



Prevalence, Severity Distribution, and Sociodemographic Determinants of Occupational Stress Among Nurses in Tertiary Care in Delta State, Nigeria

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Abstract

Original Research Article

Background: Occupational stress is a recognised health problem in nursing and a recurring threat to patient safety. Although its epidemiology has been mapped in several countries, population-level data covering the full tertiary nursing workforce of a Nigerian state remain limited, which constrains targeted workforce planning.

Aim: To determine the prevalence and severity distribution of occupational stress among nurses in tertiary hospitals in Delta State, Nigeria, and to examine the influence of age, gender, years of clinical experience, and marital status on stress levels.

Methods: A descriptive cross-sectional survey was conducted among 259 registered nurses drawn from the two tertiary hospitals in Delta State, the Federal Medical Centre, Asaba, and the Delta State University Teaching Hospital, Oghara, using a stratified sampling technique. Occupational stress was measured with the 50-item Expanded Nursing Stress Scale (ENSS). Sociodemographic determinants were tested with Kruskal–Wallis and Mann–Whitney U tests at $p < .05$.

Results: About two-thirds of participants (65.4%) reported occupational stress at a moderate or severe level, comprising 32.5% moderately stressed and 32.9% severely stressed, with a further 24.2% slightly stressed. Age significantly influenced stress ($H = 16.684$, $p = .001$), with nurses aged 21–30 years recording the highest mean rank (148.42). Years of experience was also significant ($H = 8.002$, $p = .020$), with nurses of fewer than ten years most stressed (mean rank 142.59). Neither gender ($U = 5845.00$, $p = .10$) nor marital status ($H = 3.833$, $p = .28$) was significant.

Conclusion: Occupational stress affected most nurses in this tertiary care setting, and its burden fell most heavily on young and early-career nurses. The findings support workforce planning and targeted support interpreted through the job demands–resources framework.

Keywords: Occupational stress; prevalence; severity; nurses; tertiary hospitals; sociodemographic determinants; Delta State; Nigeria

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Introduction

Nursing is widely regarded as a stressful occupation. Nurses constitute the largest part of the hospital workforce and spend more sustained time at the patient's bedside than other clinical groups, placing them at the meeting point of clinical demand, emotional labour, and organisational pressure (Petersen et al., 2025). When that pressure exceeds the resources available to manage it, the documented consequences include absenteeism, turnover intention, reduced quality of care, and a higher risk of clinical error (Zabin et al., 2023; Wang et al., 2024). Quantifying the burden accurately is therefore a workforce health and patient safety priority.

Reported prevalence varies widely across settings. A study at a Ho municipal facility in Ghana documented a prevalence of about 75%, while studies in the United Kingdom and Nigeria have reported figures near 68% (Dartey et al., 2023). In Addis Ababa, Ethiopia, 47.8% of nurses in public hospitals reported occupational stress (Werke & Weret, 2023), and a study in Uganda found that 70.5% of nurses experienced chronic stress (Dartey et al., 2023). A national review reported a pooled prevalence of stress symptoms among nurses of about 11.2%, with the highest rates in sub-Saharan Africa (Dartey et al., 2023). This spread reflects genuine differences in health system structure, staffing norms, and measurement, and it means that prevalence estimates from one setting cannot be assumed to hold in another.

In Nigeria, several recent studies confirm a substantial burden. A study of healthcare workers at the Abubakar Tafawa Balewa University Teaching Hospital in Bauchi reported a prevalence of stress of 66%, with statistically significant associations between stress and age, profession, and years of work experience (Garkuwa et al., 2025). A cross-sectional study of the surgical workforce in a Nigerian tertiary facility likewise found perceived work-related stress to be common (Bashar et al., 2024). Despite this, most Nigerian studies have been confined to a single hospital or local government area, and few have examined the entire tertiary

nursing population of a state (Etim et al., 2015; Onasoga et al., 2013).

