

Original Article

Missed Nursing Care at Tertiary Hospital, Bharatpur, Chitwan

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Abstract: Missed nursing care refers to necessary nursing care that is delayed, partially completed, or missing in a clinical, emotional, administrative aspect or for any number of possible reasons that might be of intentional or unintentional nature. It is a significant concern globally, affecting healthcare delivery and patient outcomes. This study aimed to assess missed nursing care at tertiary hospital, Bharatpur, Chitwan. A descriptive, cross-sectional study design was carried out among nurses working in general and critical care unit of Chitwan Medical College Teaching Hospital. Probability simple random sampling technique was used to select 150 nurses as a sample. A structured self-administrated survey questionnaire was used to collect the data. Collected data were analyzed on IBM SPSS version 24.0 using descriptive and inferential statistics. Chi-square or Fisher's exact tests were used to examine associations between missed nursing care and selected variables. Regression model was constructed to identify the predictors for missed nursing care. The median score of the missed nursing care was 58.2%. Nearly two third (62.7%) had low and more than one third (37.3%) had moderate missed nursing care. None of the respondents had high missed nursing care. Missed nursing care is predicted by professional qualification ($\beta=0.939$, 95%CI:1.140-5.736), designation ($\beta=2.197$, 95 % CI:2.263-30.343), working department ($\beta=1.726$, 95% CI: 2.389-13.208), and faced emergency ($\beta=0.868$, 95% CI:1.005-5.648). The study concluded that missed nursing care at the Tertiary Hospital Bharatpur, Chitwan, is moderate level. Hence hospital and nursing administrators need to plan and implement the programmed to reduce the incidence of missed nursing care in the hospital considering the identified predictors to enhance nursing care quality and elevating patient care standards.

Keywords: tertiary care, missed, nursing care

1. INTRODUCTION

The phenomenon of missed nursing care was initially identified by Kalisch [1]. It refers to essential nursing care that is delayed, partially completed, or omitted for various reasons, such as clinical, emotional, or administrative factors [2]. Also known as implicitly rationed care, nursing care left undone, unmet patient needs, or unfinished nursing care, this phenomenon is a significant concern in healthcare systems worldwide [3]. While the type of nursing care, and its intensity, incidence, and causes differ across countries [4], many scholars agree that factors may have a detrimental effect on patient safety outcomes and nursing care quality. Therefore, it is crucial to explore the factors

contributing to missed nursing care to develop effective strategies to address this issue [5]. Kalisch identified the major omissions in nursing care, including ambulation, position changes, mouth care, or undelivered food trays, patient education, discharge planning, recording vital signs, intake and output documentation, as well as hygiene and surveillance [6]. In recent years, many health care organizations worldwide have confronted numerous challenges such as budget cuts, nursing shortages, and economic crises [7], leading to additional measures to ensure the appropriate allocation of scarce resources [8]. However, these challenges may negatively impact nursing practice and the profession by causing delays, omissions, or rationing of nursing care [9]. The prevalence of missed nursing care appears to be high, both in the United States and internationally, ranging from 55% to 98%. The developed countries are also not spared from hazardous effects of missed nursing care [10]. Similarly in England, 86% nurses reported that one or more care activity had been left undone [11]. Likewise, a study in China revealed that the most frequently missed nursing care items, ranging from 12.7% to 51.8%, were related to basic care [12]. Another study in India found that 74.8% of nurses reported that communicating information before tests and therapy, as well as giving discharge advice, were sometimes, frequently, or always missed [13]. An inadequate number of nurses is the main reason for the lack of inadequate care. When few nurses care a large number of patients, it increases their workload [14]. Factors contributing to missed nursing care include increased workload, working conditions, and intensified work due to overtime. Additionally, unexpected situations such as urgent changes in a patient's condition, high patient admissions, and discharges contribute to missed care [15]. A lack of supplies and equipment also leads to missed nursing care. Shortages of medications, unavailable or malfunctioning medical equipment are significant causes of missed care. Communication breakdown and tension among nurses and other team members are also key factors that cause missed nursing care [16]. Scholars widely agree that these factors negatively affect patient safety outcomes and the quality of nursing care [17]. Missed nursing care harms both patients and nurses that leads to seriously negative patient outcomes, deteriorating patient care quality overall, such as nosocomial infections, pressure ulcers, inadequate ambulation, patient falls, pneumonia, upper gastrointestinal bleeding, medication errors, cardiac arrest, and mortality [18]. Nurses working in units with fewer missed care instances tend to have better job positions and higher job satisfaction levels. Thus, missed nursing care contributes to nurses' job satisfaction [19]. It is crucial for nursing staff to be accountable for the quality of care provided. Identifying care omissions and related factors allows for the implementation of strategies to reduce them, thus addressing the issue of missed nursing care. The aim of the study is to assess the missed nursing care at tertiary hospital in Bharatpur, Chitwan, to identify the level of missed nursing care, to measure the association of missed nursing care with selected variables, to assess the predictors of missed nursing care.

