high achievers. This study was conducted to determine the frequency and association of imposter phenomenon with self-esteem, personality characteristics and gender among medical and allied health under graduates of a private medical college in Pakistan.

Materials and Methods: This was an observational study conducted at Lahore Medical & Dental College and Lahore College of Physical Therapy. The study was approved by the institutional review board. Target population of the study included students of medical, dental and physical therapy of all the professional years. Study tool was a questionnaire comprising of 4 sections; section 1 was based upon demographic information, section 2 “Clance Imposter Phenomenon Scale” (CIPS), section 3 “Rosenberg Self Esteem Scale” and section 4 “Ten Item Personality Inventory”. Study questionnaire was distributed to 900 students, out of which 833 filled and returned. Response rate was 92%. Data analysis was done with SPSS 27 version.

Results: Out of total 833 participants 28.8% (240) were males and 71.2% (593) females. On the basis of CIPS, 50.4% (420) participants were imposter negative having few imposter feelings (CIPS ≤ 60), 44.8% (373) were having significant imposter feelings (CIPS score: 61-80) and 4.7% (40) exhibited severe imposter experiences (CIPS > 80). Prevalence of imposter phenomenon in the participants was 49.5% (413/833). There was significant negative association between imposter phenomenon and self-esteem ($p=0.006$), extraversion ($p=0.000$) and conscientiousness ($p=0.042$). Probability of imposter phenomenon was significantly higher ($p=0.002$) in females as compared to the males and in the elderly age group.

Conclusion: The prevalence of imposter phenomenon was 49.5% and low self-esteem 19.7%. The imposter phenomenon was significantly associated with low scores in self-esteem, conscientiousness, and extraversion, as well as with gender and older age groups.

KEY WORDS: Imposter phenomenon; Self-esteem; Social behavior; Self-efficacy; Personality.

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INTRODUCTION

Imposter phenomenon is defined as a self-doubt of achievements, accomplishment or skills among high achievers especially in healthcare and medi-

cine. These competent individuals do not admit or internalize their intellect; despite verified or objective evidence of their success and therefore experience apprehension, depression or anxiety. They attribute their intellect to chance or luck or some other external elements.^{1, 2} Dr. Pauline Rose Clance was the first psychologist who described imposter phenomenon after observing the behavior of her patients in clinical setting. It was interpreted as a state of intellectual phoniness in high achievers; these individuals don't trust their abilities and have a belief that their success is fake and is due to extra effort, luck or by chance.³ Imposter phenomenon is becoming a public health issue on a regional and global scale. Its prevalence among medical trainees is reported to

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be 29 to 30% in United States and about 45-47% in Pakistan.⁴ Imposter phenomenon is not an officially recognized clinical or psychiatric entity, it is a feeling or a perception. However, it is often identified in the context of workplace proficiency or achievements. This phenomenon is observed in students, medical under and post graduates, nurses, computer science fellows and even educationist.⁵ Most vulnerable period is when medical students enter the medical school or undergo transition from preclinical to clinical field. In an academically stressful and competitive institution, imposter phenomenon has a detrimental, longer lasting and strong impact on medical trainees and under graduates.⁶

Some studies have reported correlation of imposter phenomenon with perfectionism; these individuals set their standards very high and then they deny or externalize their abilities or success.⁷ In another study it was reported that imposters are scared of the negative remarks or evaluation by the others. They do not want to become the part of situation where their imperfection is unmasked.⁸ This phenomenon was thought to be frequent among women; they don't trust their achievements despite receiving praise from documented authorities. A few studies have identified association of women while other studies pointed that both genders have an association with imposter phenomenon. Anyone can encounter imposter phenomenon in some phase of his life; even the most successful people have experienced this.⁹

This phenomenon is observed frequently among medical and health students; in a medical school there is constant scrutiny of academic performance, skills and abilities. With this academic environment of constant challenge and target setting; high achievers are at a risk of having perceptions or feelings of intellectual phoniness and fraudulence. These negative thoughts are associated with work-place stress, burn outs and low performance.¹⁰ Previous studies have reported self-esteem to be a predictor of impostorism. Healthy mental state, confidence, creativity and competence correlate well with self-esteem; whereas depression, suicidal ideas and desperate feelings are intimately related with low self-esteem.¹¹ Imposter phenomenon has its roots in personality characteristics as well such as extraversion, perfectionism and neuroticism.¹²

These previous findings highlight the significance of understanding the relation between imposter phenomenon, self-esteem and personality dimensions. Imposter feelings in the sufferers can be reduced considerably by family, parent and friend support. There is a gap in the data regarding relation between imposter phenomenon, personality characteristics and self-esteem among under graduate medical students in Pakistan. This study was conducted with the objective to determine the frequency and association of imposter phenomenon with self-esteem, person-

ality characteristics and gender among medical and allied health under graduates of a private medical college in Lahore, Pakistan.

