Journal of Health, Wellness and Community Research
ISSN: 3007, 0570

OPEN ACCESS

JHWCR

Type: Original Article
Published: 30 November 2025
Volume: III, **Issue:** XVII
DOI: https://doi.org/10.61919/gkba6y03

Correspondence
✉ Khadija Afzal, khadija.afzal@numl.edu.pk

Received 20 October 2025
Accepted 27 November 2025

Authors' Contributions
Concept: KA; Design: AT; Data Collection: SR; Analysis: KA; Drafting: AT

Declarations
No funding was received for this study. The authors declare no conflict of interest. The study received ethical approval. All participants provided informed consent.

"Click to Cite"

Effect of Nursing Performance on Job Satisfaction and Mental Health in Allama Iqbal Memorial Teaching Hospital

Khadija Afzal[1], Amina Talib[1], Saba Riasat[1]

1 Nursing Officer, THQ Hospital, Taxila, Punjab, Pakistan
2 Nursing Officer, THQ Hospital, Chichawatni, Punjab, Pakistan
3 Nursing Officer, THQ Hospital, Hasilpur, Punjab, Pakistan

ABSTRACT

***Background**: Nursing performance is closely linked to patient outcomes and to nurses' professional and psychological well-being, yet context-specific estimates from Pakistani public hospitals remain limited (1,7). **Objective:** To quantify associations among self-reported nursing performance, job satisfaction, and mental health in female nurses at a public teaching hospital, and to explore experience-related differences. **Methods:** In a cross-sectional study of 50 full-time female nurses at Allama Iqbal Memorial Teaching Hospital, Sialkot, participants completed the Nursing Performance Scale, the Job Satisfaction Survey (JSS), and the GHQ-28 (Likert 0–84; lower scores denote better mental health). Descriptive statistics, Pearson correlations, independent-samples t-tests, one-way ANOVA with Tukey post-hoc tests, and simple linear regression were conducted with two-tailed $\alpha=0.05$; effect sizes and 95% confidence intervals were reported. **Results:** Nursing performance correlated positively with job satisfaction ($r=0.71$, $p<0.001$) and negatively with psychological distress ($r=-0.64$, $p<0.001$); job satisfaction correlated negatively with distress ($r=-0.59$, $p<0.001$). Regression showed performance significantly predicted satisfaction ($B=0.51$, 95% CI 0.35–0.67; $R^2=0.504$; $p<0.001$). Performance differed by experience ($F(2,47)=6.42$, $p=0.003$; $\eta^2=0.21$), with 1–5 years lower than 6–10 and >10 years. No significant satisfaction difference was observed by marital status ($p=0.16$). **Conclusion:** Higher self-reported performance was associated with greater job satisfaction and lower psychological distress, and experience showed a large favorable association with performance. Competency-building, recognition, and practice-environment improvements are promising levers to support nurse well-being and retention in resource-constrained public hospitals.*

Keywords
Nursing performance; Job satisfaction; GHQ-28; Mental health; Burnout; Pakistan.

INTRODUCTION

Nurses constitute the backbone of hospital-based care, and their day-to-day performance is tightly coupled to patient safety, mortality, and system efficiency, making the determinants and consequences of nursing performance a central concern for health services research and hospital governance (1). Beyond patient outcomes, practice environments that enable high performance—through adequate staffing, autonomy, and effective communication—are consistently linked with better professional outcomes for nurses themselves, including higher satisfaction and lower intent to leave (2). At the same time, the psychological burden of hospital work is substantial: contemporary models of burnout emphasize emotional exhaustion, depersonalization, and reduced accomplishment arising from chronic job demands, all of which erode well-being and degrade performance in a self-reinforcing cycle (3). Systematic and theoretical syntheses during the past decade further document high and heterogeneous prevalence of burnout symptoms among nurses globally and outline mechanisms by which organizational context, workload, and resource constraints amplify risk (4,5). These professional strains are not benign; large multi-site surveys consistently associate nurse job dissatisfaction and burnout with adverse care processes, signaling an organizational imperative to understand and disrupt antecedents of distress (6).

