PREVALENCE OF MISSED NURSING CARE AND ITS PREDICTORS AMONG NURSES IN JIMMA ZONE PUBLIC HOSPITALS, JIMMA ZONE, SOUTH WEST ETHIOPIA, 2017

BY

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A RESEARCH THESIS SUBMITTED TO JIMMA UNIVERSITY, INISTITUTE OF HEALTH, FACULTY OF HEALTH SCIENCES SCHOOL OF NURSING AND MIDWIFERY, IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR MASTERS DEGREE IN ADULT HEALTH NURSING.

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JIMMA ETHIOPIA

JIMMA UNIVERSITY INISTITUTE OF HEALTH
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Abstract

Introduction*: Missed nursing care (MNC) is any required patient care omitted in part or in whole, or significantly delayed and is attributed to errors of omission.The Ethiopian Health sector transformation plan (HSTP) I annual report revealed that quality of nursing care in hospitals across the countryis deteriorating. One aspect of quality nursing care is the amount of necessary care that is missed, whereasits prevalence and predictors across Ethiopian hospitals is not well understood.*

Objective: *The aim of the study was to determine the prevalence and predictors of missed nursing care according to perception of nurses in Jimma Zone public hospitals.*

Methods: *Facility based cross-sectional study using quantitative methods was conducted in five Jimma Zone public hospitals from March 01 to 30, 2017 using a modified missed care questioner and Nursing team work survey. A total of 237 (94.4%) nurses were participated in the study by simple random sampling. Descriptive, bivariate andmultivariable linear regression was performed using SPSS version 20 to identify the potential predictors of MNC.P-value less than 0.05 was taken as statisticallysignificant predictor.*

Result: *The prevalence of MNC lies between19.4% and 77% for all item of nursing care**.** Basic care intervention dimension was the frequentlyreported MNC.The top five items of missed nursing care were patient bathing 77% (183), emotional support for patient and family 175 (73.9%), ambulation of the patient 173 (73%), mouth care 172(72%) and turning patient 163 (68.7%. Human resource related dimension was the most reported reason for MNC, while unexpected rise in patient flow was reported as the leading item reason forMNC by 78%.Older age, higher patient-to-nurse ratio, absenteeism from work and night shift were associated with higher report of MNC.Whereas teamwork and on job training were protective factors of MNC.*

Conclusion and recommendation*:Missed nursing care is prevalent across all study hospitals and it has potentialto compromise quality nursing care. This indicates the need to collaborative effort to reduce occurrence of MNC and improve qualitynursing care.*

Key words: Missed nursing care, south west Ethiopia,Nurses

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List of acronyms

ANOVA: Analysis of variance

HSTP: Health sector transformational plan

JUMC: Jimma University Medical Center

MNC: Missed nursing care

NTS: Nursing team work survey

PCA: Principal component analysis

RNs: Registered Nurses

SDG: Sustainable development goal

SPSS: statistical Package for Social Sciences

WHO: World health Organization

CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND

Missed nursing care is “any aspect of essential patient care that is omitted (either in part or in whole) or delayed” and acknowledged that it is a response to “multiple demands and inadequate resources.(1)The concept related to omission of nursing care have been studied and described in the last decade using different conceptual definitions like nursing care left undone, missed nursing care and implicit rationing of nursing care. Even though they have different denotations the core aim of the three concept is to understand which nursing activities are either partially or fully omitted when different factors make delivering all necessary care impossible.(2)

Beatrice J. Kalisch was a pioneer for the phenomenon of missed nursing care in which she has identified in her qualitative study aimed at addressing nursing care missed in the process of delivering nursing care. Items and reasons of missed nursing care were identified through focus group discussions with nurses in two hospitals. Nine elements of regularly missed nursing care and seven themes relative to the reasons nursing staff gave for missing this care (too few staff, poor use of existing staff resources, time required for the nursing intervention, poor teamwork, ineffective delegation, habit and denial) were delineated (3,4)**.**

Unsafe healthcare is a potential cause of illness and mortality across the globe (5). The patient safety movement has recognized two major types of errors in health care system – acts of commission (such as marking the incorrect leg for surgery) and acts of omission (such as not ambulating the patient) . Missed nursing care is one part of act of omission that compromises the provision of comprehensive and safe nursing care and threatens patients’ lives (6).

Providing and monitoring interventions prescribed by others to treat illness and planning, delivering and evaluating nurse-initiated care to manage patients' symptoms and responses to care, and to promote health and healing challenges nurses to the risk of missed nursing care. Thus missed nursing care not only constitutes a form of medical error that may affect safety, but has been thought to be a unique type of medical underuse(2).

One aspect of quality nursing care is the amount of necessary care that is missed. Understanding of missed nursing care is dependent on the professionals' ability to identify the care not delivered. The ongoing identification of missed care was required in order to ensure that it is minimized and not costing harm to patients. The study which addresses missed nursing care supports nursing primary challenges to do no harm(7).

Furthermore, the correlates of MNC are in fact similar to those related to negative patient safety culture in hospitals, that include failed communication founded on mutual trust, interruption of the flow of information, absences of shared perception of the importance of safety, organizational learning and commitment from management and leadership, absences of a non-disciplinary approach to incident and error reporting and the willingness of staff members to report events. The frequency of MNC is also associated with nurses' perceptions of patient safety(8).

1.2 Statement of the problem

Missed nursing care is a widespread phenomenon that could threaten patient safety across all countries and cultures.(1) In developed countries, an estimated one out of ten hospitalized patients suffers harm resulting from the care received or the MNC; in developing countries, the proportion is much higher. The prevalence of MNC is high (55–98%) among nursing staff in acute care hospitals internationally and it has consistently been associated with nurse, patient, and organizational outcome((6).

