

Assessing the Relationship Between Nurse-Patient Ratio, Occupational Comorbidities, Safe and Quality Healthcare Delivery Among Nurses in Primary-Level Hospitals

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ABSTRACT

This study aims to assess the relationship between nurse-to-patient ratio, occupational comorbidities, and safe and quality healthcare delivery among nurses in primary-level hospitals in the Philippines. specifically it seeks to determine the respondent's assessment of nurse-patient ratio of workload intensity, shift coverage, overtime frequency and task allocation balance, assess occupational comorbidities in terms of physical health, mental concerns and evaluate safe and quality healthcare delivery more the study aims to determine whether significant relationships exist between nurse-patient ratio, occupational comorbidities, safe and quality healthcare delivery, a quantitative descriptive-correlational research design will be utilized among registered nurses assigned to direct patient care in selected primary-level hospital, data will be gathered through a validated self-administered questionnaire measuring nurse-patient ratio, occupational comorbidities, safe and quality healthcare delivery, descriptive statistics will be used to determine the level of assessment of the study variables, while correlational will be employed to identify significant relationship among the variables, this study is theoretically guided by Betty Neuman's Systems Model, Sister Calista Roy's Adaptation Model and the Job Demands-Resource Model, which explain the interaction between workplace stressor, nurses adaptation, occupational health and professional functioning.

Keywords: Nurse-patient ratio, occupational comorbidities, safe & quality Healthcare delivery, nurse staffing level

INTRODUCTION

Globally, nurse-to-patient ratios have been recognized as a critical determinant of patient safety and care quality, a study in the Lancet By McHugh et al (2021) demonstrate that the recommended policy of minimum nurse to patient ratios in queens land Australia resulted in fewer deaths by 11%, a decreased re admission of patient and a much shorter hospital stays this underscores the importance of adequate and balanced staffing in healthcare delivery, similarly Griffiths et al. (2020) emphasized that higher nurse workload are consistently associated with the increased patient mortality and adverse events. Occupational comorbidities among nurses also have remained a pressing global trend

Statement Of the Problem

This study sought to answer the following questions:

1. What is the assessment of the respondents on Nurse-Patient Ratio in terms of:
(Workload Intensity, Shift Coverage, Overtime Frequency, Task Allocation Balance)

2. What is the assessment of the respondents on Occupational Comorbidities in t
3. What is the assessment of the respondents on Safe and Quality Healthcare
4. Is there a significant relationship between the assessment of the respondents in nurse-to-patient ratios and Safe and Quality Healthcare Delivery?
5. Is there a significant relationship between the assessment of the respondents in occupational comorbidities and Safe and Quality Healthcare Delivery?
6. Based on the findings of the study, what recommendations may be proposed to improve staffing patterns and reduce occupational comorbidities among nurses in primary-level government hospitals?

Hypotheses

1. There is a significant relationship between the assessment of the respondents in nurse-to-patient ratios and Safe and Quality Healthcare Delivery.
2. There is a significant relationship between the assessment of the respondents in occupational comorbidities and Safe and Quality Healthcare Delivery.

Scope And Delimitation

This study examined the relationship between the nurse-patient ratio, occupational comorbidities, and safe and quality healthcare delivery among nurses in primary-level government hospitals. It is limited to registered nurses in these hospitals, utilizes a structured survey questionnaire for data collection, excludes other healthcare facilities and professionals, and relies on nurses' self-reported responses during the study period.

Review Of Related Literature

Research consistently shows that high nurse-to-patient ratios increase nurses' workload, physical strain, and psychological stress, resulting in poorer patient outcomes. Studies by Chiara Dall'Ora (2022), Peter Griffiths (2023), and Parial (2024) found that inadequate staffing contributes to unsafe care, increased workload, job dissatisfaction, and a higher risk of occupational health problems among nurses. Occupational comorbidities, including work-related musculoskeletal disorders, burnout, hypertension, gastrointestinal problems, migraine, and compassion fatigue, commonly result from prolonged exposure to excessive workload and workplace stress. Studies by Jacquier-Bret and Gorce (2025), Labrague (2021, 2025), Hwang (2022), and Li LZ (2024) reported that these conditions reduce nurses' physical and psychological functioning and may mediate the relationship between staffing levels and healthcare outcomes.

Theoretical Framework

This study is anchored on Betty Neuman's Systems Model. The Betty Neuman System models explain the stressor reaction outcome pathway of this study, wherein an insufficient nurse to patient ratio leads to occupational comorbidities that influence the quality and safety of healthcare delivery, it also highlights the importance of maintaining system stability through effective stressor management and the organizational support, emphasizing that the nurse wellbeing is integral part for achieving an optimal Patient health outcome.

Conceptual Framework

This study is anchored on the Input-Process-Output (IPO) Model. The Input includes the nurse-patient ratio and occupational comorbidities. The Process involves collecting and analyzing data using a validated questionnaire. The Output is the identified relationship among the study variables, which will serve as the basis for recommendations to improve nurse staffing, occupational health, and safe, quality healthcare delivery, consistent with Betty Neuman's Systems Model.