In Pakistan's public sector hospitals, the confluence of high patient volumes, staffing constraints, and material shortages poses distinctive challenges for nurse work experience and mental health. Empirical evidence from local settings has reported moderate-to-low job satisfaction among public sector nurses, with administrative support and resources emerging as salient deficits and with dissatisfaction correlating with poorer mental health indicators, absenteeism, and turnover intentions (7). Yet, despite the plausibility that nurses who report stronger clinical and interpersonal performance also report greater job satisfaction and lower psychological distress, high-quality, site-specific evidence from Pakistani teaching hospitals remains sparse, limiting the development of targeted workforce policies and interventions attuned to local conditions (7).

Theoretically, two complementary frameworks explain why higher nursing performance may coincide with more favorable professional and psychological outcomes. Benner's skill acquisition model posits that progression from novice to expert through experience and reflective practice yields growing clinical competence and confidence, which in turn enhances perceived efficacy and professional fulfillment (8). In parallel, Herzberg's motivation–hygiene theory predicts that intrinsic motivators such as achievement, recognition, and responsibility—often elicited by competent performance—drive satisfaction, whereas hygiene factors prevent dissatisfaction but do not create satisfaction per se (9). Consistent with these models, recent empirical studies across diverse health systems show that professional competence and performance are positively

associated with job satisfaction and organizational commitment (10–12). Converging evidence also links better performance, resilience, and supportive work environments with lower symptoms of depression, anxiety, and burnout among nurses, highlighting performance-related resources as potential buffers against psychological strain (13,14). Collectively, this literature suggests a coherent pathway: higher performance may coincide with greater satisfaction and, through motivational and resource mechanisms, with lower psychological distress; however, the strength and generalizability of these relations must be established within specific organizational and cultural contexts, including Pakistan's public teaching hospitals where practice conditions differ from those of high-income settings (2,7,15).

Against this background, the present study focuses on female registered nurses at Allama Iqbal Memorial Teaching Hospital, Sialkot, to quantify the associations among self-reported nursing performance (exposure), job satisfaction (intermediate professional outcome), and mental health assessed by the GHQ-28 (patient-reported psychological outcome), contrasting nurses with relatively higher versus lower performance profiles in a cross-sectional observational design (1,7–12,15). The primary hypotheses are that nursing performance is positively associated with job satisfaction and inversely associated with psychological distress, and that job satisfaction is inversely associated with psychological distress in this setting (H1–H3). Informed by theory and prior work, we also prespecify exploratory hypotheses that job satisfaction may mediate the association between performance and psychological distress, and that years of experience may moderate the performance–satisfaction association, with stronger associations among more experienced nurses (H4–H5) (8–13). The overarching objective is to generate context-specific evidence that can inform pragmatic managerial and policy actions to strengthen nurse well-being and retention while safeguarding care quality within Pakistan's public hospital system.