2. MATERIALS & METHOD

A cross-sectional study design was used to assess the missed nursing care among nurses at tertiary hospital, Bharatpur, Chitwan. This study was conducted at Chitwan Medical College Teaching Hospital (CMC-TH) situated at Bharatpur-10, Chitwan, Nepal which was established on 20 th June 2006. CMC-TH is a tertiary hospital, which is in Bagmati province. It occupies 750 beds and provides various general and specialized services to the society. The study population comprised of all registered nurses working on shift duty in the general ward, emergency, and critical care units of CMC-TH. The total number of nurses working at CMCTH was 240, excluding those working in the Outpatient Department (OPD), Operation Theater (OT), as well as Nursing supervisors and Nursing Director. The sample size was calculated based on the prevalence of missed nursing care and related factors in Iranian hospitals [20]. Total nurses in CMCTH were 265. Excluding nurses working in Outpatient Department (OPD), Operation Theater (OT), Nursing supervisor and Nursing director, the total working nurses were 240. Sample size was calculated by using the Cochran's (1977) formula. Therefore, required sample size for this study =

136+14 = 150 A probability sampling technique using simple random sampling with a lottery system without replacement was employed to select 150 nurses. Total list of the nurses was obtained from human resource department of the hospital. All the department of the hospital were visited by the researcher herself prior to data collection to maintain the quality of sampling frame and all the names of the nurses were listed. Finally, 150 nurses were selected from the population through lottery method.

Total nurses working at CMCTH: 265

Eligible nurses: 240

Nurses selected through simple random sampling (n = 150)

Respondents (n = 150)

A structured, self-administered questionnaire was developed by the researcher based on relevant literature and in consultation with experts for the socio- demographic and professional characteristics. Five-point rating scale was used to assess the missed nursing activities. The instrument consisted of two parts: Questions related to Demographic and Professional Characteristics included age and the profession related variables such as education, designation, professional work experience, professional experience in current institution, work shift, duty shift, satisfaction with current position. Descriptive statistics such as frequency, percentage, median, and interquartile range (IQR) were computed to describe socio-demographic and professional characteristics, as well as the level of missed nursing care overall score. Non-parametric tests, such as the chi-square test or Fisher's exact test were used to examine the non-directional association between the dependent variable (missed nursing care) and each independent categorical variable. Univariate binary logistic regression analysis was performed to find out the association between independent continuous variables and dependent variables. The value & quote; low & quote; and & quote; moderate & quote; for missed nursing care was assigned as 0 and 1, respectively. Explanatory variables were coded as 1 for the presence of a categorical effect and 0 for the absence of a categorical effect. Coding was done according to the nature of the variables. Variables that were significantly associated with missed nursing care in bivariate analysis at a 5% level of significance were further analyzed to check for the assumption of multicollinearity between independent variables. Considering all significant factors which satisfy the assumption of multicollinearity, a multivariate binary logistic regression was run to see the impact of those significant factor in moderate missed nursing care. Hosmer and Lem show test were used to test goodness of fit for regression model. The analysis was fitted into logistic regression model: $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \dots + \beta_kX_k$, where Y is the log of odds of dependent variable, β_0 is the constant and X is the independent variable. All the significant was set at $p < 0.05$.

3. RESULTS & DISCUSSION

The results outlined the sociodemographic and professional characteristics, missed nursing care individual domains across the nursing process, score of missed nursing care on each domain, level of missed nursing care, and associations between missed nursing care and selected variables. Additionally, results describes the multivariate binary regression analysis to identify significant predictors of moderate missed nursing care.

TABLE 01: Socio-demographic and Profession-Related Characteristics of the Respondents

Variables	Number	Percent
Age in years	146	97.3
20-30	4	2.7
31-40		

<i>Median: 24, Inter Quartile Range: (22-26) Range:(20-40)</i>		
Total experience in the nursing field in months		
<12	95	63.3
≥12	55	36.7
<i>Median: 42, Inter Quartile Range : (24-63) Range:(11-108)</i>		
Current ward experience in months		
< 12	90	60.0
≥12	60	40.0
<i>Median: 13, Inter Quartile Range: (11-19) Range:(4-108)</i>		
Professional qualification		
Proficiency certificate level	91	60.6
BN/B.SC. nursing	58	38.7
MN	1	0.7
Designation		
Staff Nurse	106	70.6
Senior staff nurse	37	24.7
Nursing officer	6	4.0
Senior nursing officer	1	0.7
Working unit/ward		
General	87	58.0
Critical	63	42.0
Working hours per week		
48	11	7.3
> 48	139	92.7
Most often duty shift		
Morning shift only	32	21.3
Evening shift only	21	14.0
Night shift only	4	2.7
Rotating shift	93	62.0

