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INVESTIGATING THE ASSOCIATION OF IMPOSTER SYNDROME WITH DEPRESSION, ANXIETY AND STRESS OF NURSES IN GOVERNMENT TEACHING HOSPITAL SHAHDARA, LAHORE

Momna, Adeela Qayuum[1], Farhan Mukhtar[2], Muhammad Naeem Nisar[3], Irij Fatima[4], Nuzhat Azam Khan[5], Roman Firdous[6], Noor Azra[7]

[1]MSN Scholar, BSN, University College of Nursing, The Islamia University of Bahawalpur, momnasana909@gmail.com
[2]Assistant Professor, MSN, MPH, University College of Nursing, The Islamia University of Bahawalpur
[3]Associate Professor, MSN, MPH, University College of Nursing, The Islamia University of Bahawalpur
[4]BSN, Government Teaching Hospital Shahdara, Lahore
[5]BSN, Pakistan Kidney and Liver Institute & Research Centre, Lahore
[6]BSN, Nursing Instructor, Al-Razi Institute College of Nursing, Lahore
[7]BSN, Nursing Instructor, Al-Razi Institute College of Nursing, Lahore
[8]MSN Scholar, BSN, University College of Nursing, The Islamia University of Bahawalpur
***Corresponding Author:** Momna, momnasana909@gmail.com

ABSTRACT

Background: Nurses in high-acuity tertiary care settings are particularly vulnerable to psychological distress. While systemic occupational stressors are well documented, internalized experiences such as Imposter Syndrome (IS) remain critically understudied, particularly in the Pakistani context, and their specific association with depression, anxiety, and stress among practicing nurses has not previously been established. **Objectives:** To assess the prevalence of Imposter Syndrome among nurses of Government Teaching Hospital Shahdara, Lahore, and to examine its association with depression, anxiety, and stress. **Methods:** An analytical cross-sectional study was conducted over six months among 123 nurses selected by simple random sampling from a total population of 177. Data were collected using a self-administered questionnaire comprising the Clance Imposter Phenomenon Scale (CIPS) and the Depression Anxiety Stress Scale (DASS-21), and analyzed in SPSS version 26. Shapiro-Wilk and Kolmogorov-Smirnov tests assessed normality; Spearman's correlation and the Kruskal-Wallis H test examined associations. **Results:** The mean CIPS score was 63.17 (SD=20.40), placing the participants in the 'Frequent' imposter-feelings category. Nearly half the sample (48.8%) reported Intense or Frequent levels of IS. Concurrently, clinically elevated depression, anxiety, and stress were reported in 69.9%, 79.7%, and 85.4% of participants, respectively. Contrary to the study hypothesis, Spearman's correlation revealed no statistically significant association between CIPS scores and any DASS-21 subscale (Depression: r=0.031, p=0.735; Anxiety: r=-0.153, p=0.091; Stress: r=-0.004, p=0.966). A clinically notable, though non-significant, trend showed CIPS scores rising monotonically with nursing experience (H=6.701, p=0.082). **Conclusion:** Imposter Syndrome is highly prevalent among nurses in the study setting, co-existing with alarming levels of depression, anxiety, and stress. This pattern likely reflects a ceiling effect of psychological distress driven by systemic occupational stressors, emphasizing the need for institutional interventions addressing both internalized and systemic sources of nurses' psychological burden.

KEYWORDS: Imposter Syndrome; Nurses; Depression; Anxiety; Stress; Pakistan.

INTRODUCTION

Nurses occupy a central position within the healthcare system, delivering care that is at once clinical and deeply emotional, requiring technical competence alongside sustained empathetic engagement with patients and families (1). A nurse's capacity to fulfil these demanding responsibilities depends heavily on confidence in their clinical judgement and on their mental wellbeing, yet the combination of high responsibility, rapid decision-making, and chronic occupational stress creates fertile ground for internalized psychological difficulties (2), which occur more frequently among nurses than in the general working population (3). Imposter Syndrome (IS) is one such difficulty, and it remains a burden nurses carry quietly, rarely named or addressed within the profession.

