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ORIGINAL ARTICLE

Prevalence of imposter phenomenon in students and its correlation with burnout syndrome: torn between perfection and exhaustion

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ABSTRACT

Objectives: To investigate the association between Imposter Phenomenon (IP) and demographic variables, examine its correlation with Burnout Syndrome (BOS), and assess the predictive relationships between demographic factors and IP with the three domains of burnout-Depressive Anxiety Syndrome, Depersonalization, and Personal Achievement-among undergraduate students.

Methods: This cross-sectional study was conducted at Isra University, Hyderabad-Pakistan on 296 undergraduate students. Clance Imposter Phenomenon Scale (CIPS) and Maslach Burnout Inventory- Student Survey (MBI-SS) were used to measure imposterism and burnout, respectively. The association between IP and demographic variables was assessed using the Chi-square test, while Pearson's correlation evaluated the relationship between IP and BOS. Multivariate regression analysis was employed to predict BOS.

Results: The mean age of participants was 20.75±1.80 years and 55.74% exhibited IP, with a mean CIPS score of 51.05±19.58. Female gender, urban residence and the medical field of study had a statistically significant association with IP ($p<0.05$). IP demonstrated a strong positive correlation with Depressive Anxiety Syndrome ($r=0.96$, $p<0.001$) and Depersonalization ($r=0.92$, $p<0.001$) and a negative correlation with Personal Achievement ($r=-0.94$, $p<0.001$). Multivariate regression analysis identified IP, female gender and the medical field of study as significant predictors of BOS ($p<0.05$).

Conclusion: Undergraduate students exhibit a remarkably high prevalence of IP which is significantly associated with the female gender, medical field of study and urban residence. IP is also positively correlated with BOS and is a significant predictor of BOS in undergraduate students. This emphasizes the need for targeted psychological interventions to mitigate its impact on students' mental well-being.

Keywords: Imposter Syndrome (MeSH); Burnout, Psychological (MeSH); Burnout Syndrome (MeSH); Mental Health (MeSH); Maslach Burnout Inventory (MeSH); Students (MeSH); Depression (MeSH); Anxiety (MeSH).

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INTRODUCTION

Nearly 50 years ago, Pauline Clance and Suzanne Imes first described the Imposter Phenomenon (IP), also known as Imposter Syndrome (IS), as a psychological condition marked by persistent self-doubt and a constant fear of being unmasked as a fraud, despite evident accomplishments or qualifications.[1,2] Individuals experiencing IP struggle to internalize their successes and often fail to acknowledge their competencies, feeling as though they are less capable or intelligent than others perceive them to be.[3]

Individuals with IP often face anxiety when assigned a task, leading them to either excessively prepare or delay their preparation until the last moment. Over-preparing can lead to the belief that success requires more effort than others put in, which then fosters feelings of being an impostor. On the other hand, procrastination reinforces the belief that successfully completing a task at the last minute was merely a result of fooling others, further deepening the feeling of being an imposter.[4] Regardless of the approach, individuals with IP tend to dismiss positive feedback, failing to integrate their achievements as genuine and instead crediting them to external factors.[5]

IP is commonly found in fields that hold intellect in high regard, such as academia.[6] Considering the high personal expectations and prevalence of perfectionism within the realm of medicine, high performers, particularly in academic settings, like doctors and medical students, have been known to display IP.[6,7] While some individuals use IP as motivation, others find themselves trapped in a self-doubt cycle, negatively impacting their mental well-being and professional growth.[8] IP symptoms have also been correlated with low conscientiousness and high neuroticism.[9] Moreover, studies have also established IP to be a leading contributing factor to the development of burnout.[6]

Herbert Freudenberger, an American psychologist, initially proposed the concept of Burnout syndrome (BOS) in the 1970s, which was later revised by Christina Maslach in the 1980s. BOS encompasses emotional exhaustion, depersonalization, and reduced personal accomplishment.[10] BOS in students, referred to as academic burnout, is characterized by a plethora of symptoms including diminished focus and reduced concentration; memory difficulties such as forgetfulness, failure to recall, and poor retention; frequent headaches, insomnia, persistent feelings of fatigue and helplessness, reduced effort, and unexplained hesitation resulting from academic stressors and performance anxiety.[11] IP often leads to individuals having unrealistically high expectations and pushes them to overwork in order to meet those expectations. This constant pressure

and self-doubt can lead to chronic stress, anxiety, and a sense of emotional exhaustion, which are key components of BOS.[3,12]

The association between IP and BOS is a pressing concern, especially among undergraduates, particularly medical students. These conditions frequently co-exist, sharing characteristics such as heightened anxiety and a persistent sense of inadequacy.[13] The self-imposed pressure to prove oneself, coupled with chronic emotional exhaustion, exacerbates imposter-like feelings, creating a cycle of psychological distress. Understanding this interconnected relationship is crucial, not only for assessing students' mental well-being but also for developing interventions that support their academic success and long-term career sustainability.