TABLE 02: Profession Related Characteristics of the Respondents

Variables	Number	Percent
Satisfied with your current designation		
Yes	97	64.7
No	53	35.3
Plan to leave the job		
Yes	98	65.3
No	52	34.7
Received supervision		
Yes	138	92.0
No	12	8.0
Support from supporting staff		
Yes	96	64.0
No	54	36.0

Support from a multidisciplinary team		
Yes	79	52.7
No	71	47.3
Sufficient resources and supplies		
Yes	93	62.0
No	57	38.0
Faced any Emergency/critical situation		
Yes	111	74.0
No	39	26.0
Attended any CME/CNE related to nursing care/practice		
Yes	62	41.3
No	88	58.7

Table 02 outlines the professional-related attributes of the respondents. The majority, constituting 64.7%, express contentment with their current positions. Looking forward, 65.3% are intending to leave the job. In terms of supervision, all most all, 92.0% assert they receive sufficient guidance from seniors, while majority 64.0% report satisfactory support from their supporting staff.

TABLE 03: Respondents Missed Nursing Care during Assessment Phase

Characteristics	1 No. (%)	2 No. (%)	3 No. (%)	4 No. (%)	5 No. (%)
Patient's overall assessment	24(16.0)	76(50.7)	44(29.3)	5(3.3)	1(0.7)
Vital signs and documentation	0(0.0)	0(0.0)	34(22.7)	65(43.3)	51(34.0)
Pain/discomfort	23(15.3)	46(30.7)	70(46.7)	10(6.7)	1(0.7)
Sleep pattern	21(14.0)	42(28.0)	61(40.7)	24(16.0)	2(1.3)
Fall risk	25(16.7)	47(31.3)	60(40.0)	12(8.0)	6(4.0)
Skin integrity /pressure ulcer risk	30(20.0)	64(42.7)	42(28.0)	14(9.3)	0(0.0)
Intravenous Site and Intra-arterial Catheter	1(0.7)	9(6.0)	21(14.0)	66(44.0)	53(35.3)
Surveillance of Confused Impaired Patients	17(11.3)	58(38.7)	46(30.7)	17(11.3)	12(8.0)
Nutritional status	34(22.7)	52(34.7)	29(19.3)	31(20.7)	4(2.7)
Input and Output	34(22.7)	83(55.3)	26(17.3)	7(4.7)	0(0.0)
Reassessment and Documentation	13(8.7)	62(41.3)	46(30.7)	21(14.0)	8(5.3)

1: Always missed, 2: Frequently Missed, 3: Occasionally Missed, 4: Rarely Missed, 5: Never Missed

Table 03 shows various aspects related to nursing assessment while delivering patient care. Noteworthy observations include more than half, 50.7% frequently neglect conducting an overall patient assessment at the commencement of each shift during handover and handoff. Significant, 65.0% frequently overlook assessing vital signs and documenting them. Majority (70.0%) intermittently omit assessing pain and discomfort for all admitted patients. Additionally, 40.7% sporadically disregard assessing the patient's sleep pattern during their hospital stay. Precisely at 40.0% intermittently bypass assessing the fall risk assessment for all admitted patients. Noteworthy, 42.7% frequently omit assessment of skin integrity/wound care.

TABLE 04: Respondents Missed Nursing Care during Diagnosis Phase

Characteristics	1 No. (%)	2 No. (%)	3 No. (%)	4 No. (%)	5 No. (%)
Identification of the focused problem nursing diagnosis	65(43.3)	34(22.7)	33(22.0)	11(7.3)	7(4.7)
Identification of risk nursing diagnosis	127(84.7)	15(10.0)	4(2.7)	4(2.7)	0(0.0)
Identification of health promotion nursing diagnosis	121(80.7)	21(14.0)	4(2.7)	4(2.7)	0(0.0)
Identification of syndrome nursing diagnosis	106(70.7)	30(20.0)	5(3.3)	7(4.7)	2(1.3)

1: Always missed, 2: Frequently Missed, 3: Occasionally Missed, 4: Rarely Missed, 5: Never Missed

TABLE 05: Respondents Missed Nursing Care during Planning Phase

Characteristics	1 No. (%)	2 No. (%)	3 No. (%)	4 No. (%)	5 No. (%)
Assigning and/or setting priorities to the nursing diagnosis and collaborative problems	49(32.7)	33(22.0)	25(16.7)	32(21.3)	11(7.3)
Preparing a nursing care plan	144(96.0)	2(1.3)	1(0.7)	3(2.0)	0(0.0)
Identifying and specifying the immediate, intermediate, and long-term goals	126(84.0)	11(7.3)	6(4.0)	4(2.7)	3(2.0)
Identifying and determination of multidisciplinary/ collaborative activities	34(22.7)	13(8.7)	25(16.7)	59(39.3)	19(12.7)
Ensuring patient discharge planning and teaching	12(8.0)	9(6.0)	14(9.3)	59(39.3)	56(37.3)

