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Prevalence of Mental Effect of Workload on Nursing Staff

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ABSTRACT

Background: *Nursing workload is a multidimensional occupational exposure that can contribute to psychological strain and functional impairment, particularly in high-acuity hospital settings where staffing constraints and time pressure are common.* ***Objective:*** *To estimate the prevalence of workload-related mental health effects among hospital nurses and assess associations between perceived workload intensity and frequency of overwhelm, and between stress-related impacts on work performance and personal life.* ***Methods:*** *A quantitative cross-sectional observational study was conducted among 100 registered nurses at Saidu Group of Teaching Hospital, Saidu Sharif, Swat, Pakistan, over one month. Data were collected using a structured self-administered questionnaire assessing demographics, perceived workload intensity, frequency of feeling overwhelmed, self-reported workload-related mental health symptoms in the past month (fatigue, anxiety, burnout, depressive symptoms), workplace support and staffing adequacy, and functional impacts. Descriptive statistics summarized prevalence. Associations were tested using chi-square, with effect size quantified using Cramer's V.* ***Results:*** *Most nurses reported workload overwhelm at least sometimes (72.0%), with 28.0% reporting frequent overwhelm (often/almost always). Perceived workload was rated as at least somewhat heavy by 63.0%. The most common workload-related mental health symptom was fatigue (50.0%), followed by anxiety (20.0%) and burnout (19.0%). Workload intensity was significantly associated with frequency of overwhelm ($\chi^2(12)=35.23$, $p<0.001$; Cramer's $V=0.34$). Stress impact on work performance was significantly associated with stress impact on personal life ($\chi^2(16)=45.80$, $p<0.001$; Cramer's $V=0.34$).* ***Conclusion:*** *Workload-related psychological strain is prevalent among hospital nurses and shows a clinically meaningful exposure–response gradient with perceived workload intensity, supporting the need for organizational interventions targeting staffing, workload management, and mental health support.*

Keywords: *nursing workload; psychological distress; fatigue; burnout; anxiety; staffing; hospital nurses; occupational health; cross-sectional study*

INTRODUCTION

Nurses constitute the largest proportion of the healthcare workforce and play a central role in ensuring patient safety, continuity of care, and overall health system performance. Their professional responsibilities require sustained physical effort, emotional labor, complex clinical decision-making, and continuous interaction with patients and families, often under time pressure and resource constraints. In hospital settings, particularly tertiary care institutions, these demands are intensified by high patient acuity, rapid patient turnover, shift work, and administrative responsibilities. As healthcare systems globally face staffing shortages, aging populations, and increasing service utilization, nursing workload has emerged as a critical occupational health concern with implications not only for workforce sustainability but also for quality of care and patient outcomes (1).

Workload in nursing is a multidimensional construct encompassing quantitative demands, such as patient-to-nurse ratios and working hours, as well as qualitative demands, including complexity of care, emotional involvement, and organizational expectations. Excessive or poorly managed workload has consistently been associated with adverse psychological

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outcomes among nurses, including stress, anxiety, emotional exhaustion, burnout, sleep disturbance, and reduced job satisfaction (2,3). These mental health effects are not isolated individual experiences; rather, they interact with organizational factors such as staffing adequacy, availability of support resources, leadership practices, and workplace culture, forming a complex system of occupational risk (4). Evidence suggests that nurses experience higher levels of psychological distress than many other healthcare professionals, particularly in acute care and hospital environments where workload pressures are most pronounced (5).

From a population perspective, younger and less experienced nurses appear particularly vulnerable to workload-related psychological strain. Early-career nurses often face steep learning curves, high expectations, limited decision autonomy, and fewer coping resources, which may amplify the mental health impact of heavy workloads (6). Gender dynamics further shape this risk, as the nursing workforce remains predominantly female, and female nurses have been shown to experience greater emotional exhaustion and work–life conflict, especially when professional demands intersect with domestic and caregiving responsibilities (7). Over time, unrelieved workload stress may progress from transient fatigue to chronic burnout, anxiety, or depressive symptoms, increasing the risk of absenteeism, presenteeism, reduced productivity, and intentions to leave the profession (8).

