Determinants of Missed Nursing Care by Nurses at University Teaching and Referral Hospital of Kigali (CHUK) in Rwanda

ABSTRACT

Introduction: Missed Nursing Care is a challenging concern in healthcare settings. Focusing on identifying them and their associated factors will assist healthcare providers to improving patient's outcomes.
Objective: The aim of this study was to determine the levels, types and the factors that influence missed nursing care activities by nurses at the University Teaching and Referral Hospital of Kigali in Rwanda.
Materials and Methods: This study was cross-sectional descriptive correlation design. The researchers used census method to obtain participants. The researchers used MISSCARE survey questionnaires for data collection. The data was analysed using SPSS version 26.0. descriptive and inferential statistics were computed to respond to research objectives.
Results: Two hundred and one (201) nurses took part in the study, 56.7% were female and 46.3% were male. The majority were aged 31-40 years, 54.2% had Diploma, 42.3% had bachelor while 3.5% had master's degree. The study showed that responding to call alarms within 5 minutes, monitoring intake and output, and patient health education were always being missed by nurses. Department where nurses work, gender, satisfaction with salary, level of education, and nursing communication were the most statistically significant factors associated with level of missed nursing care activities.
Discussion: Majority, 46.73% of nurses viewed the level of missed nursing care as moderate at the hospital. The most nursing activities that have always been missed were responding to call alarms within 5 minutes, joining interdisplinary whenever held, monitoring intake and output, and patient health education. The study findings revealed that gender, level of education, and the department in which the nurses work were the most statistically significant factors contributing to missed nursing care at the hospital.
Conclusions: Managers, nurse in-charges should enhance nursing communication among nurses and others health care professionals as this is the most significant factor leading to missed nursing care.

Keywords: Nursing; nursing care; missed nursing; nursing activities.

1. INTORDUCTION

Patient safety and care outcomes determine the excellence of healthcare services given in hospital settings. Nursing personnel primarily and positively impacts this safety and outcomes through their nursing care provision. Nursing care is any activity needed by the patient prescribed or implemented by a nurse. It includes assessing admitted patient and their progress, timely drug administration, patient teaching, changing their position, ambulation, convenient feeding, mouth care, conversing with both patient and his family comfortably, documenting nursing activities in the patient record, and actively joining interdisciplinary meetings [1]. Nursing care services or activity that is not implemented reflects the healthcare underuse or wastage. It is referred to as Missed Nursing Care (MNC) and affects the quality of nursing care delivered to hospitalised patients is negatively affected [2]. MNC is described as any nursing care essential to the patient that is left undone, uncompleted, rationed, omitted, or forgotten. Furthermore, this has contributed to poor patient outcomes [1,2]. The incidence of MNC reflects underusing or wasting healthcare services, and it is due to different factors. These factors primarily include communication, staffing, working environment, material resources, and some staff characteristics. It was proven to be associated with frequent hospital readmissions in the USA [1].

According to different studies done in United States America, females, older Registered

Nurses (RN), day shifts nurses, experienced nurses, nurses who perceive that the Unit's staffing is not enough, nurses who nurse a large number of patients during their shift reported more missed nursing care [1-3]. Furthermore, when this care is not implemented, significantly delayed, or unfinished, it adversely impacts patients' outcomes. These adverse outcomes include healthcare-related infections, inadequate discharge planning, falls, and delayed ambulation, resulting in delayed wound healing, surgical site infections, respiratory system infections, poor coping, and adherence to treatment regimens [3,4]. Similarly, USA research reported that MNC was associated with nursing unit type, workload, and staffing or skill mix [5]. According to a Brazilian study, among 58 nurses who participated in a survey assessing Missed Nursing Care and their reasons, 74.1% reported at least one nursing activity missed on their shift. This MNC was associated with inadequate staffing, material resources (drugs, equipment, and consumables), and emergencies [6]. The findings from a study done in Mexico emphasized that the most common MNC were to ambulate the patients at least three times a day, feeding the patient, patient's foot and wound care, and patient teaching while still in hospital [7]. A study conducted across twelve different countries studying the prevalence and predictors of MNC in Europe revealed that most nursing activities (care) were left undone. The results included comforting patients, nursing care planning and revising, giving psycho-emotional support, evaluating recently admitted patients and documenting, evaluating medication efficiency, and mouth hygiene or care and client position change [8].

Moreover, research from the United Kingdom, which included 2,917 nurses from general medical-surgical wards in 46 England hospitals, agreed with the studies mentioned above [9]. The survey conducted in nine European countries intended to explore whether MNC intervened in the detected association between the ratio of staff and mortality and included 26,516 registered nurses. It found a significant relationship among MNC, staffing level, and patient's death within 30 days from admission. When the data was adjusted, the finding showed that increasing workload for nurses by a single patient and reported MCN by 10% increase the odds of admitted patient's death by 7% and 16%, respectively, within 30 days. Furthermore, this mediation analysis found an association of staffing with MNC and MNC with mortality [10].

In addition, the findings from different studies conducted in Egypt were congruent with other researches. They reported that patient feeding, patient assessment, and patient health education were missing and associated with inadequate staffing, material resources, ineffective teamwork, and communication factors [11,12]. Another similar study conducted in Tigray, northern Ethiopia, which included 422 nurses from 16 general hospitals, found at least one Missed Nursing Care at each shift and was associated with Communication, labor, material resources [13]. This concept has been found in East Africa. However, literature is scarce in East Africa. An observational study in neonatology (Kenya) found that the least completed nursing activities included a reassessment of newborns, cleaning their eyes and assessing infection, turning or positioning the babies at 38%, and monitoring oxygenation 3,4% and skin assessment 15% in neonatology. These were associated with the baby per nurse ratio [14].