TABLE 06: Respondents Missed Nursing Care during Intervention (Basic care) Phase

Characteristics	1 No. (%)	2 No. (%)	3 No. (%)	4 No. (%)	5 No. (%)
Overall orientation to the patient/visitors/caretaker	0(0.0)	9(6.0)	26(17.3)	69(46.0)	46(30.7)
Provide patient basic care	5(3.3)	17(11.3)	35(23.3)	49(32.7)	44(29.3)
Maintain patient personal hygiene	6(4.0)	21(14.0)	33(22.0)	48(32.0)	42(28.0)
Skincare/wound care	4(2.7)	11(7.3)	37(24.7)	53(35.3)	45(30.0)
Bowel/bladder care	3(2.0)	36(24.0)	36(24.0)	40(26.7)	35(23.3)
Arterial (A-line) and/or Intravenous (IV) site care	4(2.7)	7(4.7)	17(11.3)	58(38.7)	64(42.7)
Patient comfort measures and wellbeing	16(10.7)	33(22.0)	50(33.3)	26(17.3)	25(16.7)
Specific nutritional requirements and diet counseling as needed	42(28.0)	52(34.7)	19(12.7)	21(14.0)	16(10.7)

Feeding/assisting patients with feeding on time	3(2.0)	21(14.0)	49(32.7)	55(36.7)	22(14.7)
Positioning of the patient 2 hourly or as needed	4(2.7)	13(8.7)	59(39.3)	56(37.3)	18(12.0)
Ambulation/mobilization according to the need	3(2.0)	16(10.7)	61(40.7)	45(30.0)	25(16.7)
Provide patient/family/visitor teaching about illness, specific tests, diagnostic studies, treatment, and prognosis of the disease condition	6(4.0)	8(5.3)	30(20.0)	75(50.0)	31(20.7)
Informed consent before any procedures/diagnostic tests/surgery or any emergency condition	0(0.0)	2(1.3)	16(10.7)	68(45.3)	64(42.7)
Monitoring hospital-acquired infections (HAI) indicators	1(0.7)	2(1.3)	34(22.7)	92(61.3)	21(14.0)
Complete documentation of all necessary data	2(1.3)	4(2.7)	31(20.7)	84(56.0)	29(19.3)

1: Always missed, 2: Frequently Missed, 3: Occasionally Missed, 4: Rarely Missed, 5: Never Missed

Table 06 shows the nursing interventions related to the fundamental care of patients, indicating that 42.7% never missed arterial and intravenous site care. Likewise, 50.0% frequently missed patient, family or visitor teaching about the disease condition and procedures. Noteworthy, 32.0% missed to uphold patient in maintaining personal hygiene. Moreover, 35.3% regularly overlook providing skin care or wound care, and 26.7% frequently disregard offering bowel or bladder care. Similarly, 39.3% and 40.7% occasionally omit to position patients hourly and ambulation or immobilization or as needed and around 33.3% occasionally fail to implement patient comfort measures and attend to their well-being. Likewise, 34.7% frequently missed to overlook the specific nutritional requirements and provide diet counseling tailored to each patient or whenever needed. Moreover, 2.0% always neglect feeding or assisting patients with timely feeding. Moreover, 45.3% never miss to secure informed consent. Similarly, majority 61.3% often neglect monitoring hospital-acquired infections, and more than half 56.0% frequently omit the comprehensive documentation of all necessary data.

TABLE 07: Respondents Missed Nursing Care during Intervention (Individual care) Phase

Characteristics	1 No. (%)	2 No. (%)	3 No. (%)	4 No. (%)	5 No. (%)
Nursing care according to the priorities	1(0.7)	68(45.3)	19(12.7)	9(6.0)	53(35.3)
Basic life support (BLS) and Advanced life support (ALS)	2(1.3)	39(26.0)	9(6.0)	6(4.0)	94(62.7)
Oxygen administration on time as/ or demand	1(0.7)	42(28.0)	6(4.0)	2(1.3)	99(66.0)
Suctioning as/or needed	1(0.7)	48(32.0)	10(6.7)	3(2.0)	88(58.7)
Pain management	1(0.7)	58(38.7)	35(23.3)	4(2.7)	52(34.7)
Medication was administered within 30 minutes	3(2.0)	65(43.3)	38(25.3)	2(1.3)	42(28.0)
PRN medication acted on within 15 minutes	2(1.3)	66(44.0)	42(28.0)	8(5.3)	32(21.3)

