

Nurse to Patient Ratios and Work Performance Among Nurses of Government Hospitals in the Province of Guimaras

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ABSTRACT

This quantitative, cross-sectional, descriptive-correlational-comparative study examined the relationship between nurse-to-patient ratios and the self-reported work performance of 90 registered nurses in government hospitals in Guimaras, Philippines. Guided by Donabedian's Structure–Process–Outcome (SPO) and the Job Demands–Resources (JD-R) models, data were collected via an adapted staffing self-report tool and the validated 15-item Nurse Work Performance Scale (NWPS). Analysis via descriptive statistics, Spearman's ρ , and the Mann-Whitney U test ($\alpha=.05$) revealed a female-dominated workforce (86.67%) facing a systemic critical workload baseline ($M=1:15.11$), peaking at 1:26.00 in the Outpatient Department. Despite acute structural strains, nurses maintained a uniform "Very Satisfactory" performance baseline ($M=4.01$, $SD=0.53$). Inferential testing showed no statistically significant relationship or group differences between standard and critical workloads. Cultural malasakit (compassion) and workflow compression temporarily decoupled performance from understaffing. However, this reliance on human exhaustion risks long-term clinical burnout and workforce attrition.

Keywords: Nurse-to-patient ratio, work performance, government hospitals, cross-sectional study, Guimaras

INTRODUCTION

This study examined the relationship between nurse-to-patient ratios and self-reported work performance among registered nurses in government hospitals in Guimaras, Philippines. Guided by Donabedian's Structure–Process–Outcome framework and the Job Demands–Resources (JD-R) model, it explored how chronic understaffing affects nursing performance despite resource constraints. Using a quantitative, cross-sectional, descriptive-correlational-comparative design, the study provides evidence to inform staffing policies and support long-term workforce sustainability.

Statement of the Problem

This study explored the relationship between nurse-to-patient ratios and the self-reported work performance of nurses in public hospital settings to inform health staffing policies. It addressed five research questions: (1) What is the respondents' demographic profile (age, gender, department, shift)? (2) What are the typical nurse-to-patient ratios overall and across cohorts? (3) What is the self-reported work performance level overall and across cohorts? (4) Is there a significant relationship between staffing ratios and performance? (5) Are there significant performance differences based on varying staffing ratios?

Scope and Delimitations

The study was delimited to clinically active, full-time registered bedside nurses (N=90) with ≥ 6 months of experience in acute units (General Wards, ER, ORDR, NICU) across public provincial and district hospitals in Guimaras, Philippines. Administrative, outpatient-only, and on-leave personnel were excluded. Staffing ratios were operationalized using Aiken et al.'s (2018) adapted framework, while multidimensional performance was quantified via the 15-item Nurse Work Performance Scale (NWPS) using a 5-point Likert scale. Patient acuity and objective clinical indicators were outside the scope.

REVIEW OF RELATED LITERATURE

Donabedian's (1988) Structure–Process–Outcome framework positions nurse staffing as a foundational structural input that dictates clinical care processes and organizational outcomes. Inadequacies in this structural baseline scale down clinical thoroughness, elevate medication flaws, and increase 30-day inpatient mortality by 7% per incremental patient load (Aiken et al., 2014; Kiel et al., 2021). The operational toll of understaffing is framed by the Job Demands–Resources (JD-R) model, which posits that high workload demands spark a health-impairment path toward systemic burnout unless buffered by institutional resources (Bakker & Demerouti, 2017).

In the Philippines, public hospitals face a chronic staffing deficit driven by nurse migration and high patient volumes. General ward ratios routinely scale to 1:20—drastically exceeding the Department of Health (DOH) recommended 1:12 baseline—inducing profound occupational fatigue (Philippine Journal of Nursing, 2021; Robes, 2023). While public sector nursing numbers rose nationwide to 35,073 in 2022 (Statista, 2024), empirical data directly linking local public hospital staffing metrics to multidimensional work performance in small-island provincial settings remain practically non-existent.