This study was planned to gain a deeper understanding of IP in university students by determining its prevalence and exploring its association with variables such as gender, age, area of residence, campus accommodation, and field of study. More specifically, this study aimed to investigate the correlation between individual domains of BOS and IP. Additionally, the study aimed to examine the predictive relationship between demographic factors and IP with the three domains of burnout-Depressive Anxiety Syndrome, Depersonalization, and Personal Achievement-among undergraduate students.

METHODS

This cross-sectional study was approved by the Isra University Ethical Review Board (ERB letter no: IU/RR-10-IRC-23/N/2023/1032) and was conducted at Isra University Hyderabad, Pakistan from May 2023 to October 2023. A total of 296 participants were selected using a non-probability purposive sampling technique, keeping anticipated frequency of Imposter Syndrome at 47%, [14] confidence level at 95%, and margin of error at 5% (OpenEpi). The inclusion criteria were both medical and non-medical undergraduate students between the ages of 17 and 25 who agreed to take part in the study. Whereas students <17 and >25 years, postgraduates, individuals with incomplete survey responses, individuals with previously diagnosed psychological conditions or ongoing mental health treatment, and those who did not provide informed written consent were excluded from the study.

A self-designed structured questionnaire encompassing demographic details such as age, gender, area of residence, accommodation, and year of study was used. Clance Imposter Phenomenon Scale (CIPS) and Maslach Burnout Inventory - Student Survey (MBI-SS) were used to measure imposterism and burnout, respectively.

The CIPS is a globally validated tool comprising 20 items designed to identify IP traits by assessing individuals' perceptions of their competence, recognition, and achievements.[15] Participants rated their responses to each statement on a 5-point Likert scale, reflecting the extent of imposter-like feelings, with scores ranging from 6-100. A total score of ≤ 40 indicated a low presence of imposter characteristics, while scores in the range of 41-60 denoted moderate IS, 61-80 represented frequent IS and scores >80 indicated intense IS feelings. Any participant scoring above 40 on the CIPS was categorized as experiencing IS.[16]

MBI-SS is a well-recognized, valid, and reliable tool for assessing burnout among young adults across three separate domains.[17] Firstly, depressive anxiety syndrome, characterized by chronic fatigue, exhaustion at the idea of work, and/or trouble sleeping; A score of ≤17 indicated low-level, 18-19 indicated moderate, and ≥30 indicated high-level burnout. Secondly, depersonalization, characterized by loss of empathy in interpersonal relations leading to cynicism towards peers; A score of ≤ 5 indicated low-level, 6-11 indicated moderate, and ≥ 12 indicated high-level burnout. Lastly, personal achievement, characterized by a negative assessment of oneself; A score of ≤33 indicated high-level, 34-39 indicated moderate, and ≥40 indicated low-level burnout. Burnout was operationally defined as a high sub-score on depressive anxiety syndrome (≥27) and depersonalization (≥10) subscales and a low sub-score on personal achievement (<33).[18]

Statistical analysis was done using SPSS (version 22). Qualitative variables were summarized as frequencies and percentages, while continuous variables were presented as Mean±SD. The association of IP with various demographic variables was assessed using the Chi-square test. Pearson's correlation analysis was performed to explore the relationships between IP and burnout domains, and multivariate regression analysis was conducted to identify significant predictors of BOS.

RESULTS

The study included 296 participants, with 45.94% males and 54.05% females. Participants' ages varied from 17 to 25 years, with a mean age of 20.75±1.80 years. Figure 1 illustrates the distribution of participants across age groups, categorized by gender.

The majority of the participants belonged to urban areas (59.79%) and had off-campus accommodation (67.90%). 53.04% belonged to a medical while 46.95% belonged to a non-medical field of study. The demographic details of the study participants are given in Table I.