IS, or the imposter phenomenon, was first described by (4) as a persistent, internalized fear of being exposed as intellectually fraudulent despite clear and repeated evidence of competence. Individuals experiencing this pattern attribute their achievements to luck, timing, or effort rather than genuine ability, so that repeated success does little to weaken the underlying belief of fraudulence (5, 6). For a nurse, a well-managed emergency or a difficult family conversation handled skillfully may be attributed to luck or team support rather than to their own judgement, leaving

an underlying sense of inadequacy intact despite an accumulating record of competent practice (7). Although not a formal psychiatric diagnosis, IS has been shown to meaningfully affect health and occupational functioning (8).

Depression, anxiety, and stress are the outcomes most consistently linked to IS in the literature. The Depression Anxiety Stress Scale (DASS-21) captures all three simultaneously, allowing a study to detect whether IS relates to them uniformly, selectively, or not at all (9). This distinction matters clinically, since interventions targeting anxiety, depressive symptoms, or general stress reactivity differ substantially (10). A systematic review and meta-analysis estimated the global prevalence of IS among healthcare workers at approximately 62%, identifying low self-esteem, anxiety, depression, stress, and burnout as its most consistent correlates (11). Nursing appears especially conducive to IS: constant critical thinking, complex protocols, hierarchical scrutiny, and an unrelenting pressure to avoid error together sustain chronic self-doubt (7, 12), a vulnerability not confined to novices, as experienced nurses moving into new specialties or leadership roles frequently report similar drops in self-assurance (13, 14).

The core symptoms of IS closely resemble the defining features of depression, anxiety, and stress (15). For instance, chronic self-doubt that may feed depressive worthlessness (16, 17), fear of being "found out" produces near-continuous anxious unease, and this psychological overload depletes emotional and cognitive resources, producing stress (18). These pressures intensify within tertiary care hospitals, where nurses manage the most complex, highest-acuity patients (19); a nurse experiencing imposter feelings may hesitate to speak up in an emergency or avoid clarifying an unclear order for fear of appearing incompetent, with direct implications for patient safety (5, 10). A study found a strong positive correlation between CIPS and total DASS-21 scores ($r=0.639$, $p<0.001$), with IS and related demographic factors explaining roughly 45% of the variance in combined psychological distress (8), an association also documented in other professional fields (20, 21).

Despite occupational mental health strain being already reported in Pakistan (22), the more internalized experience of IS, and its relationship with depression, anxiety, and stress, has not been formally investigated among Pakistani nurses. While IS among nurses has been studied globally, and specifically quantified against DASS-21 outcomes among Egyptian nursing students (8), no comparable data exists for practicing nurses within Pakistan, where occupational culture, healthcare system structure, and the cultural acceptability of discussing mental health differ meaningfully from these settings. This represents a clear and clinically consequential evidence gap, necessitating the present study.

Objectives

- To assess the prevalence of Imposter Syndrome among nurses of Government Teaching Hospital Shahdara, Lahore.
- To examine the association between Imposter Syndrome and depression, anxiety, and stress among nurses of Government Teaching Hospital Shahdara, Lahore.

METHODOLOGY

An analytical, cross-sectional study design was employed. The study was conducted at Government Teaching Hospital Shahdara, Lahore, Punjab, Pakitan, over a six-month period (January to June 2026), following approval of the study synopsis. The study population comprised all registered nurses (177) working at the hospital. Sample size was calculated using Yamane's formula, yielding a sample size of 123. A simple random sampling technique was used to select participants for which a complete list of the 177 registered nurses was obtained from the hospital administration, and 123 unique random numbers were generated using a true random number service (Random.org). Eligible participants were registered nurses and nursing managers currently working in clinical roles, holding a professional qualification (General Nursing Diploma, Post Basic Nursing Diploma, or BSN/Post-RN), with a minimum of one year of post-qualification clinical experience. Nurses who had experienced bereavement, a traumatic incident, major personal illness, or divorce within the preceding three months, and those in non-clinical administrative roles, were excluded.