METHODOLOGY

This study adopts a Quantitative Research Approach to examine the relationship between the variables of Nurse- patient ratio, occupational comorbidities, and safe and quality healthcare delivery among nurses in primary-level government hospitals. Quantitative research involves the systematic collection and statistical analysis of numerical data to examine relationships among the variables

Research Design

The study utilized a Quantitative comparative-correlational design because it incorporates the two important components, which are the correlational aspect that seeks to determine whether a significant relationship exists among nurse-patient ratio, occupational comorbidities, and safe, quality healthcare delivery

Research Step

Following a comprehensive review of the literature, the research instrument was adapted and validated by a panel of experts. Upon obtaining Institutional Review Board approval, the questionnaires were administered to eligible participants. The collected data were then compiled, coded, and subjected to statistical analysis.

Data Collection and Sampling Selection

Using purposive sampling, 100 registered nurses with at least six months of clinical experience in a primary-level government hospital were selected. Data were collected using a validated, researcher-adapted questionnaire consisting of a demographic profile sheet and structured scales measuring nurse-to-patient ratio, occupational comorbidities, and safe and quality healthcare delivery.

Data Analysis Methods

The collected data will be analyzed using **descriptive statistics** (frequency, percentage, mean, and standard deviation) and **inferential statistics** (Pearson correlation and *t*-test). All statistical tests will be conducted at a **0.05 level of significance** to determine the relationships among the nurse-patient ratio, occupational comorbidities, and safe and quality healthcare delivery.

Research Hypotheses and Validation

The null hypothesis (H_0), stating that there is no significant relationship between nurse-to-patient ratio, occupational comorbidities, and safe and quality healthcare delivery among

nurses, was tested using correlation analysis. The relationships among the study variables were examined through Pearson's correlation coefficient. The null hypothesis was rejected if significant associations were identified at the 0.05 level of significance, indicating that variations in nurse-to-patient ratio and occupational comorbidities were significantly related to the quality and safety of healthcare delivery.

Study Limitations and Ethical Considerations

Ethical clearance was obtained from the Institutional Review Board, and informed consent was secured from all participants. Confidentiality, anonymity, and data privacy were maintained in accordance with the Data Privacy Act. The study was limited by its single-center setting and sample size, which may affect the generalizability of findings to other primary-level government hospitals.

RESULT AND DISCUSSION

The findings of this study, overall indicate that adequate nurse staffing and healthy working condition are fundamental determinants of safe and quality healthcare delivery, in primary level government hospitals, while the nurse generally held positive views regarding staffing condition, occupational health and patient safety practice, challenges persist regarding workload intensity, overtime, organizational efficiency and chronic occupational health concern, the statistically significant relationship found in this study further confirmed that improving nurse-patient ratio and reducing occupational comorbidities are important strategies for securing patient safety, healthcare quality and organizational performance.

SUMMARY

The study found that nurses experienced heavy workloads, frequent overtime, and occupational comorbidities, particularly musculoskeletal and stress-related conditions, which affected safe and quality healthcare delivery. Moderate positive relationships were identified between the nurse-patient ratio and healthcare delivery ($r = 0.54$, $p < .001$), and between occupational comorbidities and healthcare delivery ($r = 0.60$, $p < .001$). Based on these findings, policy recommendations were proposed to strengthen nurse staffing, occupational health programs, workload management, and organizational support to improve patient safety and quality of care.

CONCLUSION

The study confirms that nurse-patient ratios are a critical determinant of safe and quality healthcare delivery. Inadequate staffing patterns were found to result in heavy workloads, frequent overtime, and imbalanced task allocation, all of which compromise patient safety and care outcomes. Furthermore, the findings highlight that occupational comorbidities among nurses—such as physical health conditions, mental health concerns, work-related injuries, and chronic illness burden—significantly affect their performance and resilience, thereby reducing the overall quality of healthcare services. Statistical analysis further validated these observations, confirming significant relationships between both nurse-patient ratio and occupational comorbidities with safe and quality healthcare. These results emphasize the need

for systemic reforms in staffing patterns and occupational health management to strengthen healthcare delivery in primary-level government hospitals.

Finally, the study underscores that addressing these issues requires policy-driven interventions aligned with national legislation such as the Universal Health Care Act (RA 11223), which ensures equitable access to quality healthcare, and the Occupational Safety and Health Standards Act (RA 11058), which mandates workplace safety and protection for healthcare workers. Together, these laws provide the framework for implementing reforms that safeguard nurse well-being and ensure sustainable, patient-centered, efficient, and equitable healthcare delivery.

RECOMMENDATION

Based on the findings, it is recommended to implement adequate nurse staffing, strengthen occupational health and wellness programs, and improve workload management through equitable scheduling and task allocation. Continuous professional development, effective implementation of workforce policies, and enhanced organizational support should also be prioritized to promote nurses' well-being, reduce occupational comorbidities, and ensure safe and high-quality healthcare delivery.

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AI DECLARATION STATEMENT

AI tools were used solely to refine language, condense content, and format the manuscript. No AI system gathered data, created respondent records, conducted statistical analysis, or assumed the researcher's role in verifying the work. The author and research adviser retain full responsibility for the study's content, data accuracy, findings, and compliance with academic standards.

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