Missed nursing care mainly harms Hospitalized patients with critical conditions who require constant monitoring, comprehensive care and treatment .The burden of missed nursing care worldwide needs to be highlighted not only because of the large number of patients affected every year, but also for its significant impact in terms of excess costs, prolonged hospital stay, attributable mortality, and other complications. Recent studies suggest associations between MNC and poorer patient outcomes, including increased inpatient mortality, medication errors, patient falls, pressure ulcers and nosocomial infections (8,,12).

Additionally, higher levels of missed nursing care are also associated with adverse nurse outcomes, including reduced job satisfaction, increased intention to leave the ward or the profession and increased turnover(11).

Missed nursing care is practiced by nurses with different qualification and level of practice. When tasks are missed by nursing staff, patients do not receive quality care, thus patient safety and patient outcomes can be compromised so health care-associated complications may result from the omission of appropriate quality patient care.

Health care errors are the root causes of a substantial amount of morbidity and mortality as well as the contemporary challenges in hospital unit lay the foundation for enhances risk of missed nursing care. However Acts of commission have received considerable attention in the literature, while acts of omission have been essentially unaddressed (12).

The Ethiopian Health sector transformation plan (HSTP) I annual report revealed that there is a deteriorating quality of nursing care in hospitals across the country and noted that nurses' motivation has deteriorated in the past several years(13). One aspect of quality nursing care is the amount of necessary care that is missed but it is not well understood for its prevalenceand predictors across Ethiopian hospitals as well to the study area Jimma zone public hospitals.

1.3 Significance of the study

Previous studies identified that costs of missed nursing care present threats to patient safety, and suggests consideration in state and national policy development globally. However, in Ethiopia no studies to date have explored the prevalence and predictors of missed nursing care. So this study will help:

- Policy makers to consider quality nursing care in terms of missed nursing care for attainment of HSTP and sustainable development goal.
- Nursing and Hospital Administrators to design strategies that effectively help to reduce MNC in health care organizations and reduce patient suffering to deliver quality nursing care and encourage patient outcomes in the JUMC and other health care facilities
- Identifying the items of missed nursing care and its predictors is fundamental for nursing profession it may provide nurses with knowledge by highlighting interventions that are not performed but are essential to patient recovery.
- Since the concept of MNC is an emerging research area helps as base line to do further research
- Moreover, there is an ethical responsibility to study situations which affect patient outcomes. Specifically, acts of health care errors, or omissions, must be reviewed in order to enhance patient health and improve upon system policies.

CHAPTER TWO: LITERATURE REVIEW

2.1 Overview of missed nursing care

The phenomenon of missed nursing care was first identified by Kalisch (2006) in a qualitative study of missed nursing care and aimed at addressing nursing care as omissions in the process of delivering nursing care. Focus groups were conducted with nurses at two large hospitals. Finding from the study illustrated that nine elements of regularly missed nursing care and seven themes relative to the reasons nursing staff gave for missing this care were demarcated(3).

Taking these study as the base Authors (Kalisch and William) developed and tested the *MISSCARE Survey which help* to assess the phenomenon of missed nursing care and to identify the acts of omission that may result in negatively affect patient care outcomes. Furthermore, the conditions are revealed in which care is not being provided(4). Missed nursing care is any aspect of required patient care that is omitted (either in part or in whole) or delayed" and acknowledged that it is a response to "multiple demands and inadequate resources (5).

2.2 Prevalence of missed nursing care

According to the staff nurse perception findings from Mexico in 2014 on Missed nursing care and associated factors among hospitalized patient revealed that a highest proportion of missed nursing related to basic care interventions, followed by interventions to satisfy individual needs. The top five elements of nursing care reported being missed by nurses in order: assistance with ambulation (42.0%), feeding the patient while the food is hot (30.2%), mouth care (21.3%) , emotional support for the patient and / or family (21.3%), assistance in attending evaluation visits for interdisciplinary care (14.7%), drugs administered within 30 minutes before or after the scheduled time (11.1%) (6).

The study conducted by Kalisch, Tschannen, Lee, and Friese (2011) on ten hospitals found ambulation of patients to be missed 76.1% of the time, attendance of interdisciplinary care conferences 65.5% of the time, mouth care 64.5% of the time, administration of medications within thirty minutes of their scheduled time 59.8% of the time, and turning of patients every two hours 59.4% of the time. Most nurses (86%) reported that one or more care activity had been left undone due to lack of time on their last shift (16)

The study conducted by Kalisch et al in 2011 on hospital variation of missed nursing care across Europe shows the distribution of responses for how frequently each element of care was reported missed, the leading most frequently missed nursing care as reported by nurses was Ambulation of patients three times per day (or as ordered) with 32.7%. Additional elements that were frequently or always missed included attendance at care conferences (31.8%), mouth care (25.5%). Conversely, performance of patient assessments (97.7%), glucose monitoring (97.6%) and vital signs (95.8%) were reported as only rarely or occasionally missed by almost all participants. The overall mean score of missed care was 1.56 (SD = 0.4) (17).

Kalisch, Landstrom, & Williams in 2009 identified, the six most frequently reported types of missed nursing care. the ambulation of patients (84%), assessment of the effectiveness of medications (83%), patient turning every two hours (82%), mouth care (82%), patient teaching (80%), and the timeliness of medication administration (80%). A mean of 7.8 activities per shift were left undone on wards that are rated as 'failing' on patient safety, compared with 2.4 where patient safety was rated as 'excellent (18)'.