Delta State, in Nigeria's South-South geopolitical zone, presents a distinctive context. The operation of a state-wide free healthcare policy increases patient volumes, and referral loads in its tertiary hospitals, raising the nurse-to-patient ratio and compressing the time available for individual care. These conditions make the state an important and underexamined case for the epidemiology of nursing occupational stress.

Knowing who is most affected matters as much as knowing how many. If the burden concentrates in particular subgroups, support can be targeted rather than applied uniformly. Age and clinical experience are recurring patterning variables in nursing research, with younger and less experienced nurses generally reporting higher levels of stress than senior colleagues (Garkuwa et al., 2025; Werke & Weret, 2023). The evidence on gender and marital status as determinants is less consistent, with some studies reporting associations and others reporting none (Onasoga et al., 2013; Werke & Weret, 2023).

The job demands–resources (JD-R) framework provides the theoretical lens for this study. The framework holds that strain arises when job demands, such as workload and emotional pressure, exceed the resources available to manage them, while resources such as control, organisational support, and supportive leadership buffer the adverse effects of high demand (Bakker & Demerouti, 2024; Wang et al., 2024). Within this framework, younger and less experienced nurses occupy a relatively exposed position. They face the full weight of clinical demand without the accumulated control that experience confers and without the established support networks that provide buffering. The framework therefore gives a principled basis for expecting the burden to concentrate in this group.

The present study addresses the gap in baseline epidemiological data for Nigerian tertiary nurses. It set out to determine the overall prevalence of occupational stress, characterise

its distribution across severity categories, and examine the influence of age, gender, years of clinical experience, and marital status on stress levels within the JD-R framework.

Methods

Study design

A descriptive cross-sectional survey design was used. The design allowed occupational stress and its sociodemographic correlates to be described as they occurred naturally across the tertiary nursing workforce, without manipulating the work environment. Comparable research on nursing stress in West Africa has used the same design (Werke & Weret, 2023).

Setting

The study was conducted in the two tertiary hospitals serving Delta State. The Federal Medical Centre (FMC), Asaba, is a federal facility in Oshimili South Local Government Area with a bed capacity of 297 across 26 clinical units and approximately 450 nurses. The Delta State University Teaching Hospital (DELSUTH), Oghara, is in the Etiope West Local Government Area, with a bed capacity of 174 across 21 units and approximately 294 nurses. As the highest tier of care and the principal referral destinations for complex cases in the state, both facilities concentrate clinical acuity and patient throughput, where occupational stress is most likely to be pronounced. The state's free healthcare policy further raises demand by removing financial barriers to access.

Population, sample size, and sampling

The target population comprised all registered nurses with at least two years of active practice in either hospital (N = 714: 420 at FMC Asaba and 294 at DELSUTH Oghara). The two-year threshold ensured that respondents had enough exposure to the work environment to report on its stressors. Sample size was calculated with Yamane's formula, $n = N / (1 + N(e)^2)$, using a tolerable error of 0.05, which gave a minimum of

256. A stratified procedure was applied: nurses were stratified by hospital in proportion to each hospital's establishment size, and then recruited consecutively from clinical units. In total, 259 nurses returned complete, analysable questionnaires, and this figure was used in all analyses.

Instrument

Occupational stress was measured with the Expanded Nursing Stress Scale (ENSS), developed from the original Nursing Stress Scale (Gray-Toft & Anderson, 1981) and revised by French, Lenton, Walters, and Eyles (2000) using a random sample of 2,280 Ontario nurses. The ENSS contains 50 items grouped into domains covering death and dying, conflict with physicians, inadequate emotional preparation, problems with peers, problems with supervisors, workload, uncertainty concerning treatment, and patient and family, each rated on a four-point scale (1 = never stressful; 2 = slightly stressful; 3 = moderately stressful; 4 = very much stressful). The instrument has demonstrated strong internal consistency across cultural adaptations, with reported Cronbach's alpha coefficients of 0.95 or higher (French et al., 2000; Pavek et al., 2022). Respondents were classified into four severity categories based on their mean total ENSS score: not stressed (below 1.50), slightly stressed (1.50 to 2.49), moderately stressed (2.50 to 3.00), and severely stressed (above 3.00).