A similar study conducted in three Egyptian university teaching hospitals with 240 nurses found that 63.3%, 61.3%, and 57.2% of the respondents ranked inadequate nursing staffing as a significant reason for omitted nursing care. The same researcher reported that communication and material resources, and assistive personnel were among the factors leading to missed nursing care [15]. Despite the adverse effects of this omission on patient outcomes, sketchy literature was found from the African context except in Egypt, Ethiopia, and South Africa. However, there is a single observational study found in Kenya; no literature was found in Rwanda on this concept. Therefore, there was a need to understand and describe the magnitude of Missed Nursing Care in Rwanda.

2. METHODS

2.1 Study Setting and Data Collection

This research was conducted from October to December 2021 at the University Teaching and Referral Hospital of Kigali in Rwanda, also known on its French name as "*Centre Hospitalier Universitaire de Kigali"* (CHUK). It is offering healthcare services through the following units: accident and emergency, general surgery, internal medicine, dermatology, paediatrics, obstetrics & gynaecology, Ear Nose and Throat (ENT), dental, ophthalmology, orthopaedics, Intensive care unit (ICU), clinical psychology, oncology, nephrology, dermatology, Urology, cardiology, radiology, neonatology. In addition, they also provide mental healthcare services and

other specialised outpatient clinics. This study adopted MISSCARE survey to gather the data from the sample population. Kalisch & Williams [16] developed the MISSCARE survey. The MISSCARE survey was comprised of three parts; the first section was for nurse demographic data (gender, age, marital status, education, and job experience, work schedules (Shift mostly worked (day or night), and hours work per shift), staffing (absenteeism, perceived staffing adequacy, and patients' workloads, Intent to leave the institution, and satisfaction with the payment and incentives) and personal satisfaction and section two with institutional related factors (level of ward staffing, bed capacity, size of the ward when admitting patients and when performing procedures, workload and call for additional shifts, material resources with three items, and huma resources with seven items**.** Section three had 24 questions regarding Missed Nursing Care grouped into nine (9) areas: 1) assessment with five (5) subjects, 2) drug administration with four(4) subjects, 3) patient health education with three (3) elements 4) patient feeding with three (3) items, 5) hygiene with three elements, 6) patient mobility with two (2) subjects, 7) responding to patient inquiries with two (2) elements 8) attending interdisciplinary meetings one (1) element and 9) documenting all necessary data with one(1) element.

The rating was on 5 points Likert scales as 1= never missed, 2=rarely missed, and 3 = sometimes missed, 4= frequently missed and 5= always missed [17]. Therefore 1 and 2 were regarded as nursing care provided, three as neutral, and 4,5 was considered as nursing care missed [11,18]. Section three of the MISSCARE survey has 17 independent variable questions on factors associated with missed nursing care grouped into two domains: 1) material resources with three elements, and 2) staff (labor) resources with seven elements. The rating was on three points Likert scale as (3) significant factors or reasons, (2) moderate reasons, and (1) not a factor, then means and percent scores was computed [11]. The items of the questionnaire were rearranged to suit the study objectives.

2.2 Specific Objectives

1. To determine the level of Missed Nursing Care activities by nurses working at University Teaching and Referral Hospital of Kigali.
2. To assess the type of Missed Nursing Care activities by nurses working at University Teaching and Referral Hospital of Kigali**.**
3. To determine the nurse related factors that contributing to Missed Nursing Care activities by nurses working at University Teaching and Referral Hospital of Kigali.
4. To determine the institutional related factors that contribute to Missed Nursing Care activities by nurses working at University Teaching and Referral Hospital of Kigali.

2.3 Inclusion and Exclusion Criteria

The study included nurses who were six months and above working experience in the clinical setting in the selected hospital units. Nurses providing direct care to inpatients in selected hospital units and it excluded nurses in administrative positions and nurses who were on their leave in the period of data collection. During data collection, the researcher utilized a self-report method of data collection using a self-administered MISSCARE survey. First, the departments were visited in different shifts to maximize accessibility to participants; then, the researcher invited the participants and explained the study's objectives. After this explanation, each participant signed informed consent for participation. Then researcher distributed envelope containing MISSCARE survey with the instructions on how to filling it.

2.4 Statistical Analysis

The data were analysed using SPSS version 26.0. The analysis was comprised of descriptive and inferential statistics. Descriptive statistics were frequency distributions, mean, and mode and crosstabulation/ percentages. Inferential statistics included Pearson chi-square test for independence (X^2) and multinomial logistic regression was computed to describe and explain the effects of independent variables on the dependent variable at the significance level of ($P \leq 0.05$).

3. RESULTS

Two hundred and one (N=201) nurses working in different departments at the hospital took part in this study in response to various metric variables being examined. The nurses who took part in this study work in different hospital ward departments with majority of them 39.8%;80 working in the surgical ward, 24.9% ; 50 of them work in the medical ward whereas 21.9%; 44 work in accident and emergency ward. A relatively small percentage of nurses 13.4%; 27 work in intensive care unit Table1.

In this study, female nurse respondents working at the hospital were the majority accounting to 56.7%. The percentage of male respondents who

took part in this study was 46.3%. Majority of the nurses working at the hospital were aged between 31-40 years which represents 47.3%. It is followed by those aged between 21-30 years which represents 26.9%. Those aged between 41-50 years account for 25.9% of the entire study population. The level of education among respondents was assessed. 54.2% had a Diploma, 42.3% had a Bachelor degree and 3.5% have a master's degree. From the study, a vast majority of nurses were married accounting for 75.6%. Those who are single represent 18.9%. The respondents who were not married (Divorced, Widowed) were the minority representing only 5.5% Table 3.

3.1 Levels of Missed Nursing Care at the Hospital

At the University Teaching and Referral Hospital (CHUK) of Kigali, the level of missed nursing was regarded as moderate. It was concluded that a vast majority of nurses 46.73% perceive the level of missed nursing care as moderate. 29.65% of them perceive the level of missed nursing care activities to be high whereas 23.62% perceive that there is low level of missed nursing care activities by nurses working at the hospital Fig. 1.