IP was present in 55.74% of participants. The mean CIPS score of the participants was 51.05±19.58. Table II shows the association of IP and various risk factors among the study participants. A statistically significant association of IP was observed with female gender ($p<0.05$) and urban residence ($p<0.05$). However, no significant association of IP was observed with age ($p>0.05$) and campus accommodation ($p>0.05$).

A statistically significant association of IP was also observed with the field of study ($p<0.05$), with a higher prevalence of IP being observed in medical students as compared with non-medical students.

BOS was found to be present in 58.44% of participants. The mean scores of depressive anxiety syndrome, depersonalization, and personal achievement were found to be 24.59±10.68, 12.13±7.49, and 29.45±9.95 respectively. A statistically significant association of BOS was observed with female gender ($p<0.05$) and with the field of study ($p<0.05$),

Table I: Demographic variables of the study participants

Variables		Frequency	Percentage
Age group (in years)	<18	06	2.67
	18-<21	84	37.50
	21-<24	87	38.83
	≥24	47	20.98
Gender	Male	136	45.94
	Female	160	54.5
Residence	Urban	177	59.79
	Rular	119	40.20
Accommodation	Off-campus	201	67.90
	On-campus	95	32.09
Field of study	Medical	157	53.04
	Non-medical	139	46.95
Imposter Phenomenon	Present	165	55.74
	Absent	131	44.25
Year of Study	1st year	55	18.58
	2nd year	66	22.29
	3rd year	58	19.59
	4th year	57	19.25
	5th year	60	20.27

Table II: Association of imposter phenomenon with various risk factors

Risk Factors		Imposter Phenomenon		X^2	p-value
		≤40	>40		
Gender	Male	78	58	17.49	0.001*
	Female	53	107		
Residence	Urban	98	79	22.02	0.001*
	Rular	73	86		
Age	≤21	41	49	0.08	.76
	<21	90	116		
Accommodation	Off-campus	90	111	0.06	.79
	On-campus	41	54		
Field of study	Medical	58	99	7.24	0.007*
	Non-medical	73	66		

* A statistically significant difference (p-value < 0.05) was found using the Chi-square test

with a higher prevalence of BOS being observed in medical students as compared with their non-medical counterparts.

IP was found to have a significant positive correlation with the first two domains of burnout i.e. depressive anxiety syndrome ($r = 0.96$, $p<0.001$), and depersonalization ($r=0.92$, $p<0.001$), while a significant negative correlation with personal achievement ($r = 0.94$, $p<0.001$), as shown in Figure II.

Table III presents the results of the regression analysis examining the predictive relationships between burnout domains-Depressive Anxiety Syndrome, Depersonalization, and Personal Achievement-and independent risk factors, including age, gender, residence, field of study, and Imposter Phenomenon (IP). Statistically significant predictions ($p < 0.05$) were observed for all three burnout domains with the risk factors IP and gender. The field of study significantly predicted Depressive Anxiety Syndrome ($p< 0.05$) and Depersonalization ($p < 0.05$), but not Personal Achievement ($p> 0.05$).

DISCUSSION

This study sought to explore the intricate relationship between IP and BOS in undergraduate students, considering various demographic variables. IP, characterized by negative thinking, self-doubt, and self-sabotaging of one's success, often entails the fear of not meeting expectations and of being exposed as frauds.[19] In the current study, IP was found to be present in 55.74% of the study participants. Similar rates of 32%, 47.5%, 57.8%, and 62.8% have been observed in previous studies conducted in Bangladesh, Pakistan, Saudi Arabia, and China, respectively.[14,20-22] An essential finding in the current study was the association of IP with female gender. Our findings align with studies by Alrayyes et al., Alsaleem et al., Rice et al., and Vilchez-Cornejo et al., all reporting a higher prevalence of IP among females.[18,23-25] Our findings are also consistent with Villwock et al., who observed double the percentage of female students displaying IP compared to their male counterparts in the USA.[3] Patzak et al. reported that both males and females experience feelings of imposterism, but female students experience them more intensely.[26] In contrast, Maftei et al. reported that men and women are equally likely to suffer

Table III: Prediction of burnout categories based on demographic variables and imposter phenomenon