The consequences of workload-related mental health problems extend beyond individual nurses to patients and healthcare organizations. Empirical evidence indicates that nurses experiencing high levels of stress or burnout are more likely to report reduced concentration, impaired clinical judgment, lower empathy, and increased risk of errors, thereby compromising patient safety and quality of care (9,10). At the organizational level, high levels of psychological distress among nursing staff contribute to workforce instability, increased turnover, and escalating recruitment and training costs, further exacerbating staffing shortages and perpetuating a cycle of excessive workload (11). These interrelated outcomes underscore the importance of viewing nurses' mental health as a core component of healthcare system resilience rather than a peripheral individual issue.

Despite growing international attention to nurse well-being, substantial gaps remain in the empirical literature, particularly in low- and middle-income countries where healthcare systems are often under-resourced. In such contexts, hospitals frequently operate with inadequate nurse-to-patient ratios, limited access to mental health support services, and minimal institutional mechanisms for monitoring or addressing psychological distress among staff (12). Cultural norms, stigma surrounding mental health, and fear of professional repercussions may further discourage nurses from reporting distress or seeking support, leading to underrecognition of the true burden of workload-related mental health problems (13). Consequently, much of the available evidence is derived from high-income settings, limiting its applicability to regions with different organizational structures, resource constraints, and workforce challenges.

In Pakistan, and particularly in tertiary care hospitals serving large catchment populations, nurses are routinely exposed to high patient volumes, overtime work, and staffing inadequacies. However, there is a paucity of systematic, facility-level data quantifying the prevalence of workload-related mental health effects among nurses and examining how perceived workload and organizational support are associated with psychological well-being and functional outcomes. Without such data, hospital administrators and policymakers lack the empirical foundation necessary to design targeted, context-specific interventions aimed at improving nurse well-being and sustaining quality care delivery. Importantly, existing studies often focus on single mental health outcomes or rely on anecdotal evidence, rather

than adopting an integrated approach that considers workload perceptions, mental health symptoms, workplace support, and impacts on professional and personal functioning.

Guided by a population–exposure–outcome framework, the present study focuses on registered nurses working in a tertiary care hospital, examines perceived workload and related organizational factors as the primary exposures, and evaluates self-reported mental health effects, including fatigue, anxiety, burnout, and related functional impacts, as outcomes. By employing a quantitative cross-sectional design, this study aims to estimate the prevalence of workload-related mental health effects and to assess associations between workload characteristics, perceived support, and nurses' mental well-being. Generating such evidence is essential for identifying high-risk groups, informing workforce planning, and supporting the development of organizational policies that prioritize both nurse well-being and patient safety (14).

Accordingly, the objective of this study is to determine the prevalence of workload-related mental health effects among nurses working in a tertiary care hospital and to examine the association between perceived workload, workplace support, and psychological well-being. The central research question guiding this study is: What is the prevalence of workload-related mental health effects among hospital nurses, and how are these effects associated with perceived workload intensity and organizational support?

METHODS

This study employed a quantitative, cross-sectional observational design to estimate the prevalence of workload-related mental health effects among nursing staff and to examine associations between perceived workload characteristics, workplace support, and psychological well-being. A cross-sectional approach was selected as it is appropriate for quantifying the burden of self-reported mental health symptoms and evaluating exposure–outcome relationships at a single point in time within an operational healthcare setting, without attempting to infer causality.

The study was conducted at Saidu Group of Teaching Hospital, a tertiary care teaching hospital located in Saidu Sharif, Swat, Pakistan. Data collection was carried out over a one-month period, during which nursing staff across hospital units were approached for participation. The hospital setting was selected because it represents a high-acuity clinical environment characterized by continuous patient care, shift-based work, and variable staffing demands, all of which are relevant to the study objectives.

The study population consisted of registered nursing officers employed at the hospital during the study period. Nurses were eligible for inclusion if they were registered nurses actively involved in direct patient care and had been working at the hospital at the time of data collection. Exclusion criteria included physicians, non-nursing healthcare staff, administrative personnel, nursing students, interns, and trainees, as well as nurses not engaged in clinical duties. These criteria were applied to ensure a homogeneous study population with comparable exposure to clinical workload demands.

Participants were selected using a probability-based approach in which eligible nurses were given an equal opportunity to participate. Nurses were approached in their respective units during duty hours and informed about the purpose, procedures, and voluntary nature of the study. Participation was entirely voluntary, and no incentives were offered. Written informed consent was obtained from all participants prior to data collection. Nurses who declined participation or chose to withdraw at any stage were not subjected to any form of penalty or professional consequence.