Data were collected using a self-administered questionnaire comprising two sections. Section I captured demographic information (age, professional qualification, nursing experience, working department, and monthly family income). Section II comprised the Clance Imposter Phenomenon Scale (CIPS) and the Depression Anxiety Stress Scale (DASS-21). The CIPS, developed by (23), is a 20-item instrument scored from 20 to 100, categorized as mild (<40), moderate (41–60), frequent (61–80), or intense (>80) imposter feelings, with established high content and construct validity and internal consistency (Cronbach's $\alpha > 0.90$) (8, 24). The scale has previously been used successfully among medical and health-professional students in Pakistan (25-27), supporting its comprehensibility within the local clinical environment; it was therefore administered in its established, unmodified English-language form. The DASS-21 (28) comprises three seven-item subscales measuring depression, anxiety, and stress, each summed independently, with categories of normal, mild, moderate, severe, and extremely severe. Its three-factor structure and excellent internal consistency have been confirmed among Pakistani frontline healthcare workers (Cronbach's $\alpha = 0.953$ overall) (29), and it was also used in its validated English form. As both instruments are internationally validated with documented use in comparable local populations, a fresh Content Validity Index was not calculated.

Data were entered into SPSS version 26. Descriptive statistics (means, standard deviations, frequencies, percentages) summarized demographic and outcome variables. Normality of the CIPS total score and the three DASS-21 subscale scores was assessed using the Shapiro-Wilk and Kolmogorov-Smirnov tests alongside skewness, kurtosis, and

histogram inspection, with $p<0.05$ indicating significant deviation from normality. As normality was violated for the majority of these variables, Spearman's rank-order correlation was used to examine the association between CIPS scores and each DASS-21 subscale, and the Kruskal-Wallis H test was used to compare CIPS scores across demographic subgroups. Statistical significance was set at $p<0.05$ throughout.

RESULTS

As shown in Table 4.1, the sample was predominantly composed of younger to mid-career registered nurses, with the largest group (32.5%, n=40) aged 28–33 years. Regarding professional qualification, most participants held a Post Basic Nursing Diploma (48.8%, n=60), followed by Bachelor's degree holders (30.9%, n=38). Nursing experience was distributed relatively evenly across four categories, with the largest group (28.5%, n=35) reporting 4–6 years of experience. Participants were drawn nearly equally from four clinical departments: OPD (26.0%, n=32), the combined "Others" category encompassing wards and specialties (25.2%, n=31), and Emergency and ICU/CCU (24.4%, n=30 each). Monthly family income was concentrated in the PKR 50,000–100,000 bracket (48.8%, n=60), followed by the >PKR 100,000 bracket (26.8%, n=33) and the <PKR 50,000 bracket (24.4%, n=30).

Table 1. Demographic Characteristics of Participants (N=123)

Variable	Category	n	%
Age (years)	22–27	30	24.4
	28–33	40	32.5
	34–40	30	24.4
	≥40	23	18.7
Professional Qualification	General Nursing Diploma	25	20.3
	Post Basic Nursing Diploma	60	48.8
	Bachelor's Degree	38	30.9
Nursing Experience (years)	1–3	30	24.4
	4–6	35	28.5
	7–10	30	24.4
	>10	28	22.8
Working Department	Emergency	30	24.4
	ICU/CCU	30	24.4
	OPD	32	26.0
	Others	31	25.2
Monthly Family Income (PKR)	<50,000	30	24.4
	50,000–100,000	60	48.8
	>100,000	33	26.8

Regarding Imposter Syndrome, the mean CIPS score for the sample was 63.17 (SD=20.40; range 22–100; median 60.0), placing the participants in the “frequent imposter-feelings” category. As shown in Figure 1, most nurses fell into the moderate (39.8%, n=49) and frequent (25.2%, n=31) categories; 23.6% (n=29) reported intense imposter feelings, while only 11.4% (n=14) demonstrated mild IS characteristics. Combining the frequent and intense categories, nearly half of the sample (48.8%, n=60) experienced clinically significant levels of the imposter phenomenon.