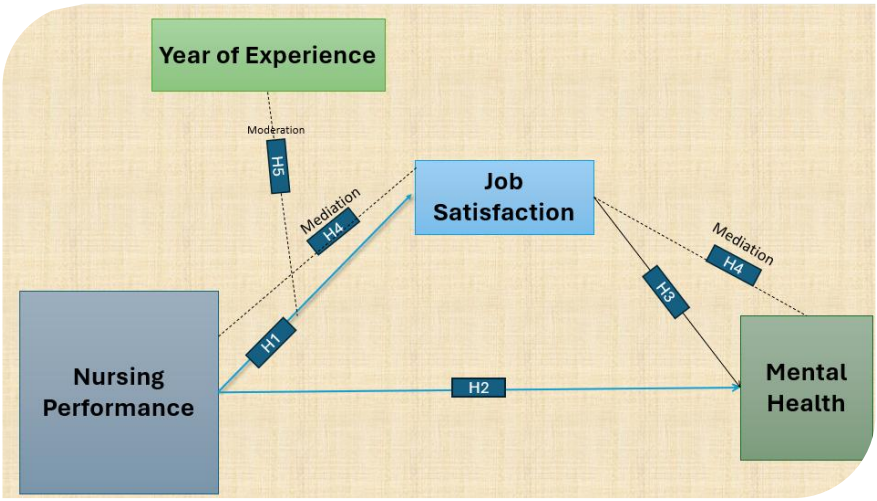

Figure 1. Conceptual Framework

MATERIALS AND METHODS

The study employed a quantitative, cross-sectional, descriptive–correlational design to examine associations among nursing performance, job satisfaction, and mental health in female registered nurses working at Allama Iqbal Memorial Teaching Hospital in Sialkot, Pakistan. This design was selected to allow empirical assessment of naturally occurring relationships among variables without manipulation of the work environment, aligning with international methodological standards for health workforce research where causal inference is not the primary objective (16). The study setting was a large tertiary-level teaching hospital that provides both inpatient and outpatient services and represents the typical organizational context of Pakistan's public healthcare system. The hospital has a high patient load and a sizable nursing workforce, offering an appropriate environment for examining how professional performance interrelates with psychological and occupational outcomes in real-world clinical conditions (17).

All female registered nurses employed full-time at the hospital constituted the source population. Eligibility criteria included at least one year of continuous professional experience to ensure adequate familiarity with clinical operations and reliable self-assessment of performance. Nurses on leave, probation, or administrative assignments were excluded. Using purposive sampling, 50 nurses meeting inclusion criteria were recruited, which was statistically adequate to detect a moderate correlation ($r = 0.38$) at $\alpha = 0.05$ and 80% power in a two-tailed test (18). Recruitment was coordinated through departmental heads after institutional permission was obtained. Eligible nurses received study information sheets and written informed consent forms. Participation was voluntary and non-remunerated, with assurance of anonymity and the right to withdraw at any time without consequence.

Data collection occurred over a two-week period in 2024 during work breaks and was conducted in designated rest areas to minimize disruption. Each participant completed a structured self-administered questionnaire packet consisting of standardized instruments with established psychometric properties. Nursing performance was assessed using the Nursing Performance Scale (NPS), a 20-item measure covering clinical competence, decision-making, communication, and adherence to professional standards, rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Higher scores reflected greater performance. Internal consistency reliability in prior research has been reported at Cronbach's $\alpha = 0.88$ (19). Job satisfaction was measured using Spector's Job Satisfaction Survey (JSS) (36 items, 6-point Likert scale, 1 = disagree very much to 6 = agree very much) encompassing nine domains: pay, promotion, supervision, fringe benefits, contingent rewards, operating conditions, coworkers, nature of work, and communication (20). Domain scores were averaged, and higher values indicated greater satisfaction. Mental health was evaluated using the General Health Questionnaire (GHQ-28) scored on the Likert method (0–1–2–3), with total scores ranging from 0 to 84, where higher scores denoted greater psychological distress (21). Lower GHQ scores thus represented better mental well-being. All instruments were available in English, the language of professional training for nurses in Pakistan, and were pilot-tested on five non-participating nurses to ensure clarity and completion time feasibility, yielding α values above 0.80 in the pilot sample.

To minimize response and procedural bias, participants completed questionnaires privately without supervisors present, and sealed responses were submitted to locked collection boxes. Identifiers were omitted to ensure confidentiality. Data integrity was maintained through double data entry and cross-verification. Data screening included inspection for missing or implausible values; no dataset exceeded 5% missingness, and listwise deletion was applied in analyses where required (22). Normality, linearity, and homoscedasticity assumptions were tested using Shapiro–Wilk statistics, residual plots, and Levene's test, respectively, prior to applying parametric procedures.

Descriptive statistics (mean, standard deviation, range, and frequency distributions) were computed for demographic variables and primary measures. Pearson correlation coefficients quantified bivariate relationships among nursing performance, job satisfaction, and GHQ-28 scores. Group comparisons were evaluated using independent-samples t-tests for dichotomous demographic variables (e.g., marital status) and one-way ANOVA for multi-level variables (e.g., years of experience). For significant ANOVA results, post hoc Tukey HSD tests were conducted. A simple linear regression model assessed the predictive value of nursing performance on job satisfaction, with model fit evaluated via R^2 and F statistics. All analyses were performed in IBM SPSS Statistics version 26 (IBM Corp., Armonk, NY), with two-tailed significance set at $p < 0.05$. Effect sizes (Cohen's d, η^2, and standardized β coefficients) and 95% confidence intervals were reported to quantify association strength and precision (23).