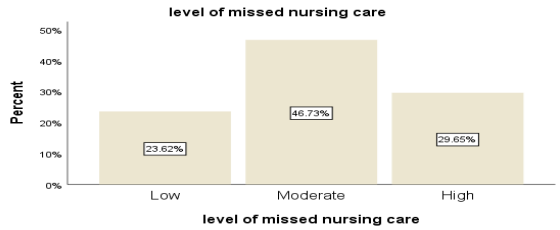

Fig. 1. Levels of Missed Nursing Care activities at the hospital

3.2 Types of Missed Nursing Care Activities by Nurses Working at the Hospital

The study assessed the types of nursing care activities at the hospital. The goal was to establish which nursing care activities have been missed by the studied nurses. The results were as shown in Table 1.The frequency of missed nursing care activities was recoded into three categories, that is nursing activities that have never been missed, sometimes been missed and always been missed. From the table it is apparent that over 50% of the studied nurses have never missed the various types of nursing activities. Despite majority of the nurses responding not to have missed any nursing care activities there was some who sometimes missed and always missed certain nursing care activities. The top 10 nursing care activities that are sometimes missed by the nurses were: responding to drug request within 15 minutes 27.4%, reassessment of patients, 26.4%, responding to call alarms within 5 minutes, 26.4%, providing skin care for patients, 26.4%, monitoring blood glucose level, 25.9%, changing patient position after every 3 hours, 25.4%, joining interdisplinary whenever held, 24.9%, setting food for patients who cannot feed oneself, 24.4%, supporting patient reach latrine within 5 minutes, 23.9%, providing patient health education, 23.4% and assessing vital signs. The frequency of nursing activities that have always been missed at the hospital was quite low. However, ranking the top five nursing activities that have always been missed, the following results: rsponding to call alarms within 5 minutes, 29.9%, joining interdisplinary whenever held, 25.4%, documentation of necessary information, 24.9%, monitoring intake and output, 21.9% and patient health education,18.4%, Table 1.

3.3 Nurse Demographic Data that Contributing to Missed Nursing Care Activities by Nurses Working at the Hospital of Kigali

Different variables were examined to determine their relationship with levels of MNC. From the analysis nurses aged between 31-40 years had the highest levels of missed nursing care, 35.1% as compared to the rest of the age groups, gender was examined and the findings revealed that female, 32.1% of females reported low level of missed nursing care compared to 12.6 % of males who reported low level of missed nursing care. Regarding those who had high level of missed nursing care, males ranked the highest with 33.3% whereas females with high level of missed nursing care levels accounted for 26.8%. Those who were oriented had a low level of missed nursing activities at 28.0% compared to those who were not oriented at 5.3%. 42.9% of nurses who were not oriented had high level of missed nursing care compared to 26.7% of nurses who were oriented, it was noted that nurses who were satisfied with orientation had low levels of missed nursing care, 27.1% compared to those who were dissatisfied, 14.5%. The nurses who were dissatisfied had high levels of missed nursing care accounting to a percentage of 38.2%. It was also noted that 29.7% of nurses who are planning to leave had low level of missed nursing care compared to 22.2% who had no intention of leaving. 21.6% of nurses who were planning to leave had high level

of missed nursing care compared to those who had no intention of leaving. The disparity in percentages could be due to very low numbers of nurses who were planning to leave the institution Table 2.

However, more research needs to be done to determine the cause of this disparity. Nurses were asked whether they were satisfied with their current position at the hospitals. From their responses it was apparent that majority, 89.45% were satisfied with their position while 10.55% were dissatisfied with their position. 25.8% of nurses who were satisfied with position had low level of missed nursing care activities compared to those who are dissatisfied with their position. Salary is a motivating factor when it comes to employee performance. From the nurses who took part in this research, it was apparent that majority of them were satisfied with their salaries. 25.5% of nurses who were satisfied with their salaries reported low level of missed nursing care compared to those who were dissatisfied with their salaries. 50% of nurses who were dissatisfied with their salaries reported high level of missed nursing care activities. Regarding the satisfaction with incentives, 38.9% of nurses who were dissatisfied with incentives had high level of missed nursing care compared to 21.2% of nurses who were satisfied with incentives. Moreover, 36.5% of nurses who were satisfied with incentives had low level of missed nursing care compared to 9.5% of nurses who are dissatisfied with incentives. From the cross-tabulation, 25.9% who were satisfied with in-service training had low level of missed nursing care compared to 18.3% of those who were dissatisfied with in-service training. Moreover, 31.7% of nurses who were dissatisfied with in-service training had high level of missed nursing care compared 28.8% of nurses who were satisfied with in service training. The nurses who had a Diploma degree, 30.8% reported low level of missed nursing care compared to 15.2% of nurses who had a Bachelor's Degree. Nurses with a Bachelor's degree, 39.1% reported high level of missed nursing care compared to 21.5% of the nurses with a Diploma Degree. The studied nurses were asked whether they are satisfied with their career. Majority of the nurses (94%) were satisfied with their career and 6% were not satisfied. Among those who were satisfied, a large proportion (46.5%) had moderate level of missed nursing care activities. 28.9% of them had high levels of missed nursing care activities whereas 24.6% had low level of missed nursing care. The nurses who were dissatisfied with their career, 41.7% had high levels of missed nursing care.