Data were collected using a structured, self-administered questionnaire developed to capture demographic characteristics, workload exposure, perceived organizational support, mental health effects, and functional impacts on work and personal life. The questionnaire comprised eight sections covering age, gender, years of professional experience, work setting, perceived workload intensity, frequency of workload-related overwhelm, mental health symptoms experienced in the past month, availability of workplace support and resources, overtime and staffing adequacy, emotional demands of nursing, sleep disturbance, interpersonal impacts, and satisfaction with institutional support. Mental health effects were assessed using self-reported symptom indicators including fatigue, anxiety, burnout, and depressive symptoms, reported as present or absent within the specified recall period. Although the instrument was not a diagnostic tool, it was designed to capture perceived workload-related psychological effects relevant to occupational health surveillance.

The primary exposure variables were perceived workload intensity, frequency of feeling overwhelmed by workload, staffing adequacy, overtime work, and availability of workplace mental health support. The primary outcome variables were self-reported workload-related mental health effects and perceived impacts on mental well-being, work performance, personal life, sleep, and interpersonal relationships. Demographic variables including age, gender, and years of experience were treated as potential confounders based on prior evidence linking these factors to occupational stress among nurses. All variables were operationally defined prior to analysis, and categorical response options were used consistently to facilitate reproducibility.

Several measures were implemented to reduce bias and enhance data quality. To minimize selection bias, all eligible nurses present during the data collection period were invited to participate. Information bias was reduced by using standardized questions and neutral wording, ensuring anonymity, and allowing participants to complete the questionnaire privately without supervision. Recall bias was limited by restricting mental health symptom reporting to a recent and clearly defined time frame. Social desirability bias was mitigated by emphasizing confidentiality and the absence of any linkage between responses and employment evaluation.

The sample size was set at 100 nurses, reflecting the available nursing workforce during the study period and allowing for adequate precision in estimating prevalence proportions and sufficient statistical power to detect moderate associations in bivariate analyses. This sample size was considered appropriate for the exploratory and descriptive objectives of the study within a single-center setting.

Data were coded and entered into Statistical Package for the Social Sciences (SPSS) software for analysis. Descriptive statistics were used to summarize demographic characteristics, workload exposures, and mental health outcomes, with categorical variables reported as frequencies and percentages and continuous variables summarized using means and standard deviations. Associations between categorical workload variables and mental health or functional outcomes were assessed using chi-square tests of independence. Where applicable, measures of association strength were evaluated, and statistical significance was determined using a two-sided alpha level of 0.05. Missing data were handled using complete-case analysis, as the proportion of missing responses was minimal and did not materially affect the distribution of key variables.

Ethical principles governing human subject research were strictly followed throughout the study. Informed consent was obtained from all participants, confidentiality and anonymity were maintained by excluding personal identifiers from data files, and participation was voluntary with the right to withdraw at any time. The study posed minimal risk to

participants, and sensitive questions related to mental well-being were framed respectfully and non-invasively. Data were stored securely, access was restricted to the research team, and all analyses were conducted using de-identified datasets to ensure data integrity and reproducibility.

RESULTS

A total of 100 registered nurses were included. As shown in Table 1, half of participants were aged 20–30 years (50.0%), 36.0% were aged 31–40 years, 12.0% were aged 41–50 years, and 2.0% were aged 51–60 years. The sample was predominantly female (57.0%), and the mean duration of nursing experience was 6.57 years (SD = 6.04), indicating an overall early- to mid-career workforce profile (Table 1).

Workload perceptions are summarized in Table 2. Only 5.0% of nurses reported never feeling overwhelmed by workload, while 26.0% reported feeling overwhelmed rarely and 41.0% sometimes; together, 72.0% reported overwhelm at least sometimes. In addition, 18.0% reported feeling overwhelmed often and 10.0% almost always, indicating that 28.0% experienced frequent overwhelm (often/almost always). In parallel, when nurses rated overall workload intensity, 37.0% described it as manageable, whereas 32.0% rated it as somewhat heavy, 29.0% as heavy, and 2.0% as overwhelming; therefore, 63.0% characterized workload as at least somewhat heavy (Table 2).