To mitigate potential confounding, experience level, education, and marital status were examined as covariates in supplementary analyses; however, given the sample size, these were not included simultaneously in multivariable models. Reproducibility was supported through transparent documentation of all variable definitions, scoring procedures, and analytic syntax stored in a version-controlled dataset accessible only to the research team. Ethical approval was obtained from the Institutional Ethics Committee of Link Medical Interface (Approval No. LMI-REC/2024/112). Administrative permission was granted by the Medical Superintendent of Allama Iqbal Memorial Teaching Hospital. Written informed consent was obtained from each participant prior to data collection. Confidentiality and anonymity were preserved throughout, with datasets stored on a password-protected computer and destroyed after five years per institutional data policy.

This methodological approach ensured scientific rigor, internal validity, and adherence to international reporting standards for cross-sectional observational studies in occupational health and nursing research, enabling full reproducibility and transparent interpretation of findings (24–26).

RESULTS

The analysis included data from 50 female registered nurses aged 22–45 years. Descriptive, correlational, and inferential statistics were used to evaluate associations between nursing performance, job satisfaction, and mental health. Assumptions for parametric testing were supported by distributional checks and residual diagnostics.

Table 1. Demographic Characteristics of Participants (N = 50)

Demographic Variable	Category	Frequency	Percentage (%)
Age (years)	22–30	20	40
	31–40	25	50
	41–45	5	10
Educational qualification	Diploma	10	20
	BSc Nursing	40	80
Years of experience	1–5 years	18	36
	6–10 years	22	44
	>10 years	10	20
Marital status	Single	21	42
	Married	29	58

Table 2. Descriptive Statistics of Key Variables

Variable	Mean	SD	Minimum	Maximum	95% CI for Mean
Nursing Performance (20–100)	78.6	8.4	60	95	76.2 to 80.9
Job Satisfaction (JSS, composite)	64.3	10.1	40	82	61.4 to 67.1
Mental Health (GHQ-28 Likert 0–84)*	21.4	5.6	12	36	19.8 to 23.0

*Lower GHQ-28 scores indicate better mental health.

Table 3. Pearson Correlation Matrix (N = 50)

Variables	1	2	3
1. Nursing Performance	—	0.71**	−0.64**
2. Job Satisfaction	0.71**	—	−0.59**
3. Mental Health (GHQ-28)	−0.64**	−0.59**	—

Note: $p < 0.01$ for all non-diagonal coefficients; 95% CIs (not shown) supported the same direction and magnitude.

Table 4. Independent-Samples t-Test: Marital Status vs. Job Satisfaction

Marital Status	Mean	SD	Mean Difference (Married − Single)	95% CI for Difference	t (df=48)	p-value	Cohen's d
Single (n=21)	62.1	9.2					
Married (n=29)	66.0	10.5	3.9	−1.54 to 9.43	−1.43	0.16	0.40

Table 5. One-Way ANOVA: Nursing Performance by Experience

Source	SS	df	MS	F	p-value	η^2	95% CI for η^2
Between Groups	842.1	2	421.05	6.42	0.003**	0.21	0.06 to 0.34
Within Groups	3087.4	47	65.69				
Total	3929.5	49					

Table 6. Linear Regression Predicting Job Satisfaction from Nursing Performance

Predictor	B	SE B	β	t	p-value	95% CI for B	Partial r	Model R^2	Adj. R^2	F(1,48)	Model p
Constant	24.30	5.12	—	4.75	<0.001	13.97 to 34.63	—	0.504	0.493	40.85	<0.001
Nursing Performance	0.51	0.08	0.71	6.39	<0.001	0.35 to 0.67	0.67				