3.4 Institutional Related Factors that Contribute to Missed Nursing Care Activities by Nurses Working at the Hospital of Kigali

The most significant variable that was always inadequate was the size of ward when performing procedures accounting for 53.2%. It was followed by level of bed capacity at 49.8% and size of the ward when admitting patients at 48.3%. 41.3% of the respondents said that the level of ward staffing was always inadequate. Respondents were asked whether the workload was heavy and how often additional shift was called. Majority, 55.2% of the nurses responded call for additional shift has never occurred whenever the workload was heavy. Circumstances when the workload was presumed to be heavy, has always occurred as reported by 57.2% of the nurses. Generally, the studied nurses were of the view that material resources were a moderate factor contributing to missed nursing care activities. The rank of material resources factors that were presumed to be moderate by the nurses were absence of drugs when needed 51.2%, equipment not operating when needed 49.3% and unavailability of medical equipment when needed 45.3%. Human resource factors were examined. From the responses of the studied nurses, it was apparent that insufficient staff members were the most significant factor at 40.3%. It was followed by unpredictable upsurge in patient numbers, 32.3%, huge massive admissions and few discharge-ins, 31.8% and emergency patient situation, 29.9%. 61.7% of the studied nurses said that insufficient clerical personnel were a moderate factor. It was followed by emergency patient situation at 49.3%, imbalanced patient assignment 48.3%, insufficient staff members 45.8%, care giver unavailable in the unit when needed, 43.8% and huge massive admission and few discharge-ins, 43.3%, Table 2.

Table 1. Frequency distribution of types of missed nursing care activities

Missed Nursing Care Variable	Never Missed	Sometimes Missed	Always Missed

	No	%	No	%	No	%
Vital Signs Assessed	133	66.2	47	23.4	21	10.4
Monitoring Intake &Output	120	59.7	37	18.4	44	21.9
Monitoring blood glucose level	138	68.7	52	25.9	11	5.5
Patient Assessment	137	68.2	37	18.4	27	13.4
Reassess of Patients	121	60.2	53	26.4	27	13.4
Drug Administration within 30Minute	151	75.1	21	10.4	29	14.4
Care Per standard hospital procedure	126	62.7	40	19.9	35	17.4
Drug Request responded within 15 Minutes	128	63.7	55	27.4	18	9.0
Assessment of effectiveness of medication	127	63.2	48	23.9	26	12.9
Health Education of Patient's family	141	70.1	41	20.4	19	9.5
Patient Health Education	117	58.2	47	23.4	37	18.4
Information to Patients	129	64.2	40	19.9	32	15.9
Setting food for patient who cannot feed oneself	136	67.7	49	24.4	16	8.0
Feeding Patient who cannot feed oneself	139	69.2	34	16.9	28	13.9
Feeding Patient warm food	158	78.6	28	13.9	15	7.5
Provide skin care for patients	125	62.2	53	26.4	23	11.4
Patient mouth care	128	63.7	36	17.9	37	18.4
Hand Washing for Nurses	138	68.7	39	19.4	24	11.9
Ambulating Patients as prescribed	127	63.2	51	21.4	23	11.4
Change patient position every 3hours	127	63.7	51	25.4	23	11.4
Support patient reach latrine within 5 minutes	127	63.7	48	23.9	26	12.9
Responding to call alarm within 5 Minutes	88	43.8	53	26.4	60	29.9
Documentation of necessary information	110	54.7	41	20.4	50	24.9
Join interdisplinary whenever held	100	49.8	50	24.9	51	25.4

Table 2. Relationship between institutional related factors and missed nursing care

	Level of missed nursing care (N=201)							
Workload	**Low**		**Moderate**		**High**			
	No	**%**	**No**	**%**	**No**	**%**	χ^2	**P-Value**
How often additional shift was called								
Never occurred	21	19.3	57	52.3	31	28.4		
Sometimes occurred	7	17.9	15	38.5	17	43.6	10.78	0.029*
Always occurred	19	37.3	21	41.2	11	21.6		
How often the workload was heavy								
Never occurred	7	18.4	16	42.1	15	39.5		
Sometimes occurred	10	20.8	20	41.7	18	37.5	5.69	0.224
Always occurred	30	26.5	57	50.4	26	23.0		
	Level of missed nursing care							
Material resources	**Low**		**Moderate**		**High**			
	No	**%**	**No**	**%**	**No**	**%**	χ^2	**P-Value**
Absence of drugs when needed								
Not a factor	5	13.2	22	57.9	11	28.9		
Moderate factor	22	21.4	43	41.7	38	36.9	11.31	0.023*
Significant factor	20	34.5	28	48.3	10	17.2		
Unavailability of medical equipment								
Not a factor	11	20.8	22	41.5	20	37.7		
Moderate factor	18	19.8	52	57.1	21	23.1	9.52	0.049*
Significant factor	18	32.7	19	34.5	18	32.7		
Equipment not operating when needed								
Not a factor	6	12.5	22	45.8	20	41.7		

Moderate factor	25	25.3	49	49.5	25	25.3	7.25	0.123
Significant factor	16	30.8	22	42.3	14	26.9		

3.5 Relationship between Nurse Demographic Data and Levels of Missed Nursing Care

The chi-square was computed to assess the relationship between nurse **demographic data** and levels of missed nursing care and the statistically significant were department where nurses work, χ^2 (6, N=201) =63.31, p=0.001, gender, χ^2 (2, N=201) =10.35, p=0.006, orientation, χ^2 (2, N=201) =9.51, p=0.009, Satisfaction with salary, χ^2 (2, N=201) =8.25, p=0. 016, Satisfaction with incentives,χ^2 (2, N=201) =21.61, p=0.001, level of education, χ^2 (2, N=201) =10.34, p=0.006.However, age p=0.461; marital status, p=0.137; experience in the nursing profession, p=0.447; experience in the current unit, p=0.514; satisfaction with being a nurse, p=0384; satisfaction with orientation, p=0.104; satisfaction with current position, p=0.98; satisfaction with in service trainings, p=0.514 and plan for leaving the institution, p=0.419 were not statistically significant in Table 3.

3.6 Relationship between Institutional Related Factors and Missed Nursing Care

The researcher further sought to find whether there was any relationship between institutional related factors and levels of missed nursing care activities and chi square was computed. The findings revealed that level of ward staffing and ward size when performing procedures, how often additional shift is called, Absence of drugs when needed and unavailability of medical equipment, unpredictable upsurge in patient numbers, caregiver unavailability in the unit when needed, emergency patient situation, and imbalanced patient assignment were statistically significant Table 3 and 4.