Workload-related mental health symptoms reported in the previous month are presented in Table 3. Fatigue was the most commonly reported symptom (50.0%), followed by anxiety (20.0%) and burnout (19.0%), while depressive symptoms were reported by 8.0% of participants. A further 3.0% reported other symptoms, indicating that fatigue and anxiety/burnout constituted the most frequent self-reported mental health effects attributed to workload within this cohort (Table 3).

Table 4 presents perceptions of mental well-being impact and workplace conditions. Nearly two-fifths of nurses reported that workload affected their mental well-being never or rarely (39.0%), while 40.0% reported this impact sometimes and 21.0% often or almost always, meaning 61.0% experienced at least intermittent effects on mental well-being.

Workplace support was perceived as inadequate by most respondents: 65.0% reported no adequate support and 15.0% reported only partial support, whereas only 20.0% reported adequate support. Staffing was similarly characterized as suboptimal, with 48.0% indicating inadequate staffing and 28.0% somewhat inadequate staffing, compared with only 24.0% reporting adequate staffing levels (Table 4).

Table 1. Demographic characteristics of participating nurses (N = 100)

Variable	Category	n	%
Age (years)	**20–30**	**50**	**50.0**
	31–40	**36**	**36.0**
	41–50	**12**	**12.0**
	51–60	**2**	**2.0**
Gender	**Female**	**57**	**57.0**
	Male	**43**	**43.0**
Years of experience	**Mean ± SD**	**6.57 ± 6.04**	**—**

Table 2. Perceived workload and frequency of overwhelm (N = 100)

Variable	Category	n	%
Frequency of feeling overwhelmed	Never	5	5.0
	Rarely	26	26.0
	Sometimes	41	41.0
	Often	18	18.0
	Almost always	10	10.0
Perceived workload intensity	Manageable	37	37.0
	Somewhat heavy	32	32.0
	Heavy	29	29.0
	Overwhelming	2	2.0

Table 3. Self-reported mental health symptoms related to workload (multiple responses allowed)

Symptom	n	% of respondents
Fatigue	50	50.0
Anxiety	20	20.0
Burnout	19	19.0
Depression	8	8.0
Other	3	3.0

Table 4. Workplace support, staffing, and mental well-being impact (N = 100)

Variable	Category	n	%
Workload impacts mental well-being	Never/Rarely	39	39.0
	Sometimes	40	40.0
	Often/Almost always	21	21.0
Adequate workplace support	Yes	20	20.0
	No	65	65.0
	Somewhat	15	15.0
Staffing level	Adequate	24	24.0
	Somewhat inadequate	28	28.0
	Inadequate	48	48.0

Functional impacts of workload-related stress are summarized in Table 5. Regarding work performance, 42.0% reported that stress affected performance sometimes and 22.0% often or almost always, indicating that 64.0% experienced at least occasional performance impact; only 36.0% reported never or rarely being affected. A similar pattern was observed for personal life: 43.0% reported impacts sometimes and 23.0% often or almost always, indicating that 66.0% experienced at least occasional negative effects on personal life. Notably, 32.0% reported taking time off work due to workload-related mental health issues, providing a tangible indicator of functional impairment associated with perceived workload stress (Table 5).

Table 5. Functional and personal impacts of workload-related stress (N = 100)

Outcome	Category	n	%
Impact on work performance	Never/Rarely	36	36.0
	Sometimes	42	42.0
	Often/Almost always	22	22.0
Impact on personal life	Never/Rarely	34	34.0
	Sometimes	43	43.0
	Often/Almost always	23	23.0
Took time off work	Yes	32	32.0
	No	68	68.0

Table 6. Association between workload intensity and frequency of overwhelm (N = 100)

Frequency of overwhelm	Manageable	Somewhat heavy	Heavy	Overwhelming	Total
Never	3	1	1	0	5
Rarely	8	14	4	0	26
Sometimes	21	7	13	0	41
Often	3	8	7	0	18
Almost always	2	2	4	2	10
χ^2 (df)					35.23 (12)
p-value					< 0.001
Cramer's V					0.34

Table 7. Association between impact on work performance and personal life (N = 100)

Impact on work performance	Never	Rarely	Sometimes	Often	Almost always	Total
Never	4	2	2	1	0	9
Rarely	1	12	11	3	0	27
Sometimes	3	7	24	5	3	42
Often	2	2	3	3	4	14
Almost always	0	1	3	0	4	8
χ^2 (df)						45.80 (16)
p-value						< 0.001
Cramer's V						0.34

The association between perceived workload intensity and frequency of workload overwhelm is shown in Table 6. The distribution demonstrates that nurses reporting heavier workload ratings tended to report more frequent overwhelm, and the overall association was statistically significant ($\chi^2(12) = 35.23$, $p < 0.001$). The magnitude of association was moderate, with Cramer's V = 0.34, indicating a meaningful relationship between perceived workload intensity and the frequency of overwhelm experiences within this sample (Table 6).