Depression, anxiety, and stress scoring is given in Table 2 which shows that the mean depression score was 14.19 (SD=9.05), with 30.1% (n=37) of nurses in the normal range and the remaining 69.9% reporting mild to extremely severe depressive symptoms. The mean anxiety score was 13.77 (SD=9.40); only 20.3% (n=25) scored within the normal range. The mean stress score was 21.20 (SD=8.23), with only 14.6% (n=18) of nurses falling within the normal stress range. Anxiety was thus the most prevalent of the three outcomes.

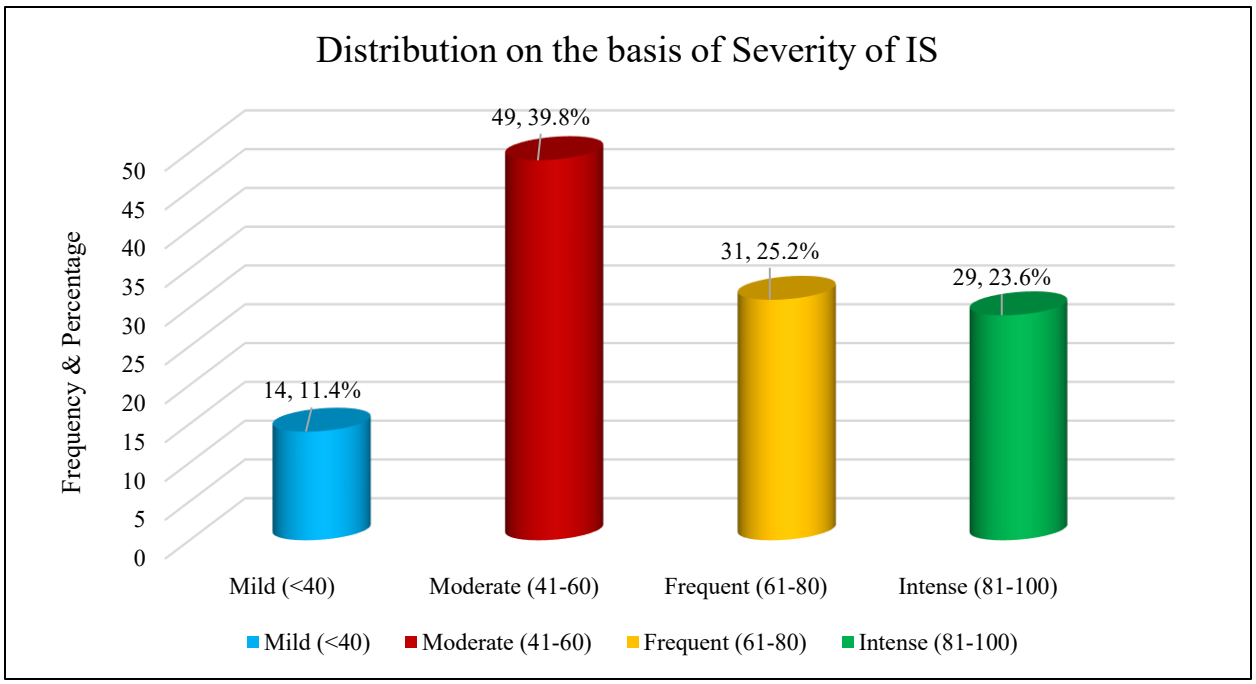


Figure 1: Distribution of participants based on the severity of IS

Table 2. Severity of Depression, Anxiety, and Stress Among Nurses (DASS-21 Subscales)