MATERIALS AND METHODS

This was a cross-sectional and observational study conducted at Lahore Medical & Dental College and Lahore College of Physical Therapy. The study was approved by the institutional review board of Lahore Medical & Dental College. Target population of the study included students of medical, dental and physical therapy of all the professional years. Sample size was calculated by an online database web survey software Raosoft, Inc. (Raosoft: 206-525-4025. US). Minimum sample size was 310.

Study tool was a questionnaire comprising of 4 sections; section 1 was based upon demographic information, section 2 comprised of "Clance's Imposter Phenomenon Scale" (CIPS), section 3 was "Rosenberg Self Esteem Scale" and section 4 was "Ten Item Personality Inventory" (Annexure-1). CIPS consisted of 20 items, each item has 5 responses with grading from 1 to 5. Minimum CIPS score is 20 and maximum 100. If total score is 40 or less - the participant has few/some imposter features, 41-60 - mild imposter feelings, 61-80 - participant has significant imposter feelings and if 81 or above - intense imposter experiences.³ Permission was obtained from Dr. Pauline Rose Clance to use the validated Clance IP Scale. Rosenberg Self Esteem Scale is a self-reported 10 item questionnaire to measure self-esteem. Each item has 4 responses with a score range between 10 to 40. Higher scores on continuous scale indicate high self-esteem. It has Cronbach alpha reliability coefficient of 0.81.^{13,14} "Ten Item Personality Inventory" (TIPI) explores the main 5 personality types. TIPI is based upon 10 items with a score range of 1 to 7. It has reliability-coefficient (r) of 0.72.¹⁵ Score is calculated to predict the 5 main personality types which include: 'Conscientiousness', 'Extraversion', 'Agreeableness', 'Emotional Stability' and 'Openness to experience'.^{15,16}

A verbal description of the study was provided to the students by one of the primary investigators and they were invited to participate by administering the questionnaire just before commencement of their lecture. Study participants were undergraduate medical, dental and allied health students of all the professional years. Participation was on voluntary basis and participants were requested to return the questionnaire within 30 minutes. A written consent of the student was recorded in the beginning of the questionnaire. Inclusion criteria: All the students who gave their consent were included in the study. Exclusion criteria: All those not present on the day of survey or with the previous history of any psychological illness were excluded. Study Questionnaire was distributed to 900 students, out of which 833 filled and submitted. Response rate was 92%.

Operational definition:

1. Imposter Phenomenon

The subject was not having significant imposter phenomenon if the total CIPS score was ≤ 60 . If the score was more than 60 the person was having significant to intense imposter feelings and phenomenon.¹⁷

2. Self-esteem

For Rosenberg Self Esteem Scale a cut off of 16 was taken. A score of 16 or less was considered low self-esteem and a score of more than 16 was taken as high self-esteem. Higher the score more the self-esteem.¹⁷

3. For the 5 main personality traits based upon TIPI following guidelines were followed.¹⁵

- Conscientiousness; (a) high scores more than 3.2, (b) low scores ≤ 3.2
- Extraversion; (a) high scores more than 2.4, (b) low scores ≤ 2.4
- Agreeableness; (a) high scores more than 3.5, (b) low scores ≤ 3.5
- Emotional Stability; (a) high scores more than 2.9, (b) low scores ≤ 2.9
- Openness to Experience; (a) high scores more than 4.4, (b) low scores ≤ 4.4

4. Academic level

1st and 2nd professional years as basic level

3rd to 5th year as pre-clinical and clinical

Statistical analysis

Data from each response was entered and analyzed by the software; SPSS (IBM Corp. Released 2020. IBM SPSS Statistics for Windows, Version 27.0. Armonk, NY: IBM Corp). Central tendency with dispersion of the continuous data was summarized as mean with standard deviation due to normal pattern of data distribution. Frequencies and percentages were given for qualitative variables. Mean scores between two groups were compared by Independent sample t test and between more than 2 groups by ANOVA and post-hoc Tukey statistics. A Chi-square test was applied to determine the association of Imposter phenomenon with self-esteem, TIPI and gender. A p of less than 0.05 was of statistical significance. Logistic regression analysis was applied to find the significant predictor of Imposter phenomenon after controlling the covariates such as age, gender, self-esteem and personality trait scores.

