



Original Article



Nurse's Workload, Patient Safety and Quality of Care; A Descriptive Study in Tertiary Care Hospital

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ABSTRACT

The study was conducted on Registered Nurses at Mardan Medical Complex, Mardan Khyber Pakhtunkhwa. **Objective:** To explore the nurses' workload, its effect on patient safety and quality of care in Mardan Medical Complex, Mardan. **Methods:** A descriptive cross-sectional design was selected for the study. A sample size of 107 nurses was calculated through Raosoft software. For this, data collection tools consisted of a Demographic profile, the Maslach Burnout Scale, and the Nurses Report of Quality of Care. The collected data were analyzed through a Statistical Package of Social Sciences (SPSS) version 26.0 and Microsoft Excel. **Results:** On analysis of 115 structured questionnaire responses, the result disclosed most of the nurses were fed up with working all day long and delivered their maximum effort for their patients with the inappropriate number of staff. They rationalized their hard work with the belief in equality and providing care to humanity. With a high workload, they still feel satisfied and treat their patient apathetically. The nurses showed relatedness of poor quality of care to the high workload and low nurse-patient ratio. **Conclusions:** The nurses' workload has a direct effect on the patient's health. To maintain the quality of care, the nurse-patient ratio needs to be standardized. With an appropriate nurse-patient ratio, the nurses will then not prioritize the major intervention but will comprehensively and holistically care for their patients which will positively affect the quality of patient care.

INTRODUCTION

The workload of nurses is an essential issue that influences the quality of patient care worldwide. This issue has gained considerable notice from researchers due to its deep impact on patient safety. As universal demand for healthcare services grows, understanding how workload affects nursing care and patient outcomes. Nurses' workload has been identified as a major factor impacting patient safety and quality of care [1]. This workload has a rigorous impact on the provision and working of nurses in the prerequisite of care services in hospitals [2]. If a nurse suffers from burnout syndrome, the nursing care delivered to the patient will be compromised [3]. Workload prevents healthcare workers from doing their everyday jobs well,

compromising patient safety [4, 5]. The workload of higher levels tends to be evaluated as poor patient safety in the specific work unit and generally in the hospital as a whole [6]. With such a burden, the nursing care for the patient is badly affected and the quality of nursing care which is the main focus of the nursing profession is compromised by stressful healthcare settings [7]. Workload has an undeviating connection with multiple factors associated with nurses and patients such as nursing care of low quality and patient safety [8]. Unfavorable outcomes arise due to workload among nurses closely related to patients, such as medication errors and nosocomial infections [9, 10]. Workload has always been a problem threatening nursing



personnel and associated with nurse shortages all over the world. Globally, an 11.23% occurrence of workload among nurses was reported in a study in Namibia [11]. One of the researchers found that 15 Dutch ICUs were exposed to mortality related to the nursing workload [12]. Furthermore, a study in sub-Saharan Africa reported 33% burnout in nurses [11]. It was found that an increase in the workload of nurses by one patient increases patient mortality by 3.4%, and an increase in intention to leave by 10% causes an increase in patient mortality by 14% [13]. Nurses are considered the backbone of the hospital as they are the main personnel in the health care system [14]. The employment level is compromised both in developing and developed countries [15, 16]. In existing, for health care providers workload creates a stressful area to work especially impacting patient safety [17]. According to a study on European Nurses' Early Exit study performed by over 61,000 nurses, they were reported that 70% of the sample population mentioned heavy workloads as their main reason for planning to leave their jobs [18]. Workload strongly relates to the care provided for the patients and their safety [19]. Nurses from Khyber Pakhtunkhwa expressed that the work area of public tertiary care hospitals was fault-finding for practice [7]. The nurse-to-patient ratio varies from 1:3 for patients after surgical procedures to 1:1 for intensive care patients and 2:1 for demanding patients [12].

Moreover, it could lead to the provision of quality care and assess the impact of workload on patient safety and quality of care in tertiary care hospitals.

METHODS

A Descriptive Cross-sectional study was conducted with registered nurses through convenient sampling after IRB approval, from May to July 19, 2024. The ethical approval was taken from Mardan College of Nursing, BKMC Mardan (No. 2115/MCNM). Questionnaires were distributed manually among those nurses who were willing to share their experiences and on duty Nurses of all units at Mardan Medical Complex (MMC) were included in the study. Exclusion criteria the nurses' ages above 35 years, on leave or and those who refused to participate were excluded from the study. The data were collected through convenient sampling and sample size was calculated on Rao Software: Margin error 7%, Confidence level 95%, Population size 230, Response distribution 50%, and Sample size 107. The data collection tools consisted of two parts; quantitative and qualitative variables. Quantitative variables of the study were Demographic factors i.e. age, gender, job title, qualification, position, hospital, domicile, experience, unit, and marital status and the 2nd Maslach Burnout Inventory (MBI) self-assessment tool of 7-Point Likert Scale tool with three subscales: Emotional Exhaustion (EE): Low (≤ 17), Moderate (18-29), High (≥ 30). Depersonalization (DP): Low (≤ 5), Moderate (6-11), High