Theoretical and Conceptual Framework

This study integrated the SPO model (Donabedian, 1988) and the JD-R theory (Bakker & Demerouti, 2017). Ratios serve as structural inputs/demands that shape process delivery and behavioral adjustments, leading to convergent work performance outcomes. The conceptual framework mapped the independent variable (nurse-to-patient ratio) against the dependent variable dimensions (task, contextual, and counterproductive work behaviors), with shift and department acting as contextual moderators.

METHODOLOGY

Design, Population, and Sampling

A quantitative, cross-sectional, descriptive-correlational-comparative design was used. Out of an eligible population of 108 public nurses in Guimaras, a total-enumeration strategy was deployed. Preserving 15 nurses for pilot testing left a final sample of 93, of which 90 successfully completed the protocol (96.7% response rate).

Research Steps

After obtaining ethical approval, the validated research instruments were administered to eligible nurses. The collected data were analyzed using SPSS Version 28 through descriptive and inferential statistics, and the findings were interpreted based on the study objectives.

Data Collection and Sample Selection

Data were gathered via two self-administered instruments:

1. Nurse-to-Patient Ratio Tool: Adapted from Aiken et al. (2018), capturing numerical patient counts during the last shift and two-week shift averages.
2. Nurse Work Performance Scale (NWPS): A researcher-developed, 15-item tool measuring six clinical competencies on a 5-point Likert scale (1 = Never, 5 = Always). Instruments achieved Content Validity Index (CVI) scores ≥ 0.78 via expert panel review. A pilot test ($n=17$) verified face validity and psychometric reliability, yielding a Cronbach's $\alpha > .93$. Data were collected over a two-week block during non-care hours.

Data Analysis Methods

Data were analyzed using SPSS Version 28 at a 0.05 significance level. Descriptive statistics summarized the data, while Spearman's rank correlation and the Mann-Whitney U test were used to test the study hypotheses.

Research Hypotheses and Validation

The study tested two null hypotheses: (1) no significant relationship exists between nurse-to-patient ratios and work performance, and (2) no significant difference exists in work performance between standard and critical workloads. The instruments were validated by experts (CVI ≥ 0.78) and demonstrated excellent reliability (Cronbach's $\alpha > 0.93$).

Study Limitations and Ethical Considerations

The study was limited to 90 full-time registered nurses in government hospitals in Guimaras and relied on self-reported data. Ethical approval and informed consent were obtained, and participant confidentiality and anonymity were strictly maintained.

RESULTS AND DISCUSSION

Demographic and Work Profiles

The sample ($N=90$) was female-dominated (86.67%) with a balanced bimodal age split: early-career (≤ 30 years; 48.89%) and mid-to-late career (≥ 31 years; 51.11%). Departmental allocations concentrated heavily in acute frontline sectors: General Wards (42.22%) and the ER (28.89%), followed by ORDR (13.33%), NICU (10.00%), and the Outpatient Department (OPD; 5.56%). Shift distribution reflected a 55.56% day shift and 44.44% night shift layout.

Baseline Nurse-to-Patient Ratios and Work Performance Levels

The aggregate staffing metric revealed a grand mean nurse-to-patient ratio of 1:15.11 ($SD=6.88$), denoting a chronic, systemic Critical Workload that vastly exceeds statutory targets (Table 1).

Table 1 Staffing Ratios and Self-Reported Work Performance Scores by Profile ($N=90$)

Categories	<i>N</i>	Mean	<i>SD</i>	Description	Performance Mean (<i>SD</i>)	Verbal Interpretation
Sex: Male / Female	12 /	13.00 /	6.40 /	Standard /	4.27 (.48) /	Very Satisfactory
	78	15.44	6.94	Critical	3.97 (.53)	
Age: ≤ 30 / ≥ 31 Years	44 /	15.30 /	7.23 /	Critical /	3.95 (.63) /	Very Satisfactory
	46	14.93	6.61	Critical	4.07 (.41)	