A study conducted in 2012 involving 12 medical units in Italy, patient ambulation was the most perceived missed care intervention both in frequency and severity. The second most largely perceived missed care intervention was turning the patient every 2 hr. The right timing in administering medications (64.6 %) and patient's education (63.1 %) were also among the most frequently reported missed interventions (19).

2.3 Reasons of missed nursing care

Batrich J Kalisch has identified seven reasons for missed care in her qualitative study (too few staff time required for the nursing intervention, poor teamwork (3).

The study conducted in Italy on predictors of missed nursing care by AlvisaPalese Elisa Ambrosi et al revealedthe average score for the reasons for missed care was 46.3 out of 68) and the average for each reason was 2.7 out of 5 that means ‘‘little to moderate significant reason.’ ’Seventeen (5.4 %) participants identified no reason for missed care. The most reported reasons, greatest both in frequency and severity, were the unexpected rise in patients’ volume or critical conditions, inadequate numbers of staff, and large numbers of admissions/ discharges. The reason for the least frequently missed care intervention and the one with the lowest score was inadequate handover; however, it was reported by more than half of the health workers(19).

Study conducted in Europe identified Reasons for missed care were similarly in the ten hospitals. Inadequate labor resources was the most often cited reason for missed care (93.1% across the 10 hospitals), followed by material resources (89.6%) and communication (81.7%) (6).

Within the labor resources subscale, unexpected rise in patient volume and/or acuity was consistently identified as the top reason for missed care (94.9% for all respondents), with a range in frequency 87.4% to 98.3% across hospitals. The most common item reported in the material resources subscale was the lack of availability of medications when needed (94.6% overall, range across hospitals 88.6% to 97.8%). Communication items were less similar across hospitals, however the most frequently reported item in this scale across hospitals was unbalanced patient assignments (91.0% overall, range across hospitals 82.2% to 95.4%). (20)

Callen and colleagues identified that 73% of patients hospitalized on a medical unit did not ambulate at all during their stay.A study of nutritional status of patients found that nearly 40% of hospitalized patients were malnourished and few had a nutrition plan. (5,7). Selected aspects of missed nursing care have been investigated previously, including the impact of failure to ambulate patients, the assurance of providing adequate hydration and nutrition to patients following hospitalization, and missed medication administration(17) .

According to the study conducted in Mexico in 2014 by Moreno Monsavis the main reason for MNC were attributed to the nursing workforce, with an average of 80.67%)with specific item unexpected increase in the volume of patients (65%) followed by insufficient staff (58.8%), and patient emergencies (46.9%). Materials and supplies reason related was the second, with an average of 69.72% with specific item un availability of drugs when needed (50%) followed by supplies / equipment not being on hand when needed, and supplies and equipment that do not work properly when required, with 36.9% and 33.8%.

The third reason was communication factors , with an average of 65.16%, specifically unbalanced allocation of patients was perceived as the primary reason for missed care, with 40.6%, followed by too many tasks to be done for patients who are admitted and discharged, with 36.9%, and lack of support from team members, with 35%.(6).

Different MNC determining factors have been reported by nurses in acute care settings. Antecedents include lacks in human resources and communication, and also in values regarding the nursing role both at the unit level and at the managerial level that may influence the standard of care delivered and the amount of nursing resources. Insufficient labor resources are consistently identified as the most significant underlying reasons for missed care by over 90% of respondents. Insufficient material resources are the second most significant underlying reason for missed care (identified by 56-90% of respondents) followed by ineffective communication (identified by 38-82% of respondents) (11,23,24).

2.4Predictors of Missed Nursing Care

The study conducted byManar Ahmed Elbadawy revealed that the higher the year of nurses experience were positively contribute for the occurrences of missed nursing care and there was significant difference among study participants' length of their worked shift and reported MNC dimensions regarding to various nursing interventions dimension with higher mean score (= 1.66, SD= ± 0.63) at 12 working hours / shift (7). Whereas the study on Aberrant Work Environments, Missed Care as Skills Failure conducted by Clare Harvey et al in 2015suggests that as age increases the overall missed care score decreases meaning that fewer incidences of missed care are reported as participants' age increases(P=0.004)(10).

Additionally, higher levels of missed nursing care are also associated with adverse nurse outcomes, including reduced job satisfaction, increased intention to leave the ward or the profession and increased turnover(11).

A report from hospital variation in missed nursing care by Kalisch and collogues showed that Nursing staff who missed more shifts in the past 3 months (compared to those who did not miss any shifts, $B = 0.08$, $S.E. = 0.02$, $p < 0.001$), perceived their staffing less adequate ($B = 0.11$, robust $S.E. = 0.01$, $p < 0.001$), or cared for more patients in the previous shift ($B = 0.01$, robust $S.E. = 0.00$, $p < 0.05$), reported significantly more missed care(17)

According to study conducted by AlvisaPalese et.al on Missed nursing care and predicting factors in the Italian medical care setting using regression, nursing staff age, the daily care offered by RNs, and the number of patients in their charge during the last shift were protective factors of MNC. In contrast communication tensions between nurses, experience in the medical unit were significant risk factors for MNC (19).