Table 7 examines the relationship between workload-related stress effects on work performance and personal life. Nurses who reported that stress more frequently affected

work performance also tended to report more frequent negative effects on personal life, and this pattern was statistically significant ($\chi^2(16) = 45.80$, $p < 0.001$). The effect size was again moderate (Cramer's V = 0.34), supporting a substantive association between occupational functional impact and broader personal-life disruption in the context of workload-related stress (Table 7).

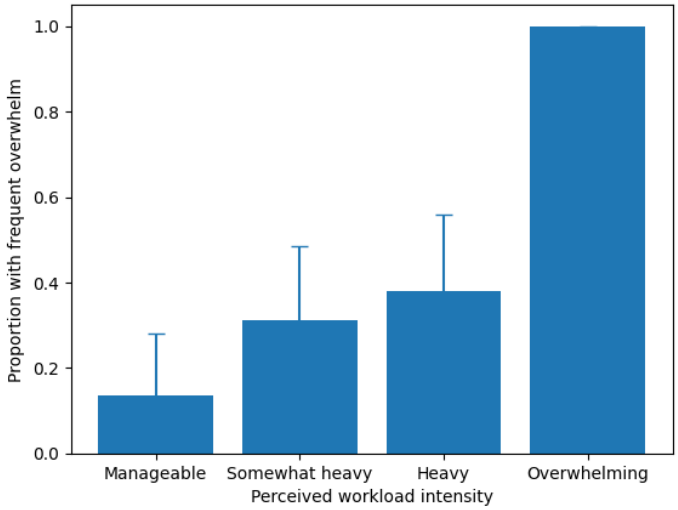

Figure 1 Gradient increase in frequent workload overwhelms across perceived workload intensity

The figure demonstrates a clear, monotonic gradient in the proportion of nurses reporting frequent workload overwhelm (defined as "often" or "almost always") across increasing levels of perceived workload intensity. Among nurses who rated their workload as manageable, 13.5% (5/37; 95% CI ≈ 6–28%) reported frequent overwhelm. This proportion increased to 31.3% (10/32; 95% CI ≈ 18–49%) among those reporting a somewhat heavy workload and further to 37.9% (11/29; 95% CI ≈ 23–56%) among those reporting a heavy workload. Notably, all nurses who rated their workload as overwhelming reported frequent overwhelm (100%; 2/2), although with wide confidence limits due to the small subgroup size. The progressive increase across categories illustrates a strong exposure–response relationship between perceived workload intensity and high-frequency psychological strain, reinforcing the clinical relevance of workload perception as a key indicator of mental stress risk among hospital nurses.

DISCUSSION

The findings of this study demonstrate that workload-related psychological strain is highly prevalent among nurses working in a tertiary care hospital setting, with a substantial proportion reporting frequent feelings of overwhelm, fatigue, anxiety, and burnout. The observed prevalence of fatigue (50.0%), anxiety (20.0%), and burnout (19.0%) aligns with international evidence indicating that psychological symptoms linked to occupational workload are common among hospital nurses, particularly in high-acuity environments (15). These findings reinforce the growing recognition that mental health challenges among nurses are not isolated or exceptional events but represent a systemic occupational health issue.

A key contribution of this study is the demonstration of a clear exposure–response relationship between perceived workload intensity and the frequency of workload-related overwhelm. Nurses who rated their workload as heavy or overwhelming were significantly more likely to report frequent overwhelm, with a moderate effect size observed. This gradient pattern supports prior research suggesting that subjective workload perception is a critical determinant of psychological strain, sometimes more predictive than objective workload

measures alone (16). Importantly, this relationship underscores the role of cognitive and emotional appraisal of workload demands in shaping mental well-being, consistent with job demands–resources and stress appraisal models (17).