Variable	Normal n (%)	Mild n (%)	Moderate n (%)	Severe n (%)	Extremely Severe n (%)	Mean ± SD
Depression	37 (30.1)	33 (26.8)	27 (22.0)	12 (9.8)	14 (11.4)	14.19 ± 9.05
Anxiety	25 (20.3)	22 (17.9)	37 (30.1)	20 (16.3)	19 (15.4)	13.77 ± 9.40
Stress	18 (14.6)	37 (30.1)	37 (30.1)	22 (17.9)	9 (7.3)	21.20 ± 8.23

Prior to inferential analysis, the normality of the CIPS total score and the three DASS-21 subscale scores was assessed using the Shapiro-Wilk and Kolmogorov-Smirnov tests (Table 3). The Shapiro-Wilk test indicated significant deviation from normality for the CIPS total score ($W=0.968$, $p=0.005$), depression score ($W=0.948$, $p<0.001$), and anxiety score ($W=0.859$, $p<0.001$), while the stress score did not deviate significantly ($W=0.982$, $p=0.102$). The Kolmogorov-Smirnov test broadly supported this pattern for depression ($D=0.132$, $p=0.025$) and anxiety ($D=0.173$, $p=0.001$), though it did not reach significance for the CIPS total score ($D=0.082$, $p=0.362$) or stress score ($D=0.098$, $p=0.174$). Skewness values ranged from -0.019 (CIPS total score) to 1.355 (anxiety score), with the anxiety score showing a notably right-skewed, peaked distribution consistent with the large proportion of nurses scoring at the more severe end of that subscale. As three of the four key variables violated the normality assumption on at least one formal test, non-parametric tests (Spearman's correlation and the Kruskal-Wallis H test) were used throughout the inferential analysis.

Table 3. Shapiro-Wilk and Kolmogorov-Smirnov Normality Test Results for Key Study Variables

Variable	Skewness	Kurtosis	Shapiro-Wilk W (p)	Kolmogorov-Smirnov D (p)
CIPS Total Score	-0.019	-0.825	0.968 (p=0.005)	0.082 (p=0.362)
Depression Score	0.746	0.146	0.948 (p<0.001)	0.132 (p=0.025)
Anxiety Score	1.355	1.305	0.859 (p<0.001)	0.173 (p=0.001)
Stress Score	0.066	0.069	0.982 (p=0.102)	0.098 (p=0.174)

Spearman's rank-order correlation was conducted to examine the association between total CIPS scores and each DASS-21 subscale, as well as the overall DASS-21 total score (Table 4). No statistically significant correlation was found between IS and any DASS-21 outcome. The correlation between CIPS and depression score was negligible and non-significant (r=0.031, p=0.735); the correlation with anxiety score was weak, negative, and did not reach significance (r=-0.153, p=0.091); the CIPS-stress correlation was essentially zero and non-significant (r=-0.004, p=0.966); and the correlation with the DASS-21 total score was likewise negligible and non-significant (r=-0.006, p=0.947).

Table 4. Spearman's Rank-Order Correlation Between CIPS and DASS-21 Scores

Variables	Spearman's rho (r)	p-value
CIPS vs Depression	0.031	0.735
CIPS vs Anxiety	-0.153	0.091
CIPS vs Stress	-0.004	0.966
CIPS vs DASS-21 Total	-0.006	0.947

Note: p<0.05 was taken as the threshold for statistical significance.

To explore whether IS scores differed across demographic subgroups, mean CIPS scores were compared using the Kruskal-Wallis H test (Table 5). With respect to age, mean CIPS scores showed a slight increase with advancing age, from 60.9 in the 22–27 years' group to 67.0 in nurses aged 40 years and above, but this difference did not reach statistical significance (H=1.421, p=0.701). Differences across professional qualification groups (H=0.062, p=0.969), working department (H=1.624, p=0.654), and monthly income (H=0.572, p=0.751) were similarly non-significant. A notable, near-significant trend was observed for nursing experience (H=6.701, p=0.082), with mean CIPS scores rising progressively from 56.7 among nurses with 1–3 years of experience to 70.1 among those with more than 10 years.