RESULTS

Out of total 900 students, 833 filled and returned the questionnaire. Response rate was 92%. Mean scores of the quantitative characteristics and proportions of the categorical variables of the subjects are presented in table-1. On the basis of CIPS score, 50.4% (420) of the participants were imposter negative as they were having few imposter feelings (CIPS ≤ 60),

44.8% (373) were having significant imposter feelings (CIPS score: 61-80) and 4.7% (40) were having severe imposter experiences (CIPS >80). Prevalence of imposter phenomenon (table-2) in the participants was 49.5% (413/833).

Table-1: Descriptive characteristics of the study population

Continuous variables Number=833	Mean	\pm SD
Age in years	20.63	1.77
Imposter score	61.87	12.33
Self-esteem score	20.81	4.56
Conscientiousness score	4.21	1.51
Extraversion score	3.75	1.35
Agreeableness score	4.99	1.16
Emotional Stability score	3.43	1.19
Openness to Experience score	4.82	1.21
Categorical variables N=833	Frequency	%age
Gender		
Male	240	28.8
Female	593	71.2
Age group		
16 to 21 years	563	67.6
22 to 28 years	270	32.4
Discipline		
MBBS	345	41.4
BDS	184	22.1
DPT	304	36.5
Academic status (basic/pre-clinical & clinical) N=398/435		
MBBS		
Basic	177	44.5
Preclinical & clinical	168	38.6
BDS		
Basic	85	21.4
Preclinical & clinical	99	22.8
DPT		
Basic	136	34.2
Preclinical & clinical	168	38.6

Total number of study participants represented as N = 833. Central tendency with dispersion for continuous variables is expressed as mean \pm standard deviation. Frequency and percentages are given for categorical variables

Table-2: Prevalence of categorical variables in study population

Variables	Prevalence expressed as	
	Frequency	%age
Imposter Phenomenon		
Yes	413	49.5
No	420	50.5
Self-esteem		
Low	164	19.7
High	669	80.3
Extraversion		
Low	149	17.8
High	684	82.1
Conscientiousness		
Low	166 (19.9%)	19.9
High	667 (80.1%)	80.1
Emotional stability		
Low	237	28.5
High	596	71.5
Agreeableness		
Low	96	11.5
High	737	88.5
Openness to experience		
Low	284	34.1
High	549	65.9

Comparison of scores among the study population:

Mean \pm standard deviation of the CIPS score of total participants was 61.87 ± 12.77 . Mean CIPS score of MBBS, BDS and DPT students are shown in figure-1. Mean CIPS score of DPT was significantly higher than that of the MBBS ($p=0.023$) and BDS ($p=0.04$) students. Higher the score greater the imposter experiences. However, there was no significant difference between the mean score of MBBS and BDS. On the basis of CIPS study population was divided into Imposter positive (>60) and imposter negative (≤ 60) groups. Mean self-esteem, extraversion, conscientiousness and openness to experience score was significantly lower in imposter positive as compared to imposter negative group ($p<0.05$). However, no significant difference was there for the other two traits. Comparison of scores in study population on the basis of impostorism is shown in figure-2. There was significant correlation of self-esteem with imposter score as depicted in figure-3