Ethical Considerations

Ethical approval for the study was obtained from the Research Ethics Committees of the Federal Medical Centre, Asaba and the Delta State University Teaching Hospital, Oghara. Participation was entirely voluntary. Prospective participants were informed about the purpose, procedures, potential benefits, and their right to decline or withdraw from the study at any stage without any consequences. Completion and return of the questionnaire were regarded as implied informed consent. To ensure confidentiality and anonymity, no personal identifiers were collected, and all data were securely stored and used solely for research

purposes.

Data Analysis

Data were analysed using IBM SPSS Statistics for Windows, Version 27. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarise participants' sociodemographic characteristics and to describe the prevalence and severity of stress. The distribution of stress scores was assessed and found to be non-normal; therefore, non-parametric statistical tests were employed. The Mann–Whitney U test was used to compare stress scores between male and female participants, while the Kruskal–Wallis test was used to examine differences in stress scores across age groups, years of professional

experience, and marital status. Statistical significance was set at $p < .05$.

Results

Sample characteristics

A total of 259 nurses participated. The largest age group was 31 to 40 years (40.2%), followed by 21 to 30 years (30.5%), 41 to 50 years (23.2%), and 51 to 60 years (6.2%). Most respondents were female (72.2%) and married (62.9%). Just under half (48.6%) had fewer than ten years of experience, 43.2% fell in the 10-to-20-year band, and 8.1% had practised for more than twenty years. Registered midwives formed the largest qualification group (47.5%). Table 1 presents the full profile.

Table 1. Demographic characteristics of study participants (N = 259)

Characteristic	Frequency (n)	Percentage (%)
Age (years)		
21–30	79	30.5
31–40	104	40.2
41–50	60	23.2
51–60	16	6.2
Sex		
Male	72	27.8
Female	187	72.2
Marital status		
Single	72	27.8
Married	163	62.9
Widowed	17	6.6

Characteristic	Frequency (n)	Percentage (%)
Divorced	7	2.7
Highest qualification		
Registered Nurse (RN)	52	20.1
Registered Midwife (RM)	123	47.5
BSc Nursing	81	31.3
MSc Nursing	3	1.2
Years of experience		
< 10 years	126	48.6
10–20 years	112	43.2
> 20 years	21	8.1

Prevalence and severity distribution

Taking moderate and severe ratings together, 65.4% of nurses were occupationally stressed. Within the full sample, 32.9% were severely

stressed and 32.5% moderately stressed, a further 24.2% were slightly stressed, and 13.4% reported no stress. Occupational stress was therefore the norm rather than the exception. Table 2 presents the severity distribution.

Table 2. Prevalence and severity distribution of occupational stress (N = 259)

Stress category	Frequency (n)	Percentage (%)
Not stressed	35	13.4
Slightly stressed	63	24.2
Moderately stressed	84	32.5
Severely stressed	85	32.9
Total stressed (moderate + severe)	169	65.4

Note. Severity based on mean ENSS total score: not stressed (< 1.50); slightly stressed (1.50–2.49); moderately stressed (2.50–3.00); severely stressed (> 3.00).

Influence of age

The Kruskal–Wallis test showed a significant effect of age on occupational stress ($H = 16.684$, $df = 3$, $p = .001$). The youngest group, aged 21 to 30 years, had the highest mean rank (148.42),

followed by the 31-to-40-year group (136.22), the 51-to-60-year group (117.50), and the 41-to-50-year group, which had the lowest mean rank (98.30). The null hypothesis was rejected. Younger nurses were significantly more stressed than older nurses (Table 3).

Table 3. Kruskal–Wallis test: influence of age on occupational stress

Age group (years)	21–30	31–40	41–50	51–60	H (p)
n	79	104	60	16	
Mean rank	148.42	136.22	98.30	117.50	16.684 (.001*)

Note. $df = 3$. *Significant at $p < .05$.