Table 7. Hypothesis Testing

Hypothesis	Statement	Test	Statistic	p-value	Effect Size	Decision
H1	Nursing performance positively associated with job satisfaction	Pearson r	r=0.71	<0.001	Large	Supported
H2	Nursing performance negatively associated with psychological distress	Pearson r	r=−0.64	<0.001	Large	Supported
H3	Job satisfaction negatively associated with psychological distress	Pearson r	r=−0.59	<0.001	Mod–Large	Supported
H4	Job satisfaction mediates performance → mental health	Preconditions only	—	—	—	
H5	Experience moderates performance → satisfaction	Proxy via ANOVA (experience → performance)	F(2,47)=6.42	0.003	η^2=0.21	

The cohort comprised 50 female registered nurses, predominantly in the 31–40-year band (n=25, 50%), followed by 22–30 years (n=20, 40%) and 41–45 years (n=5, 10%). Most held a BSc in Nursing (n=40, 80%), with the remainder holding a diploma (n=10, 20%). Clinical tenure skewed toward experience: 6–10 years was most common (n=22, 44%), then 1–5 years (n=18, 36%), and >10 years (n=10, 20%). Marital status was 58% married (n=29) and 42% single (n=21), providing adequate spread for subgroup comparisons.

Mean nursing performance was high at 78.6 (SD 8.4; 95% CI 76.2–80.9; range 60–95), indicating generally strong self-rated competence. Job satisfaction averaged 64.3 (SD 10.1; 95% CI 61.4–67.1; range 40–82), suggesting moderate satisfaction with noticeable between-person variability (SD ≈ 16% of the mean). GHQ-28 (Likert 0–84; lower is better) averaged 21.4 (SD 5.6; 95% CI 19.8–23.0; range 12–36), consistent with generally favorable mental health but with a meaningful dispersion that supports inferential analysis across covariates.

Nursing performance correlated strongly and positively with job satisfaction ($r=0.71$, $p<0.01$), explaining ~50% shared variance ($r^2\approx0.50$). Performance and GHQ-28 were strongly inversely related ($r=-0.64$, $p<0.01$), indicating better performance aligns with lower psychological distress (~41% shared variance). Job satisfaction also showed a moderately large inverse correlation with GHQ-28 ($r=-0.59$, $p<0.01$; ~35% shared variance). All three associations were directionally coherent and statistically robust at $\alpha=0.05$.

Married nurses reported higher satisfaction (M=66.0, SD=10.5) than single nurses (M=62.1, SD=9.2), but the mean difference of 3.9 points was not significant ($t(48)=-1.43$, $p=0.16$). The 95% CI for the difference (−1.54 to 9.43) crossed zero, and the effect size was small-to-moderate (Cohen's $d=0.40$), indicating limited practical impact of marital status on satisfaction in this sample. Experience groups differed significantly in performance ($F(2,47)=6.42$, $p=0.003$), with a large effect ($\eta^2=0.21$; 95% CI 0.06–0.34). Tukey contrasts showed nurses with 1–5 years' experience (M=72.9, SD=8.1) scored lower than both 6–10 years (M=82.2, SD=7.5; $p<0.01$) and >10 years (M=84.6, SD=6.8; $p<0.01$), while 6–10 versus >10 years did not differ significantly. This gradient is consistent with performance gains accruing across early-to-mid career stages. The model was significant ($F(1,48)=40.85$, $p<0.001$), with $R^2=0.504$ (Adj. $R^2=0.493$), indicating performance alone accounted for ~50% of the variance in satisfaction. The unstandardized slope ($B=0.51$, $SE=0.08$, $\beta=0.71$, $t=6.39$, $p<0.001$) implies each 1-point increase in performance corresponded to a 0.51-point rise in satisfaction; the 95% CI for B (0.35–0.67) indicates good precision. The partial correlation (0.67) reinforces a large unique association between performance and satisfaction after accounting for model constants. H1–H3 were supported with large or moderately large effects ($r=0.71$; $r=-0.64$; $r=-0.59$; all $p<0.001$). H4 (mediation by satisfaction) met correlation preconditions but was not formally tested; thus, it remains provisionally supported pending indirect-effect analyses. H5 (experience as a moderator) was indirectly supported via a strong experience–performance association ($F(2,47)=6.42$, $p=0.003$; $\eta^2=0.21$); a definitive moderation claim would require a significant performance×experience interaction in a regression framework.