Categories	<i>N</i>	Mean	<i>SD</i>	Description	Performance Mean (<i>SD</i>)	Verbal Interpretation
Department: Ward	38	13.84	5.58	Standard Workload	4.06 (.66)	Very Satisfactory
Emergency Room (ER)	26	19.88	5.26	Critical Workload	3.91 (.39)	Very Satisfactory
Operating/Delivery (ORDR)	12	7.75	3.19	Standard Workload	4.07 (.42)	Very Satisfactory
Neonatal ICU (NICU)	9	10.44	2.46	Standard Workload	3.95 (.42)	Very Satisfactory
Outpatient Dept. (OPD)	5	26.00	5.48	Critical Workload	4.16 (.53)	Very Satisfactory
Shift: Day / Night	50 / 40	15.20 / 15.00	7.14 / 6.64	Critical / Critical	3.99 (.48) / 4.03 (.58)	Very Satisfactory
Total Sample Baseline	90	15.11	6.88	Critical Workload	4.01 (0.53)	Very Satisfactory

Note. Standard Workload refers to a ratio of 1:10 to 1:14. Critical Workload refers to a ratio of 1:15 to 1:20+

Acute structural spikes occurred within the un-capindexed OPD ($M=1:26.00$) and the ER ($M=1:19.88$), driven by centralized rural patient surges. Conversely, specialized sectors (ORDR, NICU) maintained regulated, safer ratios. The total sample achieved a uniform, high performance baseline ($M=4.01, SD=0.53$, Very Satisfactory), indicating that nurses decouple direct care output from structural deficits through adaptive workflow compression and culturally embedded *malasakit* (compassion) to safeguard vulnerable lower-income patient sets (Benner, 1984; Labrague et al., 2018).

Inferential Analyses

Spearman's rank correlation coefficient computed to test $H_0 1$ established a weak, statistically non-significant negative relationship between assigned patient loads and work performance scores, $\rho(88)=-.17, p=.109$. Thus, $H_0 1$ was not rejected.

A Mann-Whitney U test evaluated $H_0 2$, comparing the Standard Workload group (<14 patients) against the Critical Workload group (≥ 15 patients). Professional performance ranks did not significantly differ between cohorts ($U=983.50, z=-0.22, p=.827$), failing to reject $H_0 2$ (Table 2).

Table 2 Mann-Whitney U Summary for Work Performance Across Staffing Tiers

Workload Stratification Group	<i>n</i>	Mean Rank	Sum of Ranks	Mann-Whitney U	Z- value	Asymp. p (2- tailed)
Group 1: Standard (10–14 patients)	43	44.87	1,929.50	983.50	-0.22	.827
Group 2: Critical (≥ 15 patients)	47	46.07	2,165.50			

This statistical decoupling stems from a restriction of variance; because public hospitals operate in a continuous understaffed ecosystem, nurses experience varying degrees of overload

rather than standard environments. Through professional normalization, clinical cohorts compress non-acute care tasks (e.g., education, emotional support) to preserve core safety timelines, creating a statistical uniformity that masks institutional vulnerabilities.

SUMMARY

This study examined the relationship between nurse-to-patient ratios and work performance among 90 registered nurses in government hospitals in Guimarães. Findings showed a critical average ratio of 1:15.11, while nurses maintained Very Satisfactory work performance. No significant relationship or difference was found between staffing ratios and work performance, suggesting that nurses sustain performance through professionalism despite understaffing, underscoring the need for improved staffing policies.

CONCLUSIONS

This study reveals that despite a critical average nurse-to-patient ratio of 1:15.11, nurses maintained Very Satisfactory work performance through professionalism and *malasakit*. However, this resilience reflects adaptation to chronic understaffing rather than adequate staffing, masking organizational risks such as burnout, turnover, and long-term workforce instability.

RECOMMENDATIONS

Strategic Staffing Reallocation: Prioritize deploying nurses to high-demand units, particularly the Outpatient Department and Emergency Room, to reduce operational strain.

Night Shift Deployment: Align night-shift staffing with actual patient volume instead of reduced administrative allocations.

Budgetary and Regulatory Action: The Provincial Government of Guimarães, in collaboration with the DOH, should fund permanent plantilla positions and enforce nurse-to-patient ratio standards as requirements for PhilHealth accreditation and hospital licensing.

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AI DECLARATION STATEMENT

AI-supported tools were utilized solely to optimize grammar and manuscript conciseness. All data collection, statistical processing, and academic interpretation were executed exclusively by the human author.

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