4. DISCUSSIONS

The nurses were asked how often certain types of nursing activities have been missed at the hospital. The data collected from their responses was computed and recoded into three levels, that is low, moderate and high. Frequency analysis was done and the results revealed that majority, 46.73% of nurses viewed the level of missed nursing care at the hospital as moderate, these findings were consistent with that of [11]. Since majority of the studied nurses had a view that the level of missed nursing care activities was moderate, it can be generalized that the level of missed nursing care activities at the hospital was moderate. Moreover, this can be explained by noting that from the analysis of nurse demographic data specifically on their satisfaction level, majority of the nurses were satisfied with orientation, trainings offered at the hospital to nurses, they were satisfied with their job position, salary and had no intention of leaving. It should also be noted that 79.1% of nurses had not missed any shift. This also helps to explain why the level of missed nursing care was moderate at the hospital.

4.1 Types of Missed Nursing Care

Nurses working at the hospital were asked questions on five-point Likert scale on how often various nursing care activities have been missed. The data from their responses were recoded into three levels of frequency that was, whether the types of nursing activities have never been missed, sometimes missed and always missed. From frequency analysis of their responses the study found out that majority of the nurses responded that most of the nursing activities at the hospital that were being assessed have never been missed. The frequency of nursing activities that have always been missed at the hospital was quite low. This can be seen from their lower percentages in frequency analysis Table 1. However, ranking the top five nursing activities that have always been missed, the following were the results: responding to call alarms within 5 minutes, 29.9%, joining interdisplinary whenever held, 25.4%, documentation of necessary information, 24.9%, monitoring intake and output, 21.9% and patient health education, 18.4% [18]. Despite majority of the nurses responding not to have missed any nursing care activities there are some who sometimes missed certain nursing care activities. The top 10 nursing care activities that are sometimes missed by the nurses are: responding to drug request within 15minutes, 27.4%, reassessment of patients, 26.4%, responding to call alarms within 5 minutes, 26.4%, providing skin care for patients, 26.4%, monitoring blood glucose level, 25.9% ,changing patient position after every 3hours, 25.4%, joining interdisplinary whenever held, 24.9%, setting food for patients

who cannot feed oneself, 24.4%, supporting patient reach latrine within 5 minutes, 23.9% and providing patient health education, 23.4% [11,16,17,19].

4.2 Nurse Demographic Data Contributing to Missed Nursing Care Activities

The analysis of nurse demographic data was done. The demographic factors that were examined in the study included: age, gender, marital status, level of education, plan of leaving, orientation, experience in the current unit and experience in the nursing profession. The ward departments in which the nurses work was also analysed. The study findings revealed that gender, level of education, orientation and the department in which the nurses work to be the most significant demographic factors contributing to missed nursing care at the hospital. The chi-square statistics computed for these factors were statistically significant. The analysis of the gender show that female nurses were more diligent in their duties compared to their male counterparts. This follows from the fact that 32.1% of female nurses had low level of missed nursing care compared to 12.6 % of males who had low level of missed nursing care. Regarding those who had high level of missed nursing care, males rank the highest with a percentage of 33.3% whereas females with high level of missed nursing care levels accounted for only 26.8%.

Nurses with a Diploma degree were diligent in delivering their duties compared to those with a Bachelor's Degree. The study findings showed that the nurses who had a Diploma degree, 30.8% reported low level of missed nursing care compared to 15.2% of nurses who had a Bachelor's Degree. Nurses with a Bachelor's degree, 39.1% reported high level of missed nursing care compared to 21.5% of the nurses with a Diploma. The result of level of education can be explained by the fact that Diploma training normally focus mainly on skills and focuses on practical approach compared to Bachelor's Degree training which is too theoretical which neither emphasizes on critical thinking skills approach. Majority of the studied nurses who were oriented in their current unit, 28.0% had low level of missed nursing care activities compared to those who were not oriented. 42.9% of nurses who were not oriented had high level of missed nursing care compared to 26.7% of nurses who were oriented. Departmental wards in which the nurses work also had an influence on missed nursing care activities at the hospital. Nurses working in the accident and emergency wards had the highest level of missed nursing care activities compared to nurses working in other departments. Nurses working in the intensive care units had the lowest level of missed nursing care compared to nurses working in other departmental wards. Nurses working in the medical and surgical wards had moderate level of missed nursing care activities these findings are similar to that of [20]. The satisfaction level of nurses was assessed and the findings revealed that salary and incentives were the most significant factors contributing to missed nursing care at the hospital. From the nurses who took part in this research, it is apparent that majority of them were satisfied with their salaries. 25.5% of nurses who were satisfied with their salaries had low level of missed nursing care compared to those who were dissatisfied with their salaries. 50% of nurses who were dissatisfied with their salaries had high level of missed nursing care activities compared to those who are satisfied with their salaries. 38.9% of nurses who were dissatisfied with incentives had high level of missed nursing care compared to 21.2% of nurses who are satisfied with incentives. Moreover, 36.5% of nurses who were satisfied with incentives had low level of missed nursing care compared to 9.5% of nurses who were dissatisfied with incentives as it was also reported by [18].

4.3 Institutional Related Factors Contributing to Missed Nursing Care Activities

The institutional related factors were analysed separately to find out whether they contribute to missed nursing care at the hospital. From the analysis, the level of ward staffing and ward size when performing procedures were statistically significant. This signifies that there was association between level of ward staffing, ward size when performing procedures and missed nursing care activities at the hospital. Workload was also among the institutional related factors that were assessed, how often additional shifts were called when the workload was heavy had an influence on the level of missed nursing care at the hospital. 37.3% of nurses who reported that additional shifts have always been called had low level of missed nursing care never been called. These findings are consistent with [11].