According to study conducted by Helga Bragadóttir and B. Kalisch, MNC was significantly related to hospital and unit type, participants' age and role, and their perception of adequate staffing and level of teamwork. The multiple regression testing yields unit type, role, age and staffing adequacy to predict 16% of the variance in missed nursing care (22)

Study conducted by Jan Eballetal reported that night shift workers reported less missed care than day shift workers ($p < 0.01$). Nursing staff who missed 2 or more shifts in the past 3 months reported missed care more than those who did not miss any shifts ($p < 0.01$). Those who cared for more patients in the previous shift reported more missed care ($p <0.001$), while nursing staff who perceived their staffing as adequate more often reported less missed care ($p < 0.001$). Gender and age were not significantly associated with missed care(23).

The negative relationship between the missed care mean scores and teamwork overall scores (r = -.37, P <. 01) was also reported in the study conducted byAusserhofer D, et al. on Prevalence, patterns and predictors of nursing care left undone in European hospitals(24).

According to the result from Beatrice J. Kalisch and BoqinXie in 2014 showed that higher levels of teamwork are associated with less missed nursing care. They revealed that overall teamwork was a significant predicator of missed nursing care and accounted for 11% of the variance in missed nursingcare(8).

A statistically significant relationship between team work and missed nursing care was identified byWinsett RP, et al. on missed nursing care tasks in medical surgical nurses describe using the overall meanscores for both variables with a Pearson's correlation coefficient of ($p<0.001$)(25).

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Conceptual framework

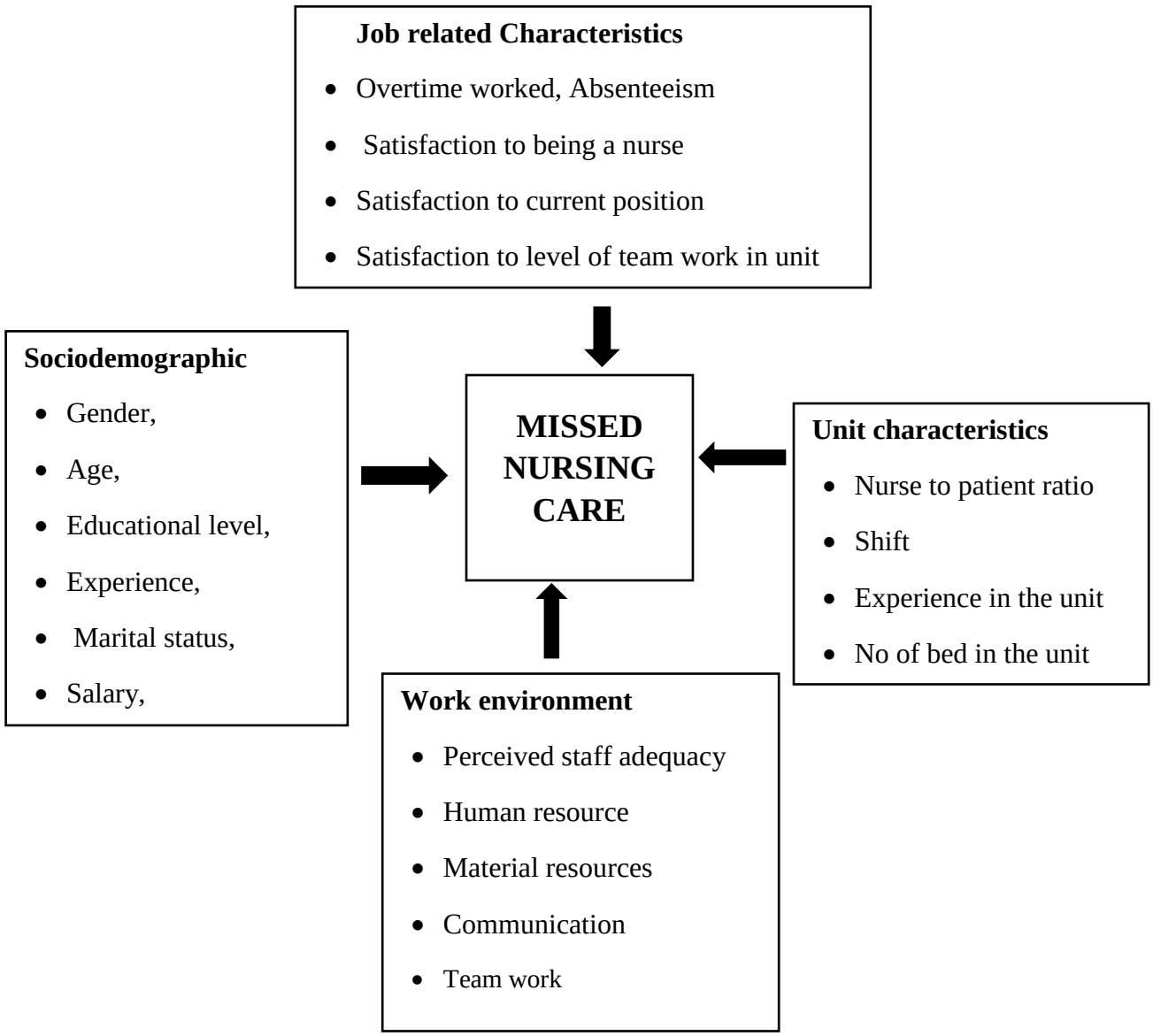

Figure 1. Conceptual frame work adapted after review of different literatures for Missed Nursing Care and Its Predictors in Jimma zone public hospitals

CHAPTER THREE: OBJECTIVES

3.1 General objective

To assess prevalence of missed nursing care and its predictors among nurses in Jimma zone public hospitals, Jimma zone, south west Ethiopia 2017

3.2. Specific objectives

- To determine prevalence of missed nursing care in Jimma zone public hospitals, Jimma zone, south west Ethiopia 2017.
- To identify predictors of missed nursing care in Jimma zone public hospitals, Jimma zone, south west Ethiopia 2017.