Influence of gender

The Mann–Whitney U test found no significant difference between male and female nurses ($U = 5845.00$, $Z = -1.642$, $p = .10$). Male nurses

returned a mean rank of 142.32 and female nurses 125.26. The null hypothesis was accepted. Gender did not significantly influence occupational stress (Table 4).

Table 4. Mann–Whitney U test: influence of gender on occupational stress

Variable	Male (n = 72)	Female (n = 187)	U	p
Mean rank	142.32	125.26	5845.00	.10

Note. $Z = -1.642$. Not significant at $p < .05$.

Influence of years of experience

Years of clinical experience significantly influenced occupational stress ($H = 8.002$, $df = 2$, $p = .020$). Nurses with fewer than ten years of experience held the highest mean rank (142.59),

those with more than twenty years an intermediate rank (133.62), and those with 10 to 20 years the lowest mean rank (115.16). The null hypothesis was rejected. Less experienced nurses carried a significantly higher stress burden (Table 5).

Table 5. Kruskal–Wallis test: influence of years of experience on occupational stress

Years of experience	< 10 years	10–20 years	> 20 years	H (p)
n	126	112	21	
Mean rank	142.59	115.16	133.62	8.002 (.020*)

Note. $df = 2$. *Significant at $p < .05$.

Influence of marital status

Marital status did not significantly influence occupational stress ($H = 3.833$, $df = 3$, $p = .28$). Mean ranks were 152.71 for divorced nurses,

135.30 for married nurses, 120.52 for single nurses, and 109.94 for widowed nurses. The null hypothesis was accepted. Marital status was not a significant determinant of stress in this sample (Table 6).

Table 6. Kruskal–Wallis test: influence of marital status on occupational stress

Marital status	Single	Married	Widowed	Divorced	p
n	72	163	17	7	
Mean rank	120.52	135.30	109.94	152.71	.28

Note. $H = 3.833$; $df = 3$. Not significant at $p < .05$.

Discussion

About two-thirds of nurses in the tertiary hospitals of Delta State reported occupational stress at a moderate or severe level, and almost a third fell in the severe category alone. This identifies occupational stress as the most common experience in this workforce and places it among the higher prevalence estimates reported in the literature. The figure is close to the 66% recorded among healthcare workers at a teaching hospital in Bauchi (Garkuwa et al., 2025) and to United Kingdom and Nigerian figures near 68% (Dartey et al., 2023). It exceeds the 47.8% reported in Addis Ababa (Werke & Weret, 2023), though it remains below the roughly 75% reported in a Ho municipal facility in Ghana (Dartey et al., 2023). The variation across these studies is consistent with the wider

observation that prevalence depends heavily on setting, staffing, and the instrument used.

Several structural factors plausibly explain the elevated burden in Delta State. The free healthcare policy raises patient volumes and referral loads in the two tertiary hospitals, which serve as both primary and referral destinations for a large population. In JD-R terms, this sustains high job demand; when demand is not matched by adequate resources such as control and support, the framework predicts elevated strain (Bakker & Demerouti, 2024). The absence of comparable tertiary facilities nearby means both hospitals absorb case complexity that, in better-resourced systems, would be spread across several levels of care. The point is both qualitative and quantitative: the complexity of referral cases intensifies the cognitive and

emotional demands on nurses in ways that volume statistics alone do not capture.

The severity distribution adds weight to this picture. A severe-category share of 32.9%, close to one in three nurses, is clinically meaningful. Severe occupational stress has been linked to burnout, intention to leave, reduced attention, and a higher rate of nursing errors (Wang et al., 2024; Zabin et al., 2023). A workforce in which one in three members is severely stressed is, on this evidence, operating at elevated risk to both staff wellbeing and the quality of care. That only 13.4% reported no stress confirms how widely the exposure is shared rather than confined to a high-risk minority.