The predominance of younger and early-career nurses in the sample provides additional context for interpreting these findings. Nurses with fewer years of experience may have limited adaptive coping mechanisms, reduced autonomy, and higher performance pressure, all of which can amplify the psychological impact of high workload (18). Previous studies have reported similar vulnerability among younger nurses, who are more likely to experience emotional exhaustion and consider leaving the profession under sustained workload stress (19). The relatively early career stage of most participants may therefore partially explain the high prevalence of reported mental health effects in this study.

Organizational factors emerged as critical correlates of workload-related stress. The majority of nurses reported inadequate staffing levels and insufficient workplace support for managing stress or mental health concerns. These findings are consistent with prior evidence demonstrating that inadequate nurse-to-patient ratios and limited institutional support are strongly associated with burnout, reduced job satisfaction, and compromised mental well-being (20). The lack of accessible mental health resources and low satisfaction with organizational support observed in this study highlight structural gaps that extend beyond individual resilience and point to modifiable system-level determinants of nurse well-being.

The functional consequences of workload-related stress were evident across both professional and personal domains. More than half of participants reported that stress affected their work performance and personal life at least sometimes, and nearly one-third reported taking time off work due to workload-related mental health issues. The significant association between stress-related impacts on work performance and personal life, with a moderate effect size, illustrates the spillover of occupational stress into non-work domains. This finding is consistent with literature showing that prolonged occupational stress disrupts sleep, interpersonal relationships, and overall quality of life, thereby reinforcing a cycle of cumulative strain (21).

From a clinical and organizational perspective, these findings carry important implications. High levels of fatigue and overwhelm among nurses have been associated with reduced vigilance, impaired decision-making, and increased risk of errors, which may compromise patient safety and care quality (22). At the organizational level, the reported rates of stress-related absenteeism signal potential risks to workforce stability, productivity, and continuity of care. Addressing workload-related mental health issues is therefore not only a matter of individual well-being but also a strategic priority for healthcare system performance and sustainability.

This study has several strengths, including its focus on a single tertiary care hospital, which allows for context-specific insights, and the comprehensive assessment of workload perceptions, organizational support, mental health symptoms, and functional impacts. However, several limitations should be acknowledged. The cross-sectional design precludes causal inference, and associations observed should be interpreted as correlational. Mental health outcomes were assessed using self-reported symptom indicators rather than diagnostic instruments, which may limit clinical specificity. Additionally, the single-center setting may restrict generalizability to other hospitals or regions with different organizational structures or resource levels.

Despite these limitations, the findings contribute valuable evidence from an underrepresented setting and highlight the urgent need for organizational and policy-level interventions. Future research should adopt longitudinal designs to examine temporal relationships between workload and mental health outcomes, evaluate the effectiveness of staffing and support interventions, and incorporate validated mental health instruments to strengthen comparability across studies (23). In parallel, healthcare organizations should prioritize workload management, staffing adequacy, and accessible mental health support as integral components of occupational health strategies for nursing staff.

Collectively, this study adds to the growing body of evidence indicating that workload-related stress among nurses is widespread, multifaceted, and closely linked to organizational conditions. Addressing these challenges requires a comprehensive approach that integrates workforce planning, supportive leadership, and mental health resources to safeguard nurse well-being and ensure high-quality patient care

CONCLUSION

This study demonstrates that workload-related psychological strain is highly prevalent among nurses working in a tertiary care hospital, with a substantial proportion experiencing frequent overwhelm, fatigue, anxiety, burnout, and negative spillover into work performance and personal life. The findings show a clear gradient relationship between perceived workload intensity and mental strain, underscoring that heavier perceived workloads are associated with significantly greater psychological burden. Inadequate staffing, high patient-to-nurse ratios, overtime demands, and limited workplace mental health support emerged as prominent contextual factors linked to these outcomes. Importantly, the observed associations between workload-related stress, functional impairment, and absenteeism indicate that the mental health impact of workload extends beyond individual distress to affect organizational functioning and care delivery. Collectively, these results highlight workload-related stress as a systemic occupational health issue rather than an individual failing, emphasizing the need for organizational and policy-level interventions focused on staffing adequacy, workload management, and accessible mental health support to protect nurse well-being and sustain high-quality patient care.

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DECLARATIONS

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Informed Consent: Informed Consent was taken from participants.

Authors' Contributions:

Concept: LA; Design: SA; Data Collection: Sk; Analysis: MS; Drafting: Spk

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