Response to patient discomfort/patient call	6(4.0)	31(20.7)	66(44.0)	31(20.7)	16(10.7)
Assist in (emotional/ psychological) needs of the patient	1(0.7)	61(40.7)	13(8.7)	6(4.0)	33(22.0)
Provide emotional support and enhance coping strategies to the families/caregivers/visitors	2(1.3)	59(39.3)	35(23.3)	14(9.3)	40(26.7)
Recognize and appreciate cultural differences	8(5.3)	32(21.3)	31(20.7)	25(16.7)	54(36.0)
Ensuring proficient and safe handling of the various medical equipment	7(4.7)	76(50.7)	27(18.0)	10(6.7)	30(20.0)

1: Always missed, 2: Frequently Missed, 3: Occasionally Missed, 4: Rarely Missed, 5: Never Missed

Table 07 addresses nursing interventions centered on individualized patient care. Notably, 45.3% frequently fail to deliver nursing care based on patient prioritization (high/medium/low). Additionally, the majority (62.7%) never neglect to provide basic life support and advanced life support according to the patient's needs. Moreover, majority (66.0%) consistently provide timely oxygen administration or as per the patient's demand and 58.7% never missed to suction the patient as required. Furthermore, 38.7% frequently disregard providing pain management, and 43.3% often miss medication administration within 30 minutes before or after the scheduled time.

TABLE 08: Respondents Missed Nursing Care during Evaluation Phase

Characteristics	1 No. (%)	2 No. (%)	3 No. (%)	4 No. (%)	5 No. (%)
Evaluation					
Evaluating the patient's response to the nursing interventions	33(22.0)	53(35.3)	48(32.0)	8(5.3)	8(5.3)
Reassessment and reform planning of the patient	44(29.3)	37(24.7)	43(28.7)	20(13.3)	6(4.0)

1: Always missed, 2: Frequently Missed, 3: Occasionally Missed, 4: Rarely Missed, 5: Never Missed

Table 08 outlines the final stage of the nursing process, focusing on evaluation. Specifically, 35.3% frequently fail to evaluate the patient's response to nursing interventions. Similarly, 29.3% consistently miss the reassessment and adjustment of the patient's plan to ensure the continuity of nursing care.

TABLE 09: Respondents Missed Nursing Care during Documentation Phase

Characteristics	1 No. (%)	2 No. (%)	3 No. (%)	4 No. (%)	5 No. (%)
Documentation					
Documenting the initial nursing assessment of the patient's	22(14.7)	21(14.0)	48(32.0)	42(28.0)	17(11.3)
Nursing diagnosis based on assessment data	132(88.0)	11(7.3)	4(2.7)	2(1.3)	1(0.7)
Develop a nursing care plan	137(91.3)	6(4.0)	7(4.7)	0(0.0)	0(0.0)
Record the patient's response to the nursing intervention	130(86.7)	12(8.0)	6(4.0)	2(1.3)	0(0.0)
Maintain ongoing progress notes	7(4.7)	17(11.3)	48(32.0)	71(47.3)	7(4.7)

Prepared documentation related to discharge planning	19(12.7)	6(4.0)	50(33.3)	73(48.7)	2(1.3)
Ensure accurate and thorough documentation of all aspects of care in the patient's medical record	18(12.0)	4(2.7)	51(34.0)	77(51.3)	0(0.0)

1: Always missed, 2: Frequently Missed, 3: Occasionally Missed, 4: Rarely Missed, 5: Never Missed

Table 09 outlines the documentation phase where 32.0% occasionally omit documenting the initial nursing assessment of the patient's health status. Similarly, majority (88.0%) consistently fail to state the nursing diagnosis based on assessment data, and almost all (91.3%) always neglect to develop a nursing care plan.

TABLE 10: Respondents Score on Each Domain of Missed Nursing care

Domain	Total items	Total score	Obtained score median	Obtained score		IQR	Med %
				Min	Max		
Assessment	11	55	28.5	11	36	31.0-25.0	51.8
Diagnosis	4	20	18	8	20	20.0-17.0	90.0
Planning	5	25	17.5	12	25	21.0-16.0	70.0
Intervention (basic care)	15	75	36	15	54	40.0-32.0	48.0
Intervention (individual care)	12	60	29	15	52	52.0-15.0	48.3
Evaluation	2	10	7	4	10	9.0-6.0	70.0
Documentation	7	35	24	20	31	26.0-23.0	68.6
Total	56	275	160	85	228	169.3-152.8	58.2

Med: Median IQR(Q3-Q1): Inter Quartile Range Max: Maximum Min: Minimum

Table 10 shows that the respondents frequently missed nursing care median score was higher in diagnosis (90.0%), followed by planning (70.0%) and evaluation (70.0%) also documentation (68.6%). However, basic intervention care has a lower median percent of (48.0%). The overall median percent for missed nursing care is 58.2%, and the interquartile range spans from 152.8 to 169.3. Scores range from a minimum of 85 to a maximum of 228.