(≥ 12). Personal Accomplishment (PA): Low (≤ 33), Moderate (34-39), High (≥ 40). Burnout was indicated by high scores in EE and DP and low scores in PA. The qualitative variable were the Nurses' Reports of Quality of Care to assess the works load on nurses and patient quality care. It was a 13 questionnaire issued by Bruyneel 2009 used to find out the quality of care by collecting data from nurses. As it modified a 13-question modified questionnaire rated on a 4-point scale (Poor to Excellent and Never to Very Frequently). Responses with high frequencies for "Good" or "Often" indicated better quality of care. This modified tool was checked by three experts in the nursing field in MTI Mardan. The Cronh's Bach's alpha value for the MBI scale was 0.78 and Nurses' Reports of Quality of Care were calculated as 0.62 which were both reliable. The data were analyzed using SPSS version 26.0. The demographic and tool variables were entered into the software and converted to frequency and percentage maintains confidentiality. Frequency and percentage distributions were calculated for demographic characteristics such as age, gender, job title, qualifications, years of experience, unit of work, and marital status. Through Microsoft Excel 2020, the levels of burnout were categorized according to the mentioned criteria, and the total frequencies and percentages of the variables of quality of care were calculated.

RESULTS

A structured questionnaire was distributed manually among nurses in MMC, a tertiary care hospital in Khyber Pakhtunkhwa. A total of 115 nurses completed the questionnaire among which 38.3% were male and 61.7% were female. The marital status of participants varied in which 33.9% were married and 66.1% were unmarried. The qualification of the nurses comprises BSN, Post RN, and general nursing. Moreover, the positions of the nurses were divided into two categories; staff nurses held 87.0% while charge nurses took 13.0%. The service duration varied in which approximately 78.3% have less than 5 years, 14.8% have 5 to 8 years, and 7.0% have greater than 8 years of experience. The working areas were distributed into Critical areas including Medical and Surgical ICU, CCU, Pead's, and NICU, and General areas comprised of Medical and Surgical wards, Urology, ENT, Neurology, and chest ward as showed in table 1.

Table 1: Demographical Profile of the study Participants (n=115)

Variables	N (%)
Gender	
Male	44 (38.3%)
Female	71 (61.7%)
Marital Status	
Married	39 (33.9%)
Unmarried	76 (66.1%)

Qualification	
General Nursing	18 (15.7%)
BSN	78 (67.8%)
Post RN	19 (16.5%)
Position	
Staff Nurse	100 (87.0%)
Charge Nurse	15 (13.0%)
Working Experience	
<5 Years	90 (78.3%)
5-8 Years	17 (14.8%)
>8 Years	8 (7.0%)
Working Areas	
Critical Areas	29 (25.2%)
General Wards	86 (74.8%)

According to the MBI scale, the analysis of the responses shows that most of the participants marked moderate to high burnout in the first two sections while in section C, the majority marked low burnout. As per the criteria, these high scores in the first two sections with lower scores in section C indicate "Burnout" which addresses the high workload on nurses as showed in Table 2. Nurses reported through the structured questionnaire as being stressed and fed up with their greater efforts while working with the patients all day long. They were very enthusiastic about their work and they build a therapeutic relationship with the patient which helps them to understand the problems and this relationship helps the patient to freely explain their problems. Therefore, the nurse looks after the problems of the patients effectively and shows a positive effect on the people and thus it makes them satisfied with their job and duty.

Table 2: Maslach Burnout Inventory (MBI)

MBI Scale	Low Burnout N (%)	Moderate Burnout N (%)	High-level Burnout N (%)
Section A (Emotional Exhaustion)	18 (15.7%)	62 (53.9%)	35 (30.4%)
Section B (Depersonalization)	0	07 (6.1%)	108 (93.9%)
Section C (Personal Accomplishment)	86 (74.8%)	15 (13.0%)	14 (12.2%)
Total Responses	115 (100%)	115 (100%)	115 (100%)

Regarding the Quality care report by nurses of different wards in the hospital, about half of the participants showed satisfactory results and rated the care that was delivered in their unit as Good. The infection control protocols were followed by the staff which leads to quality care of the patient and also leads to overcoming their stay in the hospital but still, the staff was not satisfied with the staffing ratio of this hospital and they believe that such staffing can compromise quality care. Despite the overload at the wards, the staff managed the medication errors very effectively and also had good control over nosocomial infections in addition to this the ratio of patient falls was very low. Due to inappropriate staffing ratio, nurses have to prioritize the care and sometimes they prefer to skip the care due to its least requirement because of limited

resources and work overload as mentioned in table 3.