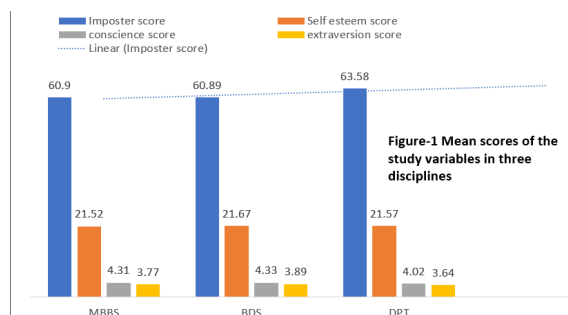


Figure-1 Mean score of the study variables in the study disciplines

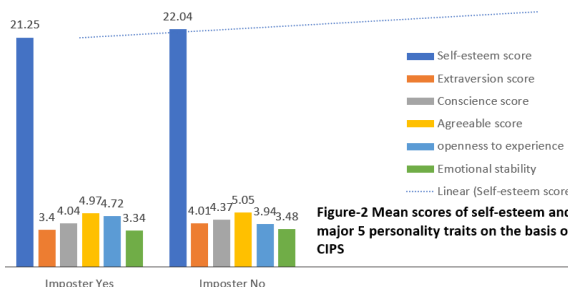


Figure-2 Mean score of self-esteem and major 5 personality traits on the basis of CIPS

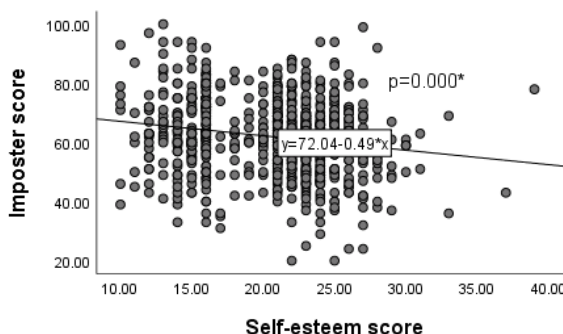


Figure-3: Scatter-plot showing significant negative correlation of self-esteem with imposter score

Association of Imposter phenomenon with self-esteem, personality traits, gender and age

A Chi-square test was applied to determine the association of imposter phenomenon with different study variables such as; age, gender, self-esteem and different personality characteristics including conscientiousness, extraversion, agreeableness, emotional stability and open-ness to experience. There was significant negative association between imposter phenomenon and self-esteem, extraversion and conscientiousness. No significant association of imposter phenomenon was found with agreeableness, openness to experience and emotional stability. Probability of imposter phenomenon was significantly higher in females as compared to males and in the elderly age group (table-3).

Chi-square statistical test is applied for identifying

Table-3: Association of imposter phenomenon with self-esteem, personality traits, gender and age group

Categorical variables	Imposter phenomenon Yes Number (%)	Imposter phenomenon No Number (%)	Total frequency Number =833 (100%)	p-value	Odds ratio (C.I.)
Self esteem					
Low self-esteem	97 (23.5%)	67 (16%)	164 (19.7%)	0.006*	1.61 (1.14-2.29)
High self esteem	316 (76.5%)	353 (84%)	669 (80.3%)		
Personality trait -extraversion					
Not extraverted	98 (23.7%)	51 (12.1%)	149 (17.8%)	0.000*	2.25 (1.55-3.26)
Extraverted	315 (76.3%)	369 (87.9%)	684 (82.1%)		
Personality trait -conscientiousness					
Low-conscientiousness	94 (22.8%)	72 (17.1%)	166 (19.9%)	0.042*	1.42 (1.01-2.01)
High-conscientiousness	319 (77.2%)	348 (82.9%)	667 (80.1%)		
Personality trait -emotional stability					
High emotional stability	292 (70.7%)	304 (72.4%)	596 (71.5%)	0.65	0.92 (0.68-1.24)
Low emotional stability	121 (29.3%)	116 (27.6%)	237 (28.5%)		
Personality trait -agreeableness					
Highly agreeable	365 (88.4%)	372 (88.6%)	737 (88.5%)	0.930	0.98 (0.64-1.50)
Not agreeable	48 (11.6%)	48 (11.4%)	96 (11.5%)		
Personality trait -openness to experience					
Highly open	272 (65.9%)	277 (66%)	549 (65.9%)	0.977	0.99 (0.75-1.35)
Not open	141 (34.1%)	143 (34%)	284 (34.1%)		
Gender					
Male	99 (24.0%)	141 (33.6%)	240 (28.8%)	0.002*	0.62 (0.46-0.85)
Female	314 (76.0%)	279 (66.4%)	593 (71.2%)		
Age group					
16 to 21 years	261 (63.2%)	302 (71.9%)	563 (67.6%)	0.007*	0.67 (0.50-0.90)
22 to 28 years	152 (36.8%)	118 (28.1%)	270 (32.4%)		