Table 3. Relationship between nurse demographic data and level of Missed Nursing Care

Sample characteristic and nurse related factors	Missed nursing care levels (N=201)						χ^2	P-value
	Low No=24		Moderate No=132		High No=38			
	No	%	No	%	No	%		
Hospital department	Values were omitted for confidentiality.						63.31	0.001*
Age								
21-30 years	14	25.9	29	53.7	11	20.4		
31-40 years	21	22.3	40	42.6	33	35.1	3.61	0.461
41-50 years	12	23.5	24	47.1	15	29.4		
Gender								
Male	11	12.6	47	54.0	29	33.3	10.34	0.006*
Female	36	32.1	46	41.1	30	26.8		
Marital status								
Married	42	28.0	66	44.0	42	28.0		
Single	4	10.5	20	52.6	14	36.8	6.98	0.137
Not married (widow, divorced)	1	9.1	7	63.6	3	27.3		
Education level								
Diploma, A1	33	30.8	51	47.7	23	21.5		
Bachelor's degree	14	15.2	42	45.7	36	39.1	10.34	0.006*
Experience in nursing profession								
0-5 years	4	18.2	14	63.6	4	18.2		
5-10 years	16	25.4	30	47.6	17	27.0	3.71	0.447
>10 years	27	23.7	49	43.0	38	33.3		
Experience in the current unit								
0-5 years	15	20.5	38	52.1	20	27.4		
5-10 years	22	26.8	38	46.3	22	26.8	3.27	0.514
10-20 years	10	22.7	17	38.6	17	38.6		
Plan of leaving								
Yes	11	29.7	18	48.6	8	21.6	1.74	0.419
No	36	22.2	75	46.3	51	31.5		
Satisfaction with being a nurse								
Yes	46	24.6	87	46.5	54	28.9	1.91	0.384
No	1	8.3	6	50.0	5	41.7		
Orientation								
Yes	45	28.0	73	45.3	43	26.7	9.51	0.009*
No	2	5.3	20	52.6	16	42.1		
Satisfaction with orientation								
Yes	39	27.1	67	46.5	38	26.4	4.52	0,104
No	8	14.5	26	47.3	21	38.2		
Satisfaction with current position								
Yes	46	25.8	81	45.5	51	28.1	4.64	0.098
No	1	4.8	12	57.1	8	38.1		
Satisfaction with salary								
Yes	42	25.5	81	49.1	42	25.5	8.25	0.016*
No	5	14.7	12	35.3	17	50.0		
Satisfaction with incentives								
Yes	38	36.5	44	42.3	22	21.2	21.61	0.001*
No	9	9.5	49	51.6	37	38.9		
Satisfaction with in-service training								
Yes	36	25.9	63	45.3	40	28.8	1.33	0.514
No	11	18.3	30	50.0	19	31.7		

24.7% of nurses who were of the view that additional shifts have never been called had high level of missed nursing care compared to 21.6% of nurses who were of the opinion that additional shifts have always been called. Material resource factors that were assessed are: Absence of drugs when needed, unavailability of medical equipment and equipment not operating when needed as it can be seen in Table 3, and Table 4. The study findings revealed that absence of drugs when needed and unavailability of medical equipment were significant factors contributing to missed nursing care activities. Similar findings were reported by [21,6,22,23,7,24]. Additionally, the study sought to find out whether human resource contribute to missed nursing care activities by the nurses working at the hospital. The findings revealed that, unpredictable upsurge in patient numbers, caregiver unavailability in the unit when needed, emergency patient situation and imbalanced patient assignment were statistically significant factors contributing to missed nursing care at the hospital and this is similar to findings reported by [6,25,26,27,28,29]. Insufficient staff members, insufficient assistive or clerical personnel, huge massive admission and few discharge-ins were not statistically significant factors contributing to missed nursing care at the hospital.

4.4 Multinomial Logistic Regression Analysis

Multinomial logistic model was used to predict dependent variable given independent variables studied. The findings show the percentage of the dependent variable explained by a set of independent variables. The Nagelkerke Pseudo-Square is 36.5%. This implies that 36.5% on the variation of the dependent variable is being explained by the independent variables in the model.

Parameter estimates provide information comparing each level of missed nursing care against the reference category (High). The analysis compares the likelihood of falling in a certain level of missed nursing care against the reference category. In this case the “low” and “moderate” levels of missed nursing care are compared against high level of missed nursing care. The institutional related factors were not significant. For every one unit increase in unit related factors there is an increase in likelihood by 0.174 of nurses having moderate levels of missed nursing care. The log odds of nurses falling into moderate level of missed care category increases by 1.190 for ever one unit increase in institutional related factors. For human resource factors there was a decrease in likelihood by -1.054 of nurses having low level of missed nursing care compared to the reference category. For every one unit increase in human resource factors there is a decrease of 0.349 in log odds of nurses to have moderate levels of missed nursing care. The human resource factors here was statistically significant (p-value =0.005).

Table 4. Relationship between human resource and levels of Missed Nursing Care

	Level of missed nursing care (N=201)							
Human resources	**Low**		**Moderate**		**High**			
	No	**%**	**No**	**%**	**No**	**%**	χ^2	**P-Value**
Insufficient staff members								
Not factor	8	28.6	9	32.1	11	39.3		
Moderate factor	22	23.9	38	41.3	32	34.8	8.58	0.073
Significant factor	17	21.5	46	58.2	16	20.3		
Unpredictable upsurge in patient numbers								
Not a factor	9	18.0	32	64.0	9	18.0		
Moderate factor	19	22.1	41	47.7	26	30.2	11.94	0.018*
Significant factor	19	30.2	20	31.7	24	38.1		
Insufficient assistive or clerical personnel								
Not a factor	11	25.0	19	43.2	14	31.8		
Moderate factor	26	21.3	63	51.6	33	27.0	3.80	0.434
Significant factor	10	30.3	11	33.3	12	36.4		
Huge massive admission and few discharge-ins								
Not a factor	8	16.0	29	58.0	13	26.0		
Moderate factor	24	27.6	36	41.4	27	31.0	4.04	0.400
Significant factor	15	24.2	28	45.2	19	30.6		