The sociodemographic findings show where the burden falls. Age and years of experience both significantly differentiated stress, and in both cases, the gradient ran from greater vulnerability among the young and inexperienced to lower vulnerability among older, more experienced nurses. Nurses aged 21 to 30 years held the highest mean rank, as did those with fewer than ten years of experience. This pattern aligns with recent Nigerian evidence in which stress was significantly associated with age and years of work experience (Garkuwa et al., 2025), and is consistent with reports from Ethiopia and the wider region (Werke & Weret, 2023). The most plausible mechanism is developmental rather than dispositional: over time, nurses build familiarity with recurring stressors and a broader repertoire of coping responses that newer staff have not yet had the chance to acquire. Within the JD-R framework, early-career nurses are also more likely to occupy positions of high demand and limited control, the combination the framework identifies as most likely to produce strain (Bakker & Demerouti, 2024).

Gender and marital status were not significant determinants in this sample. The absence of a gender effect is consistent with earlier Nigerian work in which sex was not associated with the stress experienced (Onasoga et al., 2013), and it suggests that the shared occupational environment outweighed any gender-linked differences. The absence of a marital-status effect points in the same direction: institutional stressors appear to have been sufficiently

dominant to overshadow differences in domestic circumstances. From a practical standpoint, these null findings sharpen the signal for the intervention. Rather than designing separate programmes by sex or family status, managers can direct their most targeted support along the age and experience gradient with greater confidence.

Implications for practice and policy

The prevalence and severity data argue for treating occupational stress in Nigerian tertiary nursing as a system-level concern rather than an individual management problem. A workforce in which 65.4% are stressed, and 32.9% severely, calls for institutional occupational health provision, routine stress assessment, and accessible psychological support as standard features of tertiary hospital administration. The free healthcare policy, while an important equity measure, has workload implications that require proportionate increases in nursing capacity.

The concentration of vulnerability among young and early-career nurses' points to a specific priority: structured support for nurses in their first decade of practice. This includes formal preceptorship and mentorship that pair newer nurses with experienced colleagues, structured orientation that builds familiarity with clinical stressors before full exposure, peer support within clinical units, and supervisory practices that favour developmental feedback over evaluative accountability for new staff. These measures depend more on deliberate organisational attention than on large capital outlay.

Strengths and limitations

This study mapped the prevalence and sociodemographic determinants of occupational stress across the entire tertiary nursing workforce in a Nigerian state, filling a gap in the regional evidence base. The use of the ENSS, an instrument with well-documented reliability across cultural settings, supports comparison with other studies. Several limitations apply. The cross-sectional design captures associations at

one point in time and cannot establish causal direction. Respondents completed questionnaires in their own time and without supervision, which may have introduced recall or social desirability bias. The analysis examined four sociodemographic variables; other plausible influences, such as shift pattern, clinical specialty, remuneration, and domestic care responsibilities, were not modelled. Finally, the study was confined to two tertiary hospitals in one state, so generalisation to other levels of care or other settings should be made with caution.

Conclusion

Occupational stress was the most common experience among nurses in the tertiary hospitals of Delta State, with about two-thirds affected at a moderate or severe level and one in three severely stressed. The burden fell most heavily on the youngest and least experienced nurses, consistent with the job demands–resources framework's prediction that those with the least control and the thinnest support resources bear the greatest strain. Gender and marital status did not significantly differentiate stress levels, which focuses the intervention signal on age and experience. The findings support treating nursing occupational stress in Nigerian tertiary care as a workforce planning priority, with particular attention to structured support for early-career nurses, institutional occupational health provision, and staffing that accounts for the demands created by the state's free healthcare policy.

Declarations

Ethics approval and consent to participate:

Ethical approval was obtained from the Research Ethics Committees of the Federal Medical Centre, Asaba, and the Delta State University Teaching Hospital, Oghara. (HREC/PAN/2019/035/0319) Participation was voluntary, and returning the completed questionnaire constituted informed consent. The study followed the principles of the Declaration of Helsinki.

Availability of data and materials: The

datasets generated during this study are available from the corresponding author on reasonable request.

Competing interests: The authors declare no competing interests.

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