Table 5. Mean CIPS Scores by Demographic Groups (Kruskal-Wallis H Test)

Variable	Category	n	Mean CIPS	SD	H-statistic (p)
Age	22–27 Years	30	60.9	18.8	H=1.421 (p=0.701)
	28–33 Years	40	61.4	18.6	
	34–40 Years	30	64.9	23.8	
	≥40 Years	23	67.0	21.2	
Qualification	General Diploma	25	63.2	16.5	H=0.062 (p=0.969)
	Post Basic Diploma	60	63.8	23.0	
	Bachelor's Degree	38	62.2	18.7	
Experience	1–3 Years	30	56.7	18.4	H=6.701 (p=0.082)
	4–6 Years	35	61.6	20.1	
	7–10 Years	30	65.0	19.2	
	>10 Years	28	70.1	22.5	

Variable	Category	n	Mean CIPS	SD	H-statistic (p)
Department	Emergency	30	61.5	19.5	H=1.624 (p=0.654)
	ICU/CCU	30	63.0	21.2	
	OPD	32	60.8	20.1	
	Others	31	67.4	21.0	
Income	<50,000 PKR	30	60.5	20.1	H=0.572 (p=0.751)
	50,000–100,000 PKR	60	64.5	20.6	
	>100,000 PKR	33	63.1	20.6	

In summary, five key findings emerged from this analysis. First, IS was highly prevalent, with a mean CIPS score of 63.17 (SD=20.40) and 48.8% of nurses reporting Frequent or Intense imposter feelings. Second, psychological distress was widespread alongside this, with 69.9% of nurses reporting elevated depression, 79.7% elevated anxiety, and 85.4% elevated stress. Third, contrary to the study hypothesis, Spearman's correlation found no statistically significant association between CIPS scores and any DASS-21 subscale. Fourth, a near-significant trend was observed for nursing experience, with CIPS scores increasing progressively with years of experience. Fifth, no other demographic variable was significantly associated with IS scores.

DISCUSSION

Three findings stand out as clinically significant i.e. the high prevalence of IS itself, the alarmingly widespread psychological distress across all three DASS-21 domains, and, contrary to the study hypothesis, the absence of a statistically significant correlation between the two.

The mean CIPS score of 63.17 (SD=20.40) placed the average nurse in the Frequent category, with nearly half the sample (48.8%) reporting Frequent or Intense imposter feelings. This is consistent with international evidence describing IS as common and largely non-selective across healthcare and academic populations. Similar imposter feelings spread consistently across the sample with no reliable demographic predictor (30), concluding that IS can affect any type or level of nurse, a conclusion the present findings affirm. Comparably high rates of moderate-to-frequent imposter feelings were found (8), and similarly elevated IS has been documented among medical students (16, 31). These findings extend the evidence of high IS prevalence, previously demonstrated mainly among trainees, to a sample of practicing nurses in a Pakistani tertiary care hospital.

A total of 69.9% nurses reported clinically elevated depression, 79.7% elevated anxiety, and 85.4% elevated stress, with stress the most consistently affected domain. These findings align with, and in several respects exceed, prevalence reported in comparable settings. Widespread psychological distress is documented among emergency department nurses attributable to unrelenting clinical demands (2), while (22) similarly found moderate-to-high burnout linked to rotating duty schedules. Job stressors directly predict nurse burnout through depletion of psychological resources (3), a pathway consistent with the stress levels observed in the present study. Within Pakistan, chronically low staff-to-patient ratios and limited occupational mental health support plausibly compound this burden (27).