CHAPTER FOUR: METHODS AND MATERIALS

4.1 Study area and period

The study was conducted in Jimma zone public hospitals found in Jimma zone, Oromia regional state. There are five hospitals in Jimma zone. From the five hospitals four of them are primary Hospitals and give services for approximately around three million people in their catchment area. The other one is specialized and teaching hospital (Jimma university medical center) which is one of the oldest public hospitals in the country providing services for approximately 15 million people in its catchment areas annually. There are total of 728 all type of nurses found in the five hospitals. The study was conducted from March 01-30, 2017.

4.2 Study design

Facility based cross sectional study design using quantitative method was used.

4.3 Population

4.3.1 Source population

The source population was all staff nurses of Jimma zone public hospitals working in the units that provide continuous patient care.

4.3.2 Study population

The study population was selected staff nurses of Jimma zone public hospitals working in the units that provide continuous patient care.

4.4 Inclusion and exclusion criteria

4.4.1 Inclusion criteria

- Staff nurses who have at least six month work experience were included in the study and available during data collection period were included in the study.

4.4.2 Exclusion Criteria

- Nurses who have work experience of less than 6 monthsdo not exist at the time of data collection period.

4.5 Sample Size determination and sampling technique

4.5.1 Sample size determination

The sample size was determined using a formula for estimation of single population proportion with the following assumptions: an expected proportion of prevalence of Missed Nursing Care (p) of 50 %(since there is no similar study done in Ethiopia on MNC), Z *a/2* is Z value at 95% Confidence level (1.96) and 0.05 margin of error (d)

$$\mathbf{n = \frac{(Z\ a/2)_2 P\ (1\text{-}P)}{d^2} = \frac{(1.96)^2 0.5(1-\ 0.5)}{(0.05)^2} = 384}$$

Since the source population is less than 10,000, using finite population correction formula (here N is the number of nurses working in the selected units of Jimma zone public hospitals which is560.

$$Nf = \frac{n}{1+\frac{n}{N}} = \frac{384}{1+\frac{384}{560}} = 228$$

Adding 10% for non-response rate the final sample size was**251.**

4.5.2 Sampling technique

The study participants by default stratified to their respective public hospitals in Jimma zone. Then the total sample size was proportionally allocated according to their population size of the hospitals. Then number of nurses allocated for each hospitals was selected by simple random sampling for the data collection process.

