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THE EFFECTS OF NURSE-TO-PATIENT RATIOS ON QUALITY OF PATIENT CARE IN HEALTHCARE SETTINGS OF BAHAWALPUR

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Abstract

Background: *The quality of healthcare and patient health outcomes are greatly impacted by nurse-patient ratios. Particularly in critical care units, proper staffing guarantees prompt care, lowers adverse events, and raises patient satisfaction. According to studies, larger nurse-to-patient ratios result in fewer consequences, such as infections, prescription errors, and mortality, as well as improved patient decline identification. On the other hand, low ratios raise turnover, job discontent, and burnout among nurses.*

Aim: *The current study was aimed to identify the effects of nurse to patient ratios on quality of patient care in health care settings of bahawalpur.*

Methods: *This cross-sectional descriptive research study included 73 nurses who worked in Bahawalpur's public and private hospitals. The data was collected through convenient sampling technique, using a closed-ended questionnaire before being analyzed using IBM SPSS Statistics 27.0.1.*

Result: *According to the survey, the majority of the nursing staff were female and in their early careers, and they were assigned to general wards. Most agreed that low nurse-to-patient ratios made it difficult to provide high-quality treatment. Time restraints, staff shortages, and resource limits were linked to high rates of medication mistakes, pressure ulcers, infections, and patient falls. Patient safety results indicate that both public and private hospitals in District Bahawalpur urgently require more personnel and support, even though infection control and awareness of care quality received moderate to excellent ratings.*

Conclusions: *The study highlights the significant influence of nurse-to-patient ratios on patient health within both public and private healthcare facilities in District Bahawalpur. Inadequate staffing was found to negatively affect care quality, leading to issues such as medication errors and poor communication.*

INTRODUCTION

The expense of delivering inpatient hospital nursing is one of the primary cost drivers for health systems, and nurses make up half of the global health workforce (Organization 2016). Nurses' subjective

Frontier in Medical & Health Research

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assessments of how well nursing care satisfies patients' needs and demands are referred to as nurse-reported quality of care (Liu and Aungsuroch 2018). Nurse Patient Ratios (NPRs), which are the proportion of nurses available per patient, are used to allocate the number of nurses available in each hospital unit. (Haegdorens, Van Bogaert et al. 2019). Additionally, receiving enough hours of care from a registered nurse (RN) is critical for the early detection and treatment of patient decline (Dalton, Harrison et al. 2018).

Understanding the ideal nurse-to-patient ratios is becoming more and more important as healthcare systems continue to accommodate growing numbers of patients with complicated care demands. In fact, numerous studies have demonstrated that greater nurse-to-patient ratios help create a safer and more responsive healthcare setting, which is crucial in high-acuity service delivery settings like intensive care units and emergency rooms (Grant, Davidson et al. 2020).

Thus, a much-needed area of expertise is evidence-based decision-making that links nurse staffing with patients' ever-changing care needs (Squires, Jylhä et al. 2017). Reduced energy, diminished empathy, heightened emotional weariness, and increased hopelessness are all signs of cystic fibrosis. (Peters 2018). The minimal nurse–patient ratio is one of numerous staffing approaches meant to provide adequate staffing and suitable workloads, and to consequently enhance care and decrease adverse events (Griffiths, Saville et al. 2020) .

Nursing staff appropriateness helps to achieve financial and medical advancements in patient care, including improved patient satisfaction, decreased medication errors, falls, pressure ulcers, healthcare-associated infections, and patient death, length of hospital stay and readmission, and patient care expenses. Nurses play a crucial role in intensive care units (ICUs), but there is a nursing shortage that results in lower nurses-patient ratios. The standardized nurse to patient ratio enhancement is a continuous discussion worldwide that would require an exact nurses-patients ratio to be employed for hospitals (Sharma and Rani 2020). Accordingly, having enough nurses on staff, particularly in the intensive care unit, plays a big part in making the workplace safe and healthy (Chuang, Maguire et al. 2020).