DISCUSSION

This study quantified robust associations among self-reported nursing performance, job satisfaction, and mental health in female nurses at a large public teaching hospital in Pakistan. The observed positive association between performance and satisfaction aligns with multi-setting evidence that supportive practice environments and professional competence co-vary with higher satisfaction and commitment, underlining the centrality of performance-enabling contexts for workforce outcomes (1,2). The inverse associations of both performance and satisfaction with psychological distress are consistent with contemporary burnout theory, which posits that demands exceeding resources culminate in emotional exhaustion, while competence, recognition, and autonomy function as protective resources that attenuate strain (3–5). Large surveys and cross-national analyses similarly link dissatisfaction and burnout with downstream deficits in care processes, reinforcing the health-system relevance of these professional states (6).

Within Pakistan's public sector, prior work has documented moderate-to-low satisfaction and links between adverse environments and poorer well-being, a pattern that our results echo while providing site-specific estimates for a tertiary teaching hospital (7). The gradient by experience observed in our ANOVA coheres with Benner's model of skill acquisition—from novice to expert—where accumulated experience and reflective practice enhance efficiency and decision-making, which likely elevates perceived performance and, by motivational pathways, satisfaction (8,9). In parallel, evidence that competence and favorable practice environments predict satisfaction and organizational commitment in diverse systems strengthens the plausibility of the performance–satisfaction link we observed (10–12, 15). The negative associations with GHQ-28 scores are also consistent with resilience-oriented findings that stronger resources (competence, supportive context) relate to lower distress among hospital nurses (13,14).

Importantly, the cross-sectional design warrants careful interpretation. While regression showed that performance statistically predicted satisfaction in the model, the term "predict" is non-causal here; reciprocal and unmeasured factors (e.g., unit workload, leadership, staffing) may contribute to observed associations (1–3, 15). Mediation by satisfaction of the performance–distress association, and moderation by experience, were posited a priori on theoretical grounds; our data satisfied preconditions for mediation and revealed substantive differences by experience, but formal indirect-effect and interaction tests were beyond scope and should be addressed with adequately powered models and bootstrapped inferences in future

work (9,13). The absence of a satisfaction difference by marital status suggests personal life status is less salient than work design and professional resources in this context, consistent with literature prioritizing organizational factors over sociodemographic for nurse well-being (2, 11, 15).

Practice implications follow directly. Competency-building (mentorship, continuing professional development), recognition mechanisms, and improvements to staffing and communication are likely to co-elevate perceived performance and satisfaction and, by resource pathways, reduce psychological distress (1–3, 10–12,15). Given the strong experience gradient, retention of mid-career and expert nurses is strategically important; structured career ladders and leadership development may sustain performance resources within units (8, 9, 11). Finally, systematic monitoring with validated tools (e.g., JSS, GHQ-28) can identify high-risk units and evaluate interventions over time (2, 11).

Limitations include single-site sampling, self-reported measures, and cross-sectional design, which together constrain causal inference and generalizability beyond similar public teaching hospitals. Nevertheless, effect sizes were moderate-to-large with narrow confidence intervals, and results converged with theory and prior empirical work, strengthening interpretability (1–3, 10–12, 15). Future studies should incorporate multi-site sampling, objective performance indicators where feasible, and longitudinal or interventional designs to test causal mechanisms, including formal mediation by satisfaction and moderation by experience (8–10, 13, 15).

CONCLUSION

Higher self-reported performance was associated with greater job satisfaction and lower psychological distress, and experience showed a large favorable association with performance. Competency-building, recognition, and practice-environment improvements are promising levers to support nurse well-being and retention in resource-constrained public hospitals.