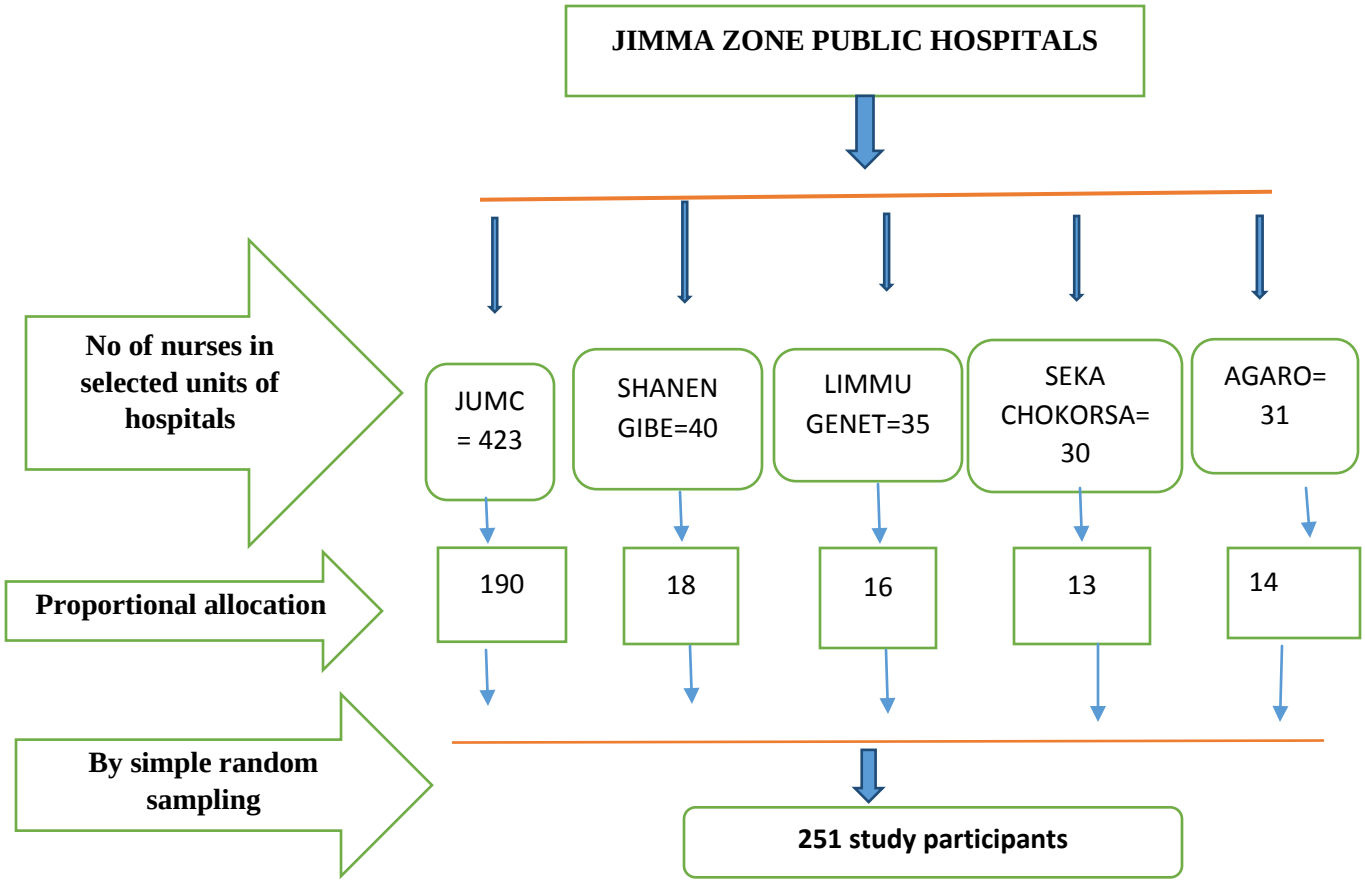

Figure 2: *schematic presentation of the sampling procedure in Jimma zone public hospitals Jimma zone, southwest Ethiopia, 2017.*

4.6 Study Variables

4.6.1 Dependent variable

- Missed nursing care

4.6.2 Independent variables

- Age
- Sex
- Educational level
- Work experience
- Work schedules/shift
- Perceived staffing adequacy
- Absenteeism
- Perceived level of team work
- Overtime
- On job training
- Patient to nurse ratio
- Satisfaction to being a nurse
- Satisfaction to the current position
- Satisfaction to the level of team work in the unit
- Human resource factor
- Material resources factor
- Communication factor
- Team work
- Number of bed in the unit

4.7 Operational definitions

Operational Definitions and definition of terms

Missed nursing care: Nursing carewas considered as missed if occasionally, frequently or always reported as missed to determine prevalence.

$$Mean\ score\ of\ MNC = \frac{Actual\ \ score - Minim\ um\ \ score}{Max\ \ score - Minimum\ \ \ score} * 100$$

Overtim**e**: Number of overtime hours worked in the past 3 months

Perceived absenteeism: Number of days or shifts missed reported by nurses in the past 3 months due to illness, injury, or extra rest (exclusive of approved days off)

Perceived staff adequacy: perception of the respondents toward the adequacy of their nursing staff in their unit to accomplish nursing activities

Significant reason:reasons of missed nursing care reported as moderate reason and significant reason

Continuous patient care: Bedside delivery of continuous nursing care to patient for at least 24 Hours

4.8 Data collection procedure and tools

4.8.1 Data collection Tools

For perception of nurses on MNC the Modified MISSCARE ("Missed Nursing Care") survey which is self-administered questioner designed by Kalisch and Williams was adapted and used (7). It consists of 63 items divided in to three sections. The first section, with a total of 22 items, includes demographic and work related data about nurses. The second section, called "Missed Nursing Care," consists of 24 questions related to the elements of nursing care being provided to the patient. It is divided into four dimensions, including interventions to attend to individual needs, discharge planning and patient education, basic care interventions, and care interventions with continuous assessment. Response options are Likert-type and range from high to low: 5-always, 4-often, 3-occasionally, 2-rarely, and 1-never. Cronbach's alpha obtained for this section was 0.83.

The third section, called "Reasons for Missed Nursing Care," consists of 17 items that pertain to the factors whereby nursing care is missed. It includes three dimensions for the factors involving human resources, material resources and communication. An Alpha value of 0.73 was obtained for the overall dimensions. The response rate is four-point Likert, where 4 denotes significant reason, 3 moderate reason, 2 minor reason and 1 is no reason.

To assess the level of team work The Nursing Teamwork Survey (NTS) designed to specifically measure nursing teamwork in inpatient settings was contextualized and modified to the study area and employed. The NTS is a 33-item questionnaire with a Likert-type scaling system (1 rarely to 5 always). The overall reliability of the survey obtained was 0.89.

4.8.2 Data Collection Procedure

The data was collected by seven B.Sc. nurses through facilitating the self-administered questioner for the nurses working in the five Hospitals. Two of them had facilitate the data collection process in Jimma University medical center while others was assigned to the remaining four hospitals. They facilitate data collection process by explaining the purpose and

technique of filling the questioner. The data collection process was held at convenient time for nurses to fill the questioner, especially after identifying relatively low work load time.

Two supervisors with MSc qualification wererecruited to conduct supervision in all five hospitals.One supervisor was assigned to two public hospitals found in Jimma town and the other conducted supervision in the three hospitals found in the districts of Jimma zone. Training was provided for the facilitators and the supervisor for two days by the principal investigator. The sessions of the training are the objective of the study, meaning of each question and techniques filling the questioner.

4.9 Data quality assurance

To assure the quality of data validated and revalidated MNC tool was used. Pretesting of the data collection tools was conducted at Bedelle Hospital using 5% (13 nurses) of the total sample size to identify any weakness in the organization and structuring of the research instruments. Following the pretest, the tool was improved in terms of its clarity, understandability and simplicity in collecting the data required for the study. Two day training and orientation was provided for the data collectors and supervisor. Data collectors and supervisorswere checking for completeness by every day.

4.10 Data processing and analysis

Before feeding into computer, each filled questionnairewas given a unique code. Subsequently the data was entered using EpiData version 3.1. The generated data was exported to statistical Package for Social Sciences (SPSS) version 20 and was cleaned by calculating frequencies and sorting.

Descriptive statistics was performed for socio demographic, work satisfaction related characteristics, items of missed nursing care, reason for missed nursing care. Regarding frequency of missed nursing care description items of nursing care reported as occasionally, frequently and always missed were considered as missed. As for reason for missed nursing care those items reported as moderate and significant reason were considered as the reason for missed nursing care.