The absence of a significant correlation between CIPS and any DASS-21 subscale is the study's most consequential finding, as it directly contradicts the study hypothesis and diverges from a substantial body of prior evidence. A strong positive CIPS-DASS-21 correlation ($r=0.54$, $p<0.001$) was reported (8); similarly, positive associations were found between imposter feelings and psychological distress in university and health-service populations (20, 32). Several contextual factors likely explain this divergence. First, a ceiling effect may have obscured the variance needed to detect an IS-distress correlation: with distress already elevated in the large majority of the sample, no single predictor can meaningfully differentiate outcomes when they are uniformly poor across the cohort. A comparable null finding was reported in a Saudi sample, where IS was not a significant predictor of anxiety despite substantial co-occurring burnout (33). Second, this sample comprised experienced practicing nurses rather than students; in such a population, IS may function more as an amplifier of pre-existing occupational strain than as an independently measurable predictor, an interpretation consistent with (5) observation that IS's impact can be difficult to isolate using discrete clinical measures in naturalistic frontline groups.

CIPS scores increased in a near-significant, monotonic trend with nursing experience ($H=6.701$, $p=0.082$), while age, qualification, department, and income showed no meaningful association with IS. This pattern runs counter to the intuitive expectation that self-doubt should ease with accumulated clinical competence, but is consistent with the concept of progressive exposure described by (13), whereby greater seniority brings increased visibility, responsibility, and peer comparison, each capable of sustaining rather than resolving imposter feelings in institutional cultures lacking psychological safety.

Taken together, the co-occurrence of highly prevalent IS and near-universal psychological distress, even in the absence of a statistical correlation between them, carries a clear clinical message i.e. both phenomena represent significant, independently occurring burdens on this nursing workforce rather than a single problem with one internal driver. This distinction has direct implications for intervention design. Where IS and distress move together, as in the Egyptian nursing student cohort of (8), addressing imposter cognitions directly (through cognitive reframing, mentorship, or peer disclosure) would be expected to reduce distress accordingly. Where, as in the present sample, the two appear to be co-occurring but statistically independent burdens, effective intervention instead requires two parallel tracks: institutional strategies targeting the systemic occupational stressors, staffing ratios, workload, and hierarchical culture, that plausibly drive the distress captured by the DASS-21 (9, 15), alongside psychologically safe leadership practices that specifically normalize self-doubt and reduce the shame historically attached to IS (10). Given that imposter feelings have elsewhere been linked to hesitancy in speaking up during emergencies and to accelerated burnout (5), the clinical stakes of leaving IS unaddressed extend beyond individual nurse wellbeing to the safety margins of patient care itself.

These findings should be interpreted alongside the study's cross-sectional, single-site design, which precludes causal inference and limits generalizability beyond this hospital, and the reliance on self-reported measures, which may have led some nurses to under-report imposter feelings given professional pressure to appear competent. The absence of a comparison group further limits attribution of the observed distress specifically to this institutional context.

CONCLUSION

This study provides the first quantitative assessment of Imposter Syndrome (IS) and its relationship with depression, anxiety, and stress among practicing nurses in a Pakistani tertiary care hospital. The findings support a two-track response. First, hospital administrators and nurse managers should prioritize psychologically safe leadership and integrate IS psychoeducation into orientation and continuing professional development, so that self-doubt is normalized rather than silently endured, with particular attention to senior and experienced nurses. Second, given the near-universal prevalence of psychological distress independent of IS status, institutions should establish accessible occupational mental health support, including routine, confidential screening, to address the systemic occupational stressors that appear to be the dominant driver of depression, anxiety, and stress in this workforce. For nursing education, embedding awareness of IS into undergraduate and postgraduate curricula may help normalize these experiences before they become entrenched in clinical practice.

The cross-sectional, single-site design and reliance on self-reported measures limit causal inference and generalizability, and future research using longitudinal, multi-site designs with larger, adequately powered samples is needed to clarify whether the IS-distress association observed elsewhere in the literature emerges over time or in different institutional contexts within Pakistan. Qualitative investigation into the lived experience of IS among Pakistani nurses would further illuminate the cultural, hierarchical, and gendered dimensions that quantitative instruments alone cannot capture. Nevertheless, by establishing the first empirical benchmark for IS among practicing nurses in Pakistan, this study provides a foundation against which future institutional interventions can be measured and extends the evidence base for a psychological burden that nurses have, until now, largely carried in silence.

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