Caregiver unavailability in the unit when needed								
Not a factor	12	17.6	47	69.1	9	13.2		
Moderate factor	22	25.0	33	37.5	33	37.5	22.72	0.001*
Significant factor	13	30.2	13	30.2	17	39.5		
Imbalanced patient assignment								
Not a factor	15	23.8	39	61.9	9	14.3		
Moderate factor	23	24.2	37	38.9	35	36.8	11.98	0.017*
Significant factor	9	22.0	17	41.5	15	36.6		
Emergency patient situation								
Not a factor	5	11.9	25	59.5	12	28.6		
Moderate factor	22	22.2	49	49.5	28	28.3	9.74	0.045*
Significant factor	20	34.5	19	32.8	19	32.8		

Table 5. Parameter estimates

Parameter Estimates							
level of missed nursing care[a]		**B**	**Std. Error**	**Wald**	**df**	**Sig.**	**Exp(B)**
Low	Intercept	-5.837	2.225	6.881	1	.009	
	Institutional related factors	-.183	.217	.711	1	.399	.833
	Human resources	-.513	.456	1.267	1	.260	.598
	Material resources	.707	.406	3.033	1	.082	2.027
	Nurse related factors	-.765	.572	1.793	1	.181	.465
Moderate	Intercept	.378	1.791	.045	1	.833	
	Institutional related factors	.174	.178	.958	1	.328	1.190
	Human resources	-1.054	.376	7.878	1	.005	.349
	Material resources	.643	.297	4.681	1	.031	1.903
	Nurse related factors	-.306	.436	.492	1	.483	.737

a. The reference category is: High.

Material resource factors were not significant. For every one unit increase in material resources there is an increase of 0.643 in likelihood of nurses to have low levels of missed nursing care. For every one unit increase in material resource factors there is 1.903 increase in the log odds of nurses to have moderate levels of missed nursing care compared to the reference category. The nurse related factors are not statistically significant. For every one unit increase in nurse related factors there is a decrease in likelihood by -0.306 of nurses to have moderate levels of missed nursing care. The log odds for nurses falling into category of moderate levels of missed nursing care decrease by 0.737 for every unit increase in nurse related factors Table 5.

$$Y = 0.378 - 0.355Nc + 0.174It - 1.054Hr + 0.643Mr - 0.306Nr$$

Y-Dependent Variable-Level of missed nursing care, Nc-Nursing communication, It-Institutional related factors
Hr -Human resource factors, Mr -Material resource factors, Nr-Nurse related factors

5. CONCLUSIONS

On the basis of study findings, the following conclusions were arrived at regarding the types, factors and level of missed nursing care activities at the University Teaching and Referral Hospital of Kigali. The results indicated the level of missed nursing care activities was moderate. The rank of factors contributing to missed nursing care activities according to their level of significance was nurse demographic data and institutional related factors. Nurse related factors that were significantly impacting level of missed nursing care activities were gender, level of education, departmental wards where the nurses work, orientation, and nursing communication. On the level of satisfaction of the nurses, salary

and incentives were the most significant factors influencing the level of missed nursing care at the hospital.

Material resources factors that were associated with missed nursing care activities were: absence of drugs and unavailability of medical equipment when needed. The level of ward staffing, size of ward when performing procedures and how often additional shift is called when the workload is heavy were the main significant factors influencing level of missed nursing care at the hospital. Unpredictable upsurge in patient numbers, caregiver unavailability in the unit when needed, emergency patient situation and imbalanced patient assignment were the human resource factors that are significantly contributing to missed nursing care at the hospital. On analysis of types of missed nursing care activities at the hospital majority of the studied nurses responded that they have never missed the various nursing activities that were being assessed. However, there were some nurses who sometimes missed and always missed certain nursing activities. In the study the nursing activities that were sometimes missed and always missed were ranked in descending order based on the percentages.

RECOMMENDATIONS

The hospital managers should assess thoroughly the unveiled reasons for missed nursing care activities so that they can take action on lowering the level of missed nursing care. The hospital managers should thoroughly assess the commonly missed nursing care activities in different nursing units so that they can be dealt with effectively.

Managers, nurse in-charges should enhance nursing communication among nurses and others health care personnel as this is the most significant factor leading to missed nursing care.

Examine if there is relationship between missed nursing care and quality of patient care.

DISCLAIMER

This paper is an extended version of a preprint document of the same author.
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CONSENT AND ETHICAL APPROVAL

Ethical clearance from the Institution Ethical Review board at Mount Kenya University (MKU-IERB) and CHUK-ethical review committees was granted to conduct the research. Thereafter, the researcher acquired an informed consent from the participants. The researcher followed all guidelines and protocols as stipulated in the ethical approvals.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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SECTION ONE:

1. NURSE RELATED FACTORS

a. How old are you (Age in years)?

21- 30 years ☐ 31-40 year ☐ 41-50 years ☐ 51-60 years ☐ 61 years and above ☐

b. What is your Gender?

Male ☐ Female ☐

c. What is your marital status?

Married ☐ Single ☐ Not Married (divorced, widow[er]) ☐ Others ☐

d. What is your highest level of educational?

Diploma, A_1 ☐ Bachelor degree, BScN ☐ Masters, MScN ☐

e. How many years of experience in nursing profession? (In Years)

…….

f) How many years of experience in this current patient care unit? (In Years)

……..

g) Have you ever been oriented in this current Unit?

Yes ☐ No ☐

h) How were you satisfied with your orientation in this current Unit?

Very satisfied	Satisfied	Dissatisfied	Very dissatisfied

i) Do you plan to leave your current position?

In the next six months ☐ in the next year ☐ no plans to leave ☐

j) How are you satisfied with your current position?

Very satisfied	Satisfied	Dissatisfied	Very dissatisfied

k) How are you satisfied with your salary?

Very satisfied	Satisfied	Dissatisfied	Very dissatisfied

l) How are you satisfied with the incentive you are provided?

Very satisfied	Satisfied	Dissatisfied	Very dissatisfied

m) Independent of your current job, how satisfied are you with being a nurse?