Table-4: Binary logistic analysis to determine the significant predictor of imposter phenomenon

Variables that predict imposter phenomenon	B	Exp(B) 95% confidence interval	p-value
Gender	-0.503	0.61(0.44-0.83)	0.001*
Self-esteem	0.374	0.1.45(1.08-1.94)	0.013*
Extraversion	-0.768	0.46(0.32-0.68)	0.000*
Age group	-0.413	0.66(0.49-0.89)	0.007*

the association of categorical variables with imposter phenomenon. A p of ≤ 0.05 is statistically significant Determination of significant predictor of Imposter phenomenon

Binary logistic regression was applied to find out the significant predictor of imposter phenomenon. The

regression was conducted by controlling different study variables such as age, gender, self-esteem, personality traits and discipline level as predictor co-variates whereas imposter phenomenon was the dependent outcome variable. The association of imposter phenomenon remained significant with female gender, low self-esteem and low extraversion

and conscientiousness traits (table-4).

Above table depicts variables that significantly predict imposter phenomenon. Imposter phenomenon was taken as dependent variable, all other categorical covariates such as gender, age group, personality traits and self-esteem were controlled and analyzed as predictors for imposter phenomenon. Binary logistic regression was applied.

DISCUSSION

The present study aimed to determine the prevalence of imposter phenomenon and its association with self-esteem, personality traits, and gender among the medical, dental and allied health undergraduates of a private medical college in Pakistan. The prevalence of imposter phenomenon in our study was found to be 49.5%, out of which 44.8% had significant imposter experiences and 4.7% had severe imposter experiences. Prevalence of impostorism was significantly higher in the female gender (76%) as compared to the male (24%) in the current study and it was more prevalent in the elder age group. According to a previous study in another private medical college in Pakistan prevalence of imposter phenomenon was 47.5% and out of these 53.5% were females.⁶ A study from CMH Lahore reported prevalence of impostorism to be 30.4%.¹⁸ Impostor phenomenon is often reported among females and correlates well with perfectionism, feeling of guilt about their success and fear or apprehension about failure^{19,20}. Another study from dental teaching hospitals of Pakistan on the basis of CIPS scale reported that 15% had few, 70% had moderate and 15% had severe imposter features.²¹

In the present study multiple individual characteristics such as personality traits and self-esteem were analyzed for their association with imposter phenomenon. Prevalence of high self-esteem was found to be 80.3% and low self-esteem 19.7% among study participants. There was significant association of higher imposter experiences with low self-esteem. There is contribution of demographic factors such as ethnicity, culture and socioeconomic background in the progression of self-esteem and imposter feelings.¹⁷ A previous study conducted on individuals with different nationalities reported 18% prevalence of negative self-esteem and 45% prevalence of imposter phenomenon; there was negative correlation between imposter phenomenon and self-esteem.¹⁷ Self-esteem also termed as self-confidence is one of the imperative traits of a thoughtful and healthy mental process. It is described as a feeling of worthiness that one perceives for oneself. It also provides us with the feeling of acceptance of our abilities, state of motivation to fulfil our goals and navigation through our life with positive mind set. It includes feelings of triumph, pride, shame or despair. Academic or non-academic achievements are one of the ways of

uplifting the self-esteem.²² Intense imposter feelings affect thought process and mental well-being.^{23, 24} Impostorism can end in depression, anxiety, burn out and low self-esteem among the sufferers. In order to be a successful leader, it is desirable to have low imposter feelings and high self-esteem.²⁵

CONCLUSION AND RECOMMENDATIONS

The prevalence of imposter phenomenon in our study participants was 49.5% and low self-esteem 19.7%. There was significant association of imposter phenomenon with female gender and elderly age group. The likelihood of exhibiting imposter characteristics was notably higher among individuals with low self-esteem, less extroverted traits, and low levels of conscientiousness. Further studies are required to find the association of imposter phenomenon with ethnic, cultural and sociodemographic background.

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CONFLICT OF INTEREST
 Authors declare no conflict of interest.
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AUTHORS' CONTRIBUTION

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

Conception or Design:	UZ, ZA
Acquisition, Analysis or Interpretation of Data:	UZ, ZA, FA, NUH, AA, AZ
Manuscript Writing & Approval:	UZ, ZA, FA, NUH, AA, AZ

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



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