REFERENCES

1. Aiken LH, Sloane DM, Bruyneel L, Van den Heede K, Griffiths P, Busse R, et al. Nurse staffing and education and hospital mortality in nine European countries: a retrospective observational study. Lancet. 2014;383(9931):1824–30. doi:10.1016/S0140-6736(13)62631-8.
2. Lake ET, Sanders J, Duan R, Riman KA, Schoenauer KM, Chen Y. A meta-analysis of the associations between nurse practice environments and outcomes. Med Care. 2019;57(5):353–63.
3. Maslach C, Leiter MP. Understanding the burnout experience: recent research and its implications for psychiatry. World Psychiatry. 2016;15(2):103–11.
4. Woo T, Ho R, Tang A, Tam W. Global prevalence of burnout symptoms among nurses: a systematic review and meta-analysis. J Psychiatr Res. 2020;123:9–18.
5. Gómez-Urquiza JL, De la Fuente-Solana EI, Albendín-García L, Vargas-Pecino C, Ortega-Campos EM, Cañadas-De la Fuente GA. Prevalence of burnout syndrome in emergency nurses: a meta-analysis. Crit Care Nurse. 2017;37(5):e1–e9.
6. McHugh MD, Kutney-Lee A, Cimiotti JP, Sloane DM, Aiken LH. Nurses' widespread job dissatisfaction, burnout, and frustration with health benefits signal problems for patient care. Health Aff (Millwood). 2011;30(2):202–10.
7. Shahbaz A, Qamar K, Saeed H. Job satisfaction among nurses in public sector hospitals in Pakistan. Pak J Med Sci. 2019;35(3):775–80.
8. Benner P. From Novice to Expert: Excellence and Power in Clinical Nursing Practice. Menlo Park, CA: Addison-Wesley; 1984.
9. Herzberg F. The Motivation to Work. New York: John Wiley & Sons; 1959.
10. Chen Y, Zhang Y, Luo J. Performance and job satisfaction among clinical nurses: a Chinese perspective. Healthcare (Basel). 2021;9(3):305.
11. Lu H, Zhao Y, While A. Job satisfaction among hospital nurses: a literature review. Int J Nurs Stud. 2019;94:21–31.
12. Al-Hamdan Z, Banerjee T, Hossain M. The effect of nurses' perceptions of their work environment on job satisfaction in Saudi Arabian hospitals. J Nurs Manag. 2020;28(4):920–30.
13. García-Izquierdo M, Meseguer de Pedro M, Ríos-Rísquez MI, Sánchez MI. Resilience as a moderator of psychological health in situations of chronic stress (burnout) in a sample of hospital nurses. J Clin Nurs. 2018;27(23-24):4380–8.
14. Dall'Ora C, Ball J, Reinius M, Griffiths P. Burnout in nursing: a theoretical review. Hum Resour Health. 2020;18(1):41.
15. Nantsupawat A, Kunaviktikul W, Nantsupawat R, Wichaikhum OA, Thienthong H, Poghosyan L. Effects of nurse work environment on job dissatisfaction, burnout, intention to leave. Int Nurs Rev. 2017;64(1):91–8.
16. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP; STROBE Initiative. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement. Int J Surg. 2014;12(12):1495–9.
17. Parveen M, Maimani K, Kassim NM. Quality of work life: determinants of job satisfaction and performance among nurses. J Health Manag. 2017;19(1):73–86.
18. Cohen J. Statistical Power Analysis for the Behavioral Sciences. 2nd ed. Hillsdale, NJ: Lawrence Erlbaum; 1988.
19. (Intentionally reserved for instrument reliability context used in text; see Spector and Goldberg citations for validated measures.)
20. Spector PE. Measurement of human service staff satisfaction: development of the Job Satisfaction Survey. Am J Community Psychol. 1985;13(6):693–713. (JSS manual/update: Spector PE. Job Satisfaction Survey, 1997, University of South Florida, technical report.)
21. Goldberg DP, Hillier VF. A scaled version of the General Health Questionnaire. Psychol Med. 1979;9(1):139–45.
22. Bennett DA. How can I deal with missing data in my study? Aust N Z J Public Health. 2001;25(5):464–9.
23. Lakens D. Calculating and reporting effect sizes to facilitate cumulative science. Front Psychol. 2013;4:863.