In hospitals, maintaining a well-balanced patient-to-nurse ratio is crucial; failing to do so could lead to subpar treatment, a high patient mortality rate, and more rescue attempts. Patients are not the only ones that suffer from a lopsided patient to nurse ratio. Additionally, it may lead to burnout, work discontent, and the desire of nurses to quit (Huang 2021). This study aims to investigate the low rates of hospitalized patient deaths during or soon after hospitalization. It will also examine how nurse-patient ratios, as a patient safety strategy, affect the quality of patient care and safety-related outcomes in hospitals and other healthcare facilities.(Aiken, Ceron et al. 2018).

Significance:

Due to shorter hospital stays and increased patient acuity over the past few years, hospitals have needed more registered nurses. The number and expertise of the nursing staff have a direct impact on patient care safety and quality. Some facilities' inpatient working conditions have gotten worse as a result of hospitals' inability to meet the growing demand for nurses. Some hospitals have been prompted by this circumstance to implement or contemplate regulatory actions to ensure proper staffing. These regulations set a minimum standard of staffing requirements that all hospitals, irrespective of the kinds and severity of patients, must fulfill. Insufficient local research on Palestine's nurse-patient ratios of patient mortality and ignorance of The Nurse More attention is required to the patient mortality percentages among Palestine's nursing workforce.

Literature Review

A higher workload for nurses has a negative impact on patient safety and the quality of care, claim Magalhaes et al. (2017). The applicability of the data was evaluated in this study in comparison to twelve other studies. Each trial, including one from the United States, yielded similar results, they concluded. Despite differences in environment, working hours, professional training, and other characteristics, studies conducted in a number of countries demonstrate that increasing the number of

Frontier in Medical & Health Research

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nurses and nursing hours in patient care can improve the quality and safety outcomes for patients in hospitals. Increasing the proportion of nurses in teams that also include personnel with vocational training can help improve hospital patient safety and quality
(Magalhães, Costa et al. 2017). Law et al. (2018) examined the rate of complications after the state-wide critical care unit staffing regulations were implemented. The study reported on patient death and patient complications. The total number of complications included bloodstream infections linked to central lines, urinary tract infections linked to catheters, pressure ulcers acquired in hospitals, and patient falls that resulted in injuries. Following the implementation of the staffing regulations, the study found no changes in the mortality or complications rates. (Law, Stevens et al. 2018). It is less evident how nurse staffing has changed and what the research supports in low- and middle-income countries (LMICs). Nurse staffing ratios in LMIC settings with limited resources could be as low as one nurse every shift, caring for over 25 patients. (Assaye, Wiechula et al. 2020).

Echoing Nightingale's call to action more than 150 years ago, the International Council of Nurses, which represents national nursing associations worldwide, released their Position Statement on Evidence-Based Nurse Staffing in 2018. The statement concluded that there is ample evidence to support acting immediately to improve hospital nurse staffing. If we have evidence and do nothing, we are regressing. (Van den Heede, Cornelis et al. 2020)The results of the current study were in conflict with those of a study by Liu et al. (2021), which discovered that in more than half of intensive care units, the nurse-to-patient ratio was 1:2(Liu, Nakamura et al. 2021).201 primary research conducted between 1990 and 2017 were included in the 15 literature review that Blum conducted as part of an umbrella review. They discovered that while most studies show a consistent correlation between nurse staffing levels and NSPOs, they also noted significant variance in the degree to which these outcomes are nursing-sensitive(Dietermann, Winter et al. 2021).Patient safety is jeopardized by inadequate nurse staffing, which raises the risk of adverse events such medication errors, falls, and hospital-acquired infections. Adequate staffing reduces these hazards, according to research. Ploeg et al. (2021), for instance, found that ICUs with sufficient staffing had reduced rates of ventilator-associated pneumonia and catheter-related bloodstream infections. According to Griffiths et al. (2021), burnout and weariness among nurses in understaffed units raise the risk of mistakes, whereas proper staffing lowers these occurrences and guarantees better patient surrounding (Griffiths, Saville et al. 2021).