Table 3: Nurses' Reports of Quality of Care, Recommendations and Patient Outcomes

Items Summary	Poor N (%)	Good N (%)	Very Good N (%)	Excellent N (%)
Patient Quality of Care in the Concerned Unit/Ward	08 (7.0%)	55 (47.8%)	28 (24.3%)	24 (20.9%)
Summary	Never	Often	Frequently	Very Frequently
Following Control Infection Protocols	14 (12.2%)	44 (38.3%)	46 (40.0%)	11 (9.6%)
Recognizing the Impact of Quality of Care on Patient Outcomes	5 (4.3%)	34 (29.6%)	60 (52.2%)	16 (13.9%)
With the Current Staffing Level, an Appropriate Time for Providing Quality Nursing Care to each Patient	19 (16.5%)	47 (40.9%)	34 (29.6%)	15 (13.0%)
Frequency of Medication Errors	39 (33.9%)	47 (40.9%)	18 (15.7%)	11 (9.6%)
Frequency of Pressure Ulcers	36 (31.3%)	44 (38.3%)	22 (19.1%)	13 (11.3%)
Frequency of Patient Falls	44 (38.3%)	35 (30.4%)	20 (17.4%)	16 (13.9%)
Frequency of UTIs	27 (23.5%)	41 (35.7%)	30 (26.1%)	17 (14.8%)
Frequency of Bloodstream Infection	35 (30.4%)	41 (35.7%)	26 (22.6%)	13 (11.3%)
Communication Challenges with Patients due to Limited Interaction Time	12 (10.4%)	36 (31.3%)	43 (37.4%)	24 (20.9%)
Limited Resources Negatively Impact your Nursing Care to a Patient	12 (10.4%)	36 (31.3%)	36 (31.3%)	31 (27.0%)
Prioritize Tasks due to Time Limitations	17 (14.8%)	35 (30.4%)	38 (33.0%)	25 (21.7%)
Compromise Patient Care due to Staffing Shortage	13 (11.3%)	32 (27.8%)	35 (30.4%)	35 (30.4%)

DISCUSSION

This descriptive study examines how nurse workloads affect patient care. Increased workload lead to burnout, characterize by emotional exhaustion and depersonalization, which negatively impacted patient safety due to staffing shortages and low job satisfaction. Low staffing ratios were identified as a key factor in high workloads. Even with this challenge, nurse's shows loyalty to infection prevention and report that their work made them more aware and caring toward others. In looking back at the literature, the long day of work and high patient flow were reported to contribute to the workload of the nurses [13-15]. In support of this finding, another study also explored the association of high workload with poor quality of care and vulnerability to patient safety [16-18]. In the present study, the participants reported that they prioritized their intervention due to limited staff and high patient flow. This was supported by literature where the investigator points out the same finding that patient care was delayed or incomplete due to the nurse-patient ratio [19]. The literature supports the reported exhaustion of participants as nurses feel fatigued and unable to provide

standardized care to each patient which worsens the quality of care and was contributed by a shortage of nursing staff [20]. This fatigue and overwhelming lead to compromised nursing care, stress and burnout in staff, and overall low job satisfaction as mentioned in previous studies [21]. On the other side, a meta-analysis concluded that communication skills and interaction with the patients affect the quality of care [22]. Moreover, one of the studies summarizes the findings that a positive cultural environment for work and enough resources in the institutes with appropriate staffing ratios can improve patient quality of care and safety in the health care system [23]. The participants of the current study with the increased workload still tried to provide quality care and were successful in minimizing adverse events like medication errors and patient falls. Contrary to this finding, a study conducted in Jordan showed a linkage between increased workload and adverse events like medication errors [24]. Besides the above discussion, this study has some limitations. The participants of the study were taken from one tertiary care hospital. The workload and quality of care were pointed out through the mentioned two scales. Furthermore, the study displayed the responses of workload, patient safety, and quality of care of the participants collectively without any categorization. Further research was needed in similar domains to analyze findings with gender base classification and of different units separately. Also, other validated tools were needed for quantifying the nurses' workload and patient safety for better outcomes.

CONCLUSIONS

The major depressing correlation among nurses' emotional exhaustion and depersonalization with quality of care scores show up the damaging impact of workload on patient safety. This result support the study's objective to investigate the relationship between nurse workload and the quality of care provide. Address burnout and civilizing workload managing were the vital to boost both nurse well-being and patient outcome, finally encouraging a safer healthcare environment.

Authors Contribution

Conceptualization: S

Methodology: SUR, AM, MI, MA, SG

Formal analysis: MI, MU

Writing, review and editing: SUR, IN, S

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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