All variables with p-value less than 0.25 in bi-variate analysis were considered as candidates for multiple linear regressions analysis. Multivariable linear regression analysis was done through backward method to identify the most significant predictors of MNC.

The assumptions in multiple linear regressions (linearity, normality, and constant variance) was checked. Significant independent predictors was declared at 95% confidence interval and P-value of less than 0.05 and unstandardized β was used for interpretation. Finally, the result was presented in statements, tables, charts, and graphs.

4.11 Ethical consideration

Ethical clearance was obtained from Institutional Review board of Jimma University. A formal letter from Institute of health science was submitted to all Jimma zone public hospitals and Bedelle hospital to acquire their co-operation. Ethical issues within the study was taken into consideration when carrying out the study.

At the initial stage of data collection informed consent was taken from respondents and the participants was assured that their participation was recorded anonymously.Participants were informed that their participation was voluntary and the choice to participate or not would have no any kind of effect on them. All the data obtained in due course was kept confidentially.

4.12 Dissemination plan

The results of this study will bepresented and submitted to Jimma University, Institute of health, faculty of health sciences school of Nursing andMidwifery. The finding will be distributed to Jimma zone public hospitals and other organizations working on related area. Presentations at professional, local, national and international meetings will be made.Publications in national or international journal will be made.

CHAPTER FIVE: RESULT

5.1. Socio-demographic Characteristics

Out of the total calculated sample, 237 respondents were participated in the study, yielding a response rate of 94.4%. The mean age of the participant was 28.4 years with standard deviation of ±5.1 years, while nearly half of the respondents were between 26 and 34 years. One hundred twenty six (53.2%) respondents were female and more than half (51.9%) of the participants were married.

One hundred twenty four (52.3%) respondents have diploma and the mean monthly salary was 3631.89± 1304.9ETB birr (159.2 ± 57.18USD). The mean total year of experience was 3.7±3.06 years with minimum of 6 month and maximum of 22 years.

Table 1: Socio-demographic characteristics of nurses working in Jimma zone public hospitals Jimma zone, southwest Ethiopia, 2017 (n=237)

Variable	Category	Frequency	Percentage
Sex	Male	111	46.8
	Female	126	53.2
Marital status	Never married	110	46.4
	Ever married	127	51.9
professional level	Diploma	124	52.3
	BSc degree	109	46.0
	MSc	4	1.7
Age category	<25 years	80	33.8
	26-34 years	117	49.4
	35-45 years	36	15.2
	>45 years	4	1.7
Salary (ETB)	<2000	18	7.6
	2000 - 4000	120	50.6
	>4000	99	41.8
Year of experience	<2yers	90	38.0
	2-5 years	117	49.4
	>5years	30	12.6
	Total	237	100
Experience in the current unit	<=2yers	184	77.6
	>2years	53	22.4

5.2 Hospital unit and work related characteristics

During their last or most recent shift, nurses gave care for minimum of two and maximum of twenty-four patients with the mean of 11.97 with SD of 4.031 patients. As for most frequent working shift or schedule in the last one month, 99 (41.8%) of them worked in the rotation shift between day and night.

Around a quarter (25.7%) of the respondents had an intension to leave their current position in the next six month, whereas 101(42.6%) have no plan to leave their current position.

Table 2: Working environment and work related characteristics of nurses working in Jimma zone public hospitals, Southwest Ethiopia, 2017 (n=237)

Variable	Category	Frequency	Percentage
Typeof Hospital	JUMC	175	73.8
	Primary hospitals	62	26.2
Ward or Unit Type	Medical	58	24.4
	Surgical	62	26.1
	Maternity and labor	38	16
	Gynecology	28	11.8
	Emergency and critical care unit	30	12.6
	Pediatrics	21	8.8
Working hour Per week	<=40hour	63	26.6
	>40hour	174	73.4
Hours of Overtime in the Last Three Month	None	55	23.2
	1-12hour	59	24.9
	Morethan12hour	123	51.9
Most Descriptive Working Shift in the Last One Month	Rotates between days and nights	99	41.8
	Day 8 hour	86	36.3
	Nights12hour	52	21.9
On Job Training in the Last 12 Months	Yes	87	36.7
	No	150	63.3
Days or Shifts Absent in the Last Three Month	None	130	54.9
	1-3days	87	36.7
	>= 4 days/shifts	20	8.4
Plan to Leave Current Position	In the next 6 month	61	25.7
	In the next year	75	31.6
	No plan to leave	101	42.6

5.3 Satisfaction and team work related characteristics

The overall mean score obtained from nursing teamwork survey for the nurse's team work with in their unit was 3.49 with standard deviation of 0.09.

Table 3: Satisfaction related characteristics of nurse working in Jimma zone public hospitals (Jimma zone, southwest Ethiopia, 2017 n=237

Variable	Category	Frequency	Percentage
Satisfaction toward their current position	Very dissatisfied	25	10.5
	Dissatisfied	84	35.4
	Satisfied	82	34.6
	Very satisfied	21	8.9
satisfaction on being a nurse independent of the current position	Very dissatisfied	41	17.3
	Dissatisfied	67	28.3
	Satisfied	99	41.8
	Very satisfied	30	12.7
satisfaction toward the level of team work in their unit	Very dissatisfied	20	8.4
	Dissatisfied	58	24.5
	Satisfied	69	29.1
	Very satisfied	74	31.2
How often they feel the staff is adequate	Always	19	8.0
	Usually	88	37.1
	Sometimes	58	24.5
	Rarely	65	27.4
	Never	7	3.0

5.4Prevalence of missed nursing care according to their dimension

The overall mean score for missed nursing care was 65.25 out of 120 (95 % CI: 63.76, 66.48) and the mean missed nursing care emerged for each nursing intervention was 2.7 out of 5 (95 % CI 2.0–2.2) which means ‘‘occasionally missed care.From this study, the prevalence of missed nursing care was as low as 19.4% and as high as 77.3% for items of nursing care.