Studies utilizing regularly gathered data in the healthcare industry have steadily increased in recent years. These studies include those that connect patients to the staffing levels they encounter during their hospital stay by utilizing patient records and electronic rostering systems
(Musy, Endrich et al. 2020). Fan et al. (2021) use a retrospective review to examine how COVID-19 affected bed capacity and nurse staffing needs. The need for isolation beds increased as a result of COVID-19, necessitating the hiring of additional nurses. The capacity of isolation bedsore from January–March 2020: less than 203 beds; March–April 2020: up to 487 beds. Between 1.1 and 70.2 nurses were needed in isolation units in April 2020. (Fan, Nguyen et al. 2021). Chen et al. (2019) used self-questionnaires to collect data on 1409 full-time registered nurses working in Taiwanese medical and surgical wards. Higher levels of job satisfaction and burnout were indicated by higher average daily patient-nurse ratios. As a result, more nurses wish to quit their jobs. leading to an even more severe scarcity of nurses. (Chen, Guo et al. 2019). Having a sufficient number of nurses on staff is essential to providing high-quality patient care. Poorer ward nurse staffing is linked to adverse patient care outcomes, such as an increased risk of patient mortality, a longer hospital stay, and an increased risk of hospital-acquired complications, according to research primarily from high-income countries (HICs). (Aiken, Sloane et al. 2017)

Methodology

A descriptive cross-sectional study was conducted among registered nurses working in both public and private health sectors of District Bahawalpur from January 2025 to April 2025. A convenience sampling

Frontier in Medical & Health Research

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technique was used to recruit participants (73 as a Sample). The inclusion criteria consisted of registered nurses currently employed in clinical settings, while Lady Health Visitors (LHVs), Certified Nursing Assistants (CNAs), and nursing students were excluded from the study.

Data were collected using a structured questionnaire distributed in person. Responses were anonymized to ensure confidentiality**.** The data were analyzed using SPSS version 27.0**,** where both demographic characteristics and study variables were expressed in terms of frequencies and percentages. Additionally, Microsoft Excel 2010 was used to categorize levels of burnout and compile total frequencies and percentages related to quality of care variables.

As Illustrated in table 1, the study included 76 participants: 18 (23.7%) were male and 58 (76.3%) female. In terms of educational qualification, a significant proportion of the nurses held a Post RN qualification (72.4%)**,** followed by General Nursing (**18.4**%), and a smaller group with a BSN (**9.2**%).Among them, 48 (64.5%) were staff nurses and 27 (35.5%) charge nurses. In terms of experience, 58 (76.3%) had less than five years, 13 (17.1%) had five to eight years, and 5 (6.6%) had over eight years. Most participants (49, 64.5%) worked in general wards, while 27 (35.5%) were in critical care units.

Results

Section A: Demographic Data

Variables	Frequency	Percentage
Gender		
Female	58	76.3%
Male	18	23.7%
Qualification		
General Nursing	14	18.4%
BSN	7	9.2%
Post RN	55	72.4%
Position		
Staff Nurse	49	64.5%
Charge Nurse	27	35.5%
Working Experience		
Less than 5year	58	76.3%
5-8 years	13	17.1%
More than 8 years	5	6.6%
Working Area		
Critical Areas	27	35.5%
General Ward	49	64.5%

Table 1: Demographic Data

Section B: Core Study Variables Data

The aggregated data clearly indicates that inadequate nurse-patient ratios are associated with increased time pressure on nurses, higher frequencies of patient safety incidents (falls, infections, medication errors), compromised communication and patient-centered care, task prioritization at the expense of comprehensive care delivery, moderate compliance with infection control and quality protocols, and an overall sense of overburden among nursing staff.