TABLE 11: Respondents level of Missed Nursing Care

Level of Missed Nursing Care	Number	Percent
Low (<60%)	94	62.7
Moderate (60-75%)	56	37.3
High (>75%)	0	0.0
Total	150	100.0

Table 11 effectively illustrates the extent of missed nursing care levels, with 62.7% showing low missed care (<60.0%), 37.3% indicating moderate missed care (60.0% - 75.0%), and notably, none reporting high missed nursing care. This highlights a prevalence of low to moderate instances within the surveyed respondents.

TABLE 12: Association between Level of Missed Nursing Care and Selected Variables

Variables	Missed Nursing Care		χ^2	p-value
	Low No. (%)	Moderate No. (%)		
Age in years				
20-30	17(58.6)	12(41.4)	0.252	0.616
31-40	77(63.6)	44(36.4)		
Total experience in the nursing field in months				
<12	76(60.3)	50(39.7)	1.858	0.173
≥12	18(75.0)	6(25.0)		
Current ward experience in months				
< 12	87(63.0)	51(37.0)		0.763 [#]
>12	7(58.3)	5(41.7)		
Professional qualification				
PCL	45(51.1)	43(48.9)	12.098	0.001*
Bachelor and above	49(79.0)	13(21.0)		
Designation				
Staff nurse	89(62.2)	54(37.8)	12.288	0.001*
Nursing officer and above	5(71.4)	2(28.6)		
Currently Working department				
General ward	42(48.3)	45(51.7)	18.336	0.001*
Critical ward	52(82.5)	11(17.5)		
Most often Duty shift				
Morning/evening/night only	36(63.2)	21(36.8)	0.001	0.972
Rotating shift	59(63.4)	34(36.6)		
Duty hours per week(hours)				
48	7(63.6)	4(36.4)		1.000 [#]
>48	87(62.6)	52(37.4)		

[#]indicates Fishers exact test, * indicates p value significant at<0.05

Table 12 provides a comprehensive overview of the relationships between missed nursing care and selected variables. Specifically, the data reveals a noteworthy association of p value 0.001 for nurses' professional qualification, designation and working in their respective departments respectively. These results indicate that both factors play a meaningful role in influencing the level of missed nursing care, while other characteristics in the table do not show a notable association.

TABLE 13: Association between Level of Missed Nursing Care and Selected Variables

Variables	Missed Nursing Care		χ^2	p-value
	Low No. (%)	Moderate No. (%)		
Satisfaction with job				
Yes	64(66.0)	33(34.0)	1.288	0.256
No	30(56.6)	23(43.4)		
Plan to leave				
Yes	61(62.2)	37(37.8)	0.021	0.883
No	33(63.5)	19(36.5)		
Received supervision				
Yes	87(63.0)	51(37.0)		0.763 [#]
No	7(58.3)	5(41.7)		
Received supporting staff				
Yes	59(61.5)	37(38.5)	0.166	0.683
No	35(64.8)	19(35.2)		
Support from multidisciplinary team				
Yes	56(65.7)	37(34.3)	1.389	0.238
No	25(55.6)	20(44.4)		
Sufficient resources and supplies				
Yes	57(60.2)	36(39.8)	0.629	0.428
No	38(66.7)	19(33.3)		
Faced emergency/situation				
Yes	77(69.4)	36(30.6)	8.198	0.004 [*]
No	17(43.6)	22(56.4)		
Attended CME/CNE related to nursing training				
Yes	41(66.1)	21(33.9)	0.542	0.462
No	53(60.2)	35(39.8)		

[#] indicates fisher's test, ^{*} indicates p value significant at <0.05

Four variables (professional qualification, designation, working department and faced emergency situation) that exhibited statistically significant association ($p < 0.05$) with missed nursing care at 95% CI during bivariate analysis were subjected to multivariate logistic regression for adjustment of possible cofounders. Multicollinearity test was done. None of them has tolerance < 0.1 and VIF > 10 . There was no problem of serious collinearity among independent variables as highest VIF was 1.029. Based on above analysis, it can be concluded that the variables such as professional qualification, designation, working department, and faced emergency exhibited statistically significant associations with missed nursing care. However, after adjusting for possible confounders and testing for multicollinearity, it was

found that there was no serious collinearity among the independent variables in the proposed model. This suggests that these variables independently contribute to the likelihood of moderate missed nursing care, highlighting the complexity of factors influencing nursing care delivery.