Variables	Depressive Anxiety Syndrome				Depersonalization				Personal Achievement			
	β	Depressive Anxiety Syndrome		p-value	β	95% CI		p-value	β	95% CI		p-value
		Lower	Upper			Lower	Upper			Lower	Upper	
Intercept	-8.311	-13.613	-3.008	0.002*	-12.542	-14.600	-10.485	<0.001*	61.525	64.770	58.279	<0.001*
Age	0.198	-0.033	0.431	0.093	0.020	-0.070	0.110	0.659	-0.028	0.113	-0.171	0.688
Gender	1.882	0.678	3.085	0.002*	1.838	1.371	2.305	<0.001*	-2.373	-1.637	-3.110	<0.001*
Residence	0.673	-0.286	1.632	0.168	1.790	1.418	2.162	<0.001*	-2.436	-1.849	-3.023	<0.001*
Field of study	0.038	-1.121	1.197	0.048*	0.551	0.101	1.001	0.016*	-0.133	0.5760	-0.843	0.071
Imposter	0.484	0.459	0.510	<0.001*	0.347	0.337	0.357	<0.001*	-0.464	-0.448	-0.480	<0.001*

from IP.[27] However, it is essential to consider the possibility that this disparity may stem from an uneven distribution of the sample in their study, where over 70% of participants were female, in contrast to the current study, which maintained a more balanced gender distribution.

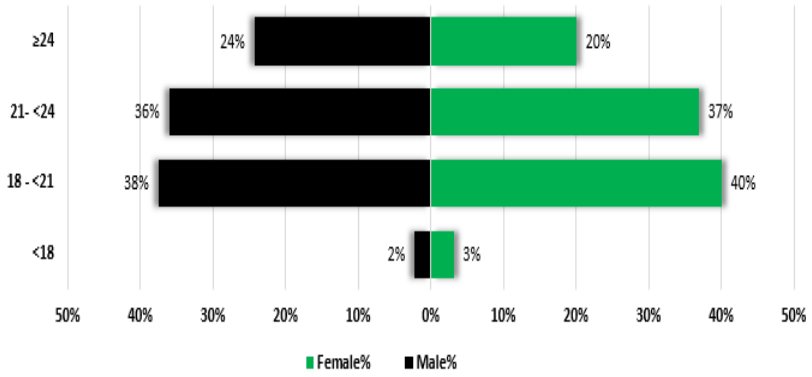

Figure I: Population pyramid depicting age distribution (years) across genders among study participants

IP was also found to be more prevalent among medical students as compared to their non-medical counterparts in the current study. These findings are in alignment with Vilchez-Cornejo et al., who observed that three out of every ten medical students suffer from IP. Similarly, a study conducted in 1998 by Henning et al. found that almost 30% of all medical, dental, pharmacy, and nursing students suffer from IP.[24] This can be attributed to the field of medicine being an achievement arena. The continuous expansion of medical knowledge, coupled with the expectation for students and doctors to stay current, creates pervasive pressure. Medical education, characterized by relentless testing and the constant need to acquire knowledge, further contributes to the development of IP in this demanding environment.[29]

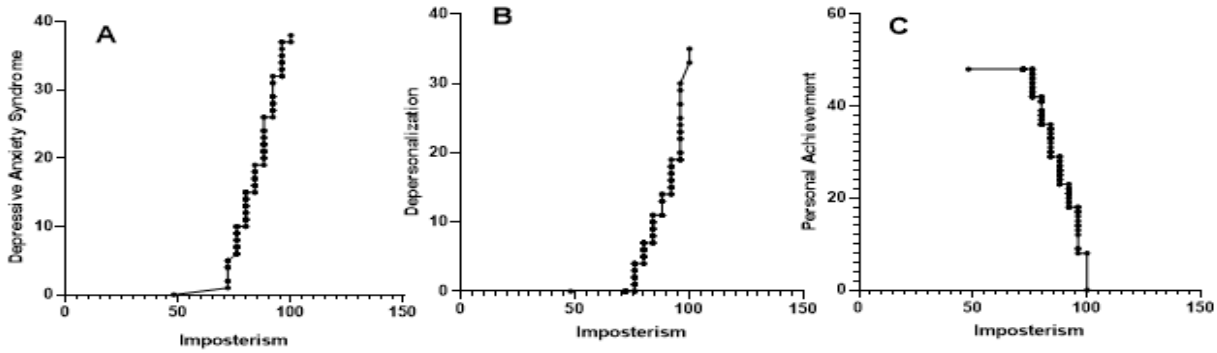

Figure 2: Correlation between imposter phenomenon and burnout categories: **A)** depressive anxiety syndrome, **B)** depersonalization, and **C)** personal achievement