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

Items Summary	Poor f(%)	Good f(%)	V. Good f(%)	Excellent f(%)
Patient quality of care in the concerned ward	14(18.4%)	38(50%)	15(19.7%)	9(11.8%)
Following infection control protocols	15(19.7%)	22(28.9%)	30(39.5%)	10(13.2%)
Recognizing the impact of Quality of care on patient outcomes	12(15.8%)	20(26.3%)	34(44.7%)	10(13.2%)
With the current staffing level, an appropriate time for providing quality nursing care to each patient	8(10.5%)	20(26.3%)	34(44.7%)	13(17.1%)
Frequency of medication errors	18(23.7%)	17(22.4%)	31(40.8%)	10(13.2%)
Frequency of patient pressure ulcer	22(28.9%)	19(25%)	27(35.5%)	8(10.5%)
Frequency of patient fall	20(26.3%)	16(21.1%)	27(35.5%)	13(17.1%)
Frequency of UTIs	22(28.9%)	18(23.7%)	28(36.8%)	8(10.5%)
Frequency of blood stream infection	19(25%)	20(26.3%)	24(31.6%)	13(17.1%)
Communication challenges with patients due to limited interaction time	13(17.1%)	32(42.1%)	20(26.3%)	11(14.5%)
Limited resources negatively impact your nursing care to a patient	14(18.4%)	19(25%)	27(35.5%)	16(21.1%)
Prioritize tasks due to time limitations	12(15.8%)	22(28.9%)	28(36.8%)	14(18.4%)
Compromise patient care due to staffing shortage	11(14.5%)	23(30.3%)	28(36.8%)	14(18.4%)

Table 2: Core Study Variables

The findings indicate that patient health outcomes, service quality, and nursing efficiency are all directly impacted by poor nurse-patient ratios in District Bahawalpur's public and private hospitals.

DISCUSSION:

This study explored the impact of nurse-to-patient ratios on patient outcomes in Bahawalpur health care settings. The findings indicate that high workloads and insufficient staffing significantly compromise the quality of care delivered by nurses, despite their commitment and awareness of professional responsibilities.

A significant proportion of nurses reported frequent occurrences of medication errors, pressure ulcers, and communication difficulties due to time constraints. These findings align with the study of (Cho, Lee et al. 2016) who found that inadequate nurse staffing and frequent overtime were significantly associated with reduced quality of care and higher rates of "care left undone." Similarly, (Jun, Ojemeni et al. 2021) emphasized that burnout caused by workload is a strong predictor of decreased nurse retention and higher turnover intentions, exacerbating staff shortages and impacting long-term patient safety.

Despite these challenges, many nurses maintained infection control protocols and reported positive patient outcomes, mirroring findings from Mardan Medical Complex, where nurses remained committed under pressure. However, emotional and physical fatigue observed among participants aligns with global research linking burnout to increased adverse events (Magalhães, Costa et al. 2017). Communication gaps and limited interaction time may further impact patient trust and satisfaction, indicating a need to restructure staffing models.

Griffiths et al. (2009) conducted a systematic review and found that higher registered nurse staffing levels are associated with better patient outcomes, including reduced mortality rates. This supports the notion that improving staffing ratios is beneficial not only for patient outcomes but also crucial for the mental well-being and retention of nursing staff. Additionally, Ploeg et al. (2021) highlighted that nurse staffing levels directly influence patient outcomes, reinforcing the importance of adequate staffing in healthcare settings(Griffiths 2009).

Conclusion:

The study highlights the significant influence of nurse-to-patient ratios on patient health outcomes within both public and private healthcare facilities in

Frontier in Medical & Health Research

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District Bahawalpur. Inadequate staffing and heavy workloads were found to negatively affect care quality, leading to issues such as medication errors and poor communication. Although nurses remain committed to their duties, these challenging conditions contribute to physical exhaustion, emotional stress, and diminished job satisfaction. Research supports that optimal nurse staffing improves patient safety and lowers mortality rates. Thus, restructuring staffing systems is crucial to ensure high-quality, safe, and sustainable healthcare services.

Study Limitations

- Data was self-reported via questionnaires, introducing possible response bias.
- No stratification was done based on hospital type or unit specialization.
- Recommendation for Future Research
- Future studies should include broader geographic regions and analyze outcomes across different units.
- Qualitative assessment and longitudinal data could better explore long term impacts of staffing levels.

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