TABLE 14: Multivariate Binary logistic Regression Analysis for Finding out the Significant Predictors of Moderate Missed Nursing Care

Variables	Coefficient β	S. E	Adjusted OR (95% CI)	p value
Professional qualification PCL Bachelor and above	0.939	0.412	2.557(1.140-5.736) (Ref)	0.023
Designation Staff nurse Nursing officer	2.115	0.662	8.287(2.263-30.343) (Ref)	0.001
Working department General ward Critical ward	1.726	0.436	5.617(2.389-13.208) (Ref)	0.001
Faced emergency situations Yes No	0.868	0.436	2.383(1.005-5.648) (Ref)	0.049

CI: Confidence Interval Hosmer and Leme show test ($\chi^2=3.048$, $p=0.803$) $-2 \log$ likelihood= 156.147
Cox& Snell $R^2=0.245$ Nagelkerke $R^2=0.334$ OR= Odd Ratio Dependent: Moderate Missed Nursing Care
Ref: Reference Category S.E: Standard Error

Nurses having PCL qualification have more tendency to have moderate missed nursing care by 2.557 times in compared to those nurses who have bachelor and above qualification (OR=2.557; 95% CI=1.140-5.736) and which was found to be statistically associated ($p=0.023$). Nurses having the designation of staff nurse had more tendency to have moderate missed nursing care by 8.287 times in compared to those having designation of nursing officer and above (OR= 8.287; 95% CI=2.263-30.343) and which was found to be statistically associated ($p=0.001$). Similarly nurses who worked in general ward is more likely to have moderate missed nursing care in compared to those nurses working in critical ward by 5.617 times (OR=5.617; 95% CI=2.389-13.208) and which was found to be statistically associated ($p=0.001$). Lastly, nurses who had faced emergency situation during nursing care were more likely to have moderate missed nursing care by 2.383 times then those nursed who had not faced emergency situation (OR=2.383; 95% CI=1.005-5.649) which was found to be statistically associated ($p=0.049$). The Hosmer and Leme show Test, examines an overall goodness of fit of the model is indicated by insignificant chi-square values (p -values >0.05). The Hosmer and Leme show test statistic has chi-square value of 3.098 and p -value of 0.803 which means that p -value is not statistically significant at 5% level of significance, so we accept the null hypothesis and therefore our model is quite a good fit. This model predicted an insignificant difference between the observed and predicted probabilities indicating a model fit the data well. Cox & Snell and R^2 attempts to imitate multiple R^2 based on "likelihood" where "pseudo R^2 estimates (0.245 and 0.334) indicates that approximately 24.5% or 33.4% of the variation in the dependent variable (moderate missed nursing care) could be predicted from the linear combination of the independent variable i.e., Log odds of moderate missed nursing care = $-2.701+0.939$ (PCL qualification) $+2.115$ (staff nurse) $+ 1.726$ (general ward) $+ 0.868$ (faced emergency situation).

DISCUSSION

In this study, the predominant age among the respondents is median age of 24 years. The median months of total experience in the nursing field and the current working department are both 12 months respectively. Furthermore, a significant proportion of respondents, comprising 70.6% and 60.7%, held positions as staff nurses and proficiency certificate level holders, respectively. The majority, specifically 50.9%, are employed in general wards. In this study the most frequently missed care during intervention phase is monitoring hospital acquired indicators (61.3%), complete documentation (56.0%) and never missed care were providing basic life support (BLS) & advanced life support (ALS) (62.7%) and oxygen administration on time as/or needed (66.0%). Factors associated for missed nursing care are type of unit, working department, year of experience, and faced emergency/critical situations ($p < 0.05$). This study findings consistent only with the predictive factors of missed nursing care while with other factors that revealed that emotional support, patient bathing and ambulation were the most frequently missed nursing care activities were inconsistent. Factors such as the type of unit, years of work experience, working hours, an unexpected increase in patient volume, number of patients cared for in a shift and intention to leave the unit were found to be significant predictors of 7 missed nursing care activities out of 21 ($p < 0.05$) [22]. The present study shows that the most frequently missed care is overall orientation to the patient/visitor/caretaker, at 46.0%. Frequently missed care includes providing patient, family, and visitor teaching about disease condition and diagnostic procedures, at 50.0%. Care that is never missed, with the lowest frequency, includes bowel/bladder care, feeding/assisting patients with feeding in a timely manner, and ambulation/mobilization whenever needed, at 2.0%. In comparison, a similar study conducted in Mexico showed inconsistent findings, where the most missed or omitted care element was mouth care at 28.2%, followed by patient feeding when the food is still warm at 19.7%. The least omitted care in that study was foot and wound care, at 1.4% [23]. This difference in omitted care between the studies may be attributed to nurses not prioritizing certain interventions due to the perceived low complexity of the patient's condition. Nurses may also believe that patients can perform these care actions themselves or with the support of a relative when the patient is stable, so every patient needs all basic and individualized care everyday based on prioritization. The present study shows that the highest percentage of always missed care was related to not preparing a nursing care plan, accounting for 96.0%, followed by not specifying patient outcome goals, which accounted for 84.0%. In contrast, the least omitted care was patient discharge planning and teaching while in the hospital, at 37.3%. This finding differs from a study [24], where the most missed care was patient teaching while in the hospital, at 7.0%, and the least omitted care was the planning of patient discharge and teaching, at 4.2%. In this study, the items were presented based on the nursing process as a scientific method of providing care. However, the results may vary because items were based on the miss care survey tool developed by the author, where the items of intervention were only listed. This suggests that the differences in the findings between the present study and [25] could be attributed to the different tools and methodologies used to assess missed nursing care. In the present study, it shows that 62.7% of nurses experienced low levels of missed nursing care, while 37.3% experienced moderate levels. This contrasts with previous studies conducted in Iran, Ethiopia, and the United States, which reported varying rates of moderate missed nursing care. For instance, a study in Iran [26] found a rate of 47.5%, while studies in Ethiopia [27] and [28] reported rates of 33.0% and 74.6%, respectively. Similarly, a study in Iran [29] and in the United States [30] found rates of 72.1% and 73.4%, respectively. However, the scoring of missed nursing care in these studies was based on mean percentages in this study, the median score for missed nursing care shows 58.2%, with 62.7% of nurses experiencing low levels and 37.3% experiencing moderate levels of missed nursing care based on the median score. This finding is consistent with a study [31] where the mean percentages of missed nursing care were 62.5% and 51.6%, respectively. The use of the median