Building on the prevalence of IP among university students, our study also delved into the dynamics of BOS-a psychological symptom stemming from overwhelming academic burden and persistent academic stress, leading students to perceive themselves as unproductive and unsuccessful.[30,31] In the current study, BOS was found to be present in 58.44% of the study participants. Similar results have been reported by Liu et al., who found that university students with BOS accounted for 59.9% in their study.[32] Although the global prevalence of BOS is diverse among university students, a higher prevalence has been observed in Asian countries.[33]

BOS was also found to be more prevalent among medical students as compared to their non-medical counterparts in the current study. Consistently, Rosales-Ricardo et al., in a systemic review on the prevalence of BOS in university students, reported that medical students exhibited a higher prevalence of BOS in contrast with students enrolled in other courses.[34] This can be attributed to the overwhelming volume of information medical students are required to absorb. Medical educators often liken the experience to "drinking from a firehose," illustrating the formidable challenge faced by medical students.[35] Unfortunately, this analogy becomes even more discouraging as the metaphorical "firehose" has expanded in size over recent decades. The progress in medicine and technology requires medical students to acquire a far greater volume of knowledge in a shorter time compared to previous generations. Moreover, students are expected to engage in various extracurricular activities, such as research and leadership roles, to enhance their residency applications. Fiorilli et al. and Almutairi et al. found BOS to be more common in female students and female gender to be a significant predictor of BOS, which aligns with the results of the present study.[36,37]

A key finding of the study was a significant correlation between IP and BOS; students with IP had significantly increased levels of emotional exhaustion, depersonalization, and decreased personal achievement. These findings are in agreement with the findings of Villwock et al., who found a significant association between IP and multiple BOS components in a pilot study conducted on medical students from Jefferson Medical College, USA.[3] Consistently, Campos et al. also reported IP to be significantly associated with BOS among undergraduate students in a study conducted at a university center in northeastern Brazil.[38] Alrayyes et al., in a study conducted on young adults in Saudi Arabia, reported similar findings, demonstrating a statistical association between IP and all three domains of BOS.[18] In addition, Alrayyes et al. also found IP to be a significant predictor of BOS, which is in agreement with the findings of the current study.[18]

In essence, our study unveils a significant correlation between IP and BOS, illuminating the intricate psychological interplay experienced by university students. These findings carry critical implications, as the enduring nature of long-term mental health deficits poses a significant public health burden. Our research also highlights the high prevalence of IP and BOS among university students, particularly among those in medical sciences. However, these are not characteristics that medical education aims to nurture. The prevalence of these psychological phenomena underscores the urgent need for comprehensive support systems within academic institutions. BOS is associated not just with overall distress, subpar academic performance, and higher college dropout rates but also with suicidal ideation among students.[39] Navigating the complexities of higher education highlights the crucial role of fostering mental well-being, benefiting not only individual success but also the academic community as a whole. In moving forward, it is imperative for educational institutions to prioritize the implementation of proactive strategies to address these psychological challenges, ensuring that students not only thrive academically but also maintain optimal mental and emotional well-being throughout their educational journey.

The study's limitations include its cross-sectional design, which restricts the ability to determine causal relationships between IP and BOS. Since the sample was selected from a single institution, the findings may not be easily generalized to other universities or broader populations. Furthermore, the use of self-reported data may introduce recall bias, potentially impacting the accuracy of the responses. Lastly, the study focused on a limited set of demographic variables, and factors such as academic performance and personality traits, which may influence IP and BOS, were not considered.

CONCLUSION

This study demonstrates that IP is highly prevalent among undergraduate students, particularly in females, medical students, and those from urban areas. IP correlates positively with Depressive Anxiety Syndrome and Depersonalization, and negatively with Personal Achievement. Additionally, IP, female gender, and the medical field of study are significant predictors of BOS. These findings emphasize the significance of monitoring student mental health and suggest the need for targeted intervention strategies for at-risk populations.

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AUTHORS' CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

KAM: Conception and study design, acquisition, analysis and interpretation of data, drafting the manuscript, approval of the final version to be published

UMS, UH & HA: Acquisition of data, drafting the manuscript, approval of the final version to be published

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.

CONFLICT OF INTEREST

Authors declared no conflict of interest, whether financial or otherwise, that could influence the integrity, objectivity, or validity of their research work.

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DATA SHARING STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request