Very satisfied	Satisfied	Dissatisfied	Very dissatisfied

n) In your view, how are you satisfied with in-service training?

Very satisfied	Satisfied	Dissatisfied	Very dissatisfied

o) According to you, how would you rate the following reasons or factors in terms of interrupting your daily nursing care (activities) implementation in your department/unit as 1= Not a factor, 2 = Moderate factor and 3 = Significant factor? **Mark your choice with (X).**

	Communication	**Not a factor**	**Moderate factor**	**Significant factor**
1	Insufficient handoff from previous shift			
2	Another department did not provide the needed care.			
3	Absence of backup from fellow members			
4	Ineffective communication with other backup departments			
5	Tension communication among nurses			
6	Ineffective communication between nurses and medical staffs			

2. INSTITUTION RELATED FACTORS

a) In which unit department are you located?

Medical ward ☐ Surgical ward ☐ Accident and emergency ☐ ICU ☐

b) what is the most frequently shift do you work?

Day ☐ Night ☐

c) How many hours do you mostly work per shift?

≤8 hours ☐ 9-12 hours ☐ ≥13 hours ☐

d) In the past 3 month, how many hours of overtime did you work?

None ☐ 1-12 hours ☐ 13 hours and more ☐

e) Per your view, how many hours do you work per week?

≤40 hours ☐ ≥41 hours and more ☐

f) In the past 3 months, how many shifts did you miss work due to illness, injury, extra rest etc. (exclusive of normal or approved days off)?

None ☐ 1 shift ☐ 2-3 shifts ☐ 4-6 shifts ☐ over 7 shifts ☐

g) In your view, how your Unit is adequately staffed?

Always inadequate	Sometimes inadequate	Occasionally inadequate	Rarely inadequate	Never inadequate

h) During your last shift, how many patients did you care for?

……..

i) How many patient-admissions did you have in your last shift (i.e., Includes transfers into the Unit)? ……

j) Per your view, how can you rate the unit bed capacity adequacy with regard to admissions you had on your shift?

Always inadequate	Sometimes inadequate	Occasionally inadequate	Rarely inadequate	Never inadequate

k) Per your view, how can you rate the size of your unit (working area or space) when admitting patient?

Always inadequate	Sometimes inadequate	Occasionally inadequate	Rarely inadequate	Never inadequate

l) Per your view, how can you rate the size of your unit (working area or space) when and performing procedures on patient?

Always inadequate	Sometimes inadequate	Occasionally inadequate	Rarely inadequate	Never inadequate

m) How often have you been called for additional shifts (unexpected shift)?

Always called	Sometimes called	Occasionally called	Rarely called	Never called

n) How often did you see that workload is mostly heavy on your shift?

Always heavy	Sometimes heavy	Occasionally heavy	Rarely heavy	Never heavy

o) According to you, how would you rate the following reasons or factor in terms of interrupting your daily nursing care (activities) implementation in your department/unit as 1= Not a factor, 2 = Moderate factor and 3 = Significant factor? **Mark your choice with (X).**

	Material Resources	Not a factor	Moderate factor	Significant factor
1	Absence of drugs/consumables when needed			
2	Unavailability of medical equipment when needed.			
3	Equipment was not operating properly when needed.			

p) According to you, how would you rate the following reasons in terms of interrupting your daily nursing care (activities) implementation in your department/unit as 1= Not a factor, 2 = Moderate factor and 3 = Significant factor? **Mark your choice with (X).**

	Labor resources	**Not a factor**	**Moderate factor**	**Significant factor**
1	Insufficient staff members			
2	Emergency patient situation			

3 Unpredictable upsurge inpatient numbers or acuity on Unit
4 Insufficient assistive or clerical personnel
5 Huge//massive admission and few discharge- ins.
6 Caregiver unavailable in the Unit when needed
7 Imbalanced patient assignment

SECTION TWO:

MISSED NURSING CARE ACTIVITIES

1. According to you, how would you rate the implementation of the following nursing care in your department/unit on the scale of: 1(0%) = never missed, 2(25% of time) =rarely missed, and 3(50% of time) = sometimes missed, 4(75% of time) = frequently missed and 5(100%) = always missed? **Mark your choice with (X).**

2. According to you, how Would you rate the following nursing care activities implementation in your department/unit on the scale of:1(0%) = never missed, 2(25% of time) =rarely missed, and 3(50% of time) = sometimes missed, 4(75% of time) = frequently missed and 5(100%) = always missed? **Mark your choice with (X).**

Domains of missed nursing care	**Never missed**	**Rarely missed**	**Sometimes missed**	**Frequently missed**	**Always missed**
Patient Assessment					
Vital signs assessed as ordered.					
Monitoring intake /output					
Monitoring blood glucose level as prescribed					
Performing patient's assessment each shift					
Patient reassessment per their condition statuses					
Medication administration					
Drug administration within 30 min earlier or later on planned time.					
Intravenous line site care according to hospital standard operating procedure					
Pro re nata drugs requests responded on in fifteen (15) minutes.					
Assessment of the effectiveness of medication					
Patient education					
Health education to patient's family					
Nurses provide patient health education on their care plans, post-discharge, and when to consult after hospitalization.					
Nurses Informed patients on procedures, illness, lab. Exams and additional lab. investigations					

Patient feeding	**Never missed**	**Rarely missed**	**Sometimes missed**	**Frequently missed**	**Always missed**
Set up foods for the patient who can					

feeding oneself.
Feeding patients who cannot feed oneself
Feeding patient warm food
Hygiene
Provide skin care to patients/bathing
Patient mouth care
Hand washing for nurses
Patient mobility needs
Ambulating the patient as prescribed
Changing patient position every 2 hours or as prescribed.
Responding to patient needs
Support to reach latrine/toilet whenever requested within 5 minutes
Responding to call alarm within 5 minutes
All necessary data documented completely
Join interdisciplinary discussions whenever held