score in this study aligns with previous research too. Similar, this study shows that 24.5% or 33.4% of variance in having moderate missed nursing care with the qualification, designation, working department and who had faced emergency/critical conditions in multivariate binary logistic regression to predict the predictors of missed nursing care. These results align with a similar study conducted in Saudi Arabia, which found that age, gender, qualification, level of experience, staffing adequacy, overtime, turnover intention, and satisfaction level were the predictors of missed nursing care. Together, these predictors accounted for 21% of the variance in missed nursing care [34]. Unlike in Saudi Arabia, Nepal lacks guidelines to categorize nurses based on experience. Additionally, the data in this study was not normally distributed, certain continuous variables which does not follow guideline to category were tested using univariate binary logistic regression and for categorical data chi square test was used to compare two independent groups considering a test of independence, followed by multivariate regression to identify predictors of moderate missed nursing care. Along with the study the multivariate binary logistic regression over qualification, designation, working department and faced emergency/critical condition pseudo R^2 is 24.5% or 33.4% of variance in the dependent variable (moderate missed nursing care) could be predicted from the regression analysis in combination of the independent predictors of Missed Nursing Care which is consistent with the study [35] which accounted for (R^2) 33.2 % of the variance in predicting the factors for missed nursing care. This might be consistent due to the similar complexity of nursing task, similar health care setting, and staffing situation.

4. CONCLUSIONS

Over one-third of nurses working in tertiary hospitals have low nursing care and approximately two thirds have moderate nursing care. Factors like as department of work, emergency and unpredictable events, professional qualification, and designation have been linked to missing nursing care in hospitals. The results highlight the complexity of application of nursing process while providing care so effective application of nursing care plan would be beneficial to staff and patient outcome and maintain the quality health delivery services. Moreover, the significance of continuing professional development and strategic workforce planning is highlighted by the influence of nursing experience and departmental familiarity. Targeted interventions to address department-specific difficulties associated to missed nursing care may prove beneficial for professionals working on those departments. The relationship between professional credentials and inadequate nursing care highlights how important it is for nurses to keep their knowledge and skills up to date. Experiences with emergency or critical situations may also need for additional training and assistance to guarantee that nurses are sufficiently prepared to manage high-stress situations. The reassessment of nursing education, training programs, and staffing policies is warranted by these findings. Targeted interventions based on these statistically significant variables may help reduce the number of nursing care errors, which would improve patient outcomes and the standard of care provided overall.

5. RECOMMENDATIONS

The study's conclusions allow for the formulation of several recommendations. Firstly, it is recommended to carry out a comparable investigation with a larger sample size to improve the depth of comprehension. In addition to investigating the association between missing nursing care and overall patient care quality, more study is required to find solutions for addressing the variables contributing to missed nursing care. It is possible to compute the nurse-to-patient ratio and carry out prospective observational research. The time can be set, for example, to the previous two or three months, to avoid recall bias. A more thorough analysis might also be provided by a comparison study including nurses from government and private hospitals, as well as those from critical and general care units. It is essential to share the study's findings with hospital and nursing administration since they offer data

that can be used to develop practical plans for reducing the number of nursing care errors. To enhance the quality of patient care, administrators should encourage candid communication amongst healthcare teams. To improve hospital care, administrators must guarantee enough nurses (nurse-patient ratio). They should also work toward a balanced nurse distribution to reduce or eliminate cases of nursing care being overlooked. Eliminating occupational inequities within nursing teams is also advised.

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