Regarding their frequency the highest and top five frequently missed nursing care were patient bathing, emotional support for patient and family, ambulation of the patient as ordered,mouth care and turning or positioningof patient as ordered or indicated.

Figure 3: Topfive missed nursing care in Jimma zone public hospitals, Jimma Ethiopia 2017

Whereas the least frequently missed nursing care were described as follows on their order:medication administration within 30 minutes 46 (19.4%), vital sign assessment as ordered 47 (19.8%), wound care 85 (36%)and bedside glucose monitoring 89 (37.5%)

Descriptive analysis of the elements of missed care for each of the dimensions was conducted. In terms of basic care interventions, the highest reported missed nursing care reported by nurses were patient bathing 183(77.3%), ambulation of the patient 173 (73%) , mouth care 172 (72.5%) and turning patient every 2 hour or according to hospital policy 163 (68.9%). While wound care is the least frequently reported with 85 (35.9%).

Regarding care interventions with ongoing assessments, the main missed elements of care pertained to monitoring intake output 144 (60.2%), full documentation of all necessary data 135 (57%) and IV/catheter or central line care 133(56.1%). The least frequently missed nursing care from this dimension was bedside glucose monitoring 89 (37.5%).

As to individual need intervention dimension, emotional support for patient or family and reacting to PRN medication request within 15 minutes were the top two leading missed nursing care by 73.8% and 52% respondents.

From the discharge planning and patient education dimension the most frequently missed nursing care identified by the nurses were patient teaching and patient discharge planning with 63.3% and 61.2% respectively.

Table 4: Distribution of frequency of missed nursing care among nurses in Jimma zone public Hospitals Jimma zone, southwest Ethiopia, 2017 (n=237)

Item	Never No (%)	Rarely No (%)	Occasionally No (%)	Frequently No (%)	Always No (%)
Basic care intervention dimension					
Ambulation of the patient	8 (3.4)	82 (34.6)	74(31.2)	83 (35)	16 (6.8)
Turning patient as needed	6 (2.5)	113 (47.7)	62 (26.2)	85 (35.9)	16 (6.8)
Feeding patient when food is warm	10 (4.2)	115(48.5)	46 (19.4)	54 (22.8)	12 (5.1)
Dietary advice &communicating meal providers	14 (5.9)	115(48.5)	58 (24.5)	54 (22.8	13 (5.5)
Wound or skin care	49 (20.7)	115 (65.8)	52 (21.9)	21 (8.9)	12(5.1)
Patient bathing	8 (3.4)	46 (19.4)	90 (38)	62 (26.2)	31 (13.1)
Mouth care	7 (3.0)	58(24.5)	83 (35)	69 (29.1)	20 (8.4)
Care with continuous assessment dimension					
Vital sign assessment as needed/ordered	19 (8)	171(72.2)	17(7.2)	25 (10)	5 (2.1)
Monitoring intake & out put	21 (8.9)	72(30.4)	78 (32.4)	51 (21.5)	15 (6.3)
Full documentation of all necessary data	14 (5.9)	88(37.1)	69 (29.1)	57 (24.1)	9 (3.8)
Hand washing	15 (6.3)	99 (41.8)	66 (27.8)	51 (21.5)	6 (2.5)
Bedside glucose monitoring	9 (3.8)	139(58.6)	47(19.8)	38 (16)	4 (1.7)
Patient assessment each shift	34 (14.3)	73 (30.8)	40(36.7)	38 (16)	5 (2.1)
Focused reassessment as patient condition	21 (8.9)	85 (35.9)	83 (35.0)	42 (17.7)	6 (2.5)
IV,catheter/central line care	22 (9.3)	82 (34.6)	97 (40.9)	27 (11.4)	9 (3.8)
Individual need intervention dimension					
Medicating administration within 30 minutes	35 (14.8)	156(65.8)	15(6.3)	19 (8)	12 (5.1)
Assisting patient for toilet within 5 minute of request	24 (10.1)	97 (40.9)	83 (35)	31 (13.1)	2 (8)

Emotional support for patient/family	10 (4.2)	52 (21.9)	97 (40.9)	62 (26.2)	16 (6.8)
Assessing effectiveness of the medication	27 (1.4)	90 (38)	90 (38)	27 (11.4)	3 (1.3)
PRN medication request reacted with in 15 minutes	24 (10.1)	90 (38.0)	82 (34.6)	38 (16)	3 (1.3)
Response to patient call or alarm within 5 minute	23 (9.7)	92 (38.8)	78 (32.9)	42 (17.7)	2 (0.8)
Planning and teaching					
Patient discharge planning	23 (9.7)	69 (29.1)	102 (43)	39 (16.5)	4 (1.7)
Patient teaching	19 (8)	68 (28.7)	73 (30.8)	67 (28.3)	10 (4.2)
Attending interdisciplinary conference (round)	26 (11.0)	113 (47.7)	73 (30.8)	19 (8)	6 (2.5)

5.5Predictors of missed nursing care

Descriptive statisticsrevealed that from the three reason dimension (human resource, material resources and communication) for missed nursing care, human resource related factors were the most significant reason reported by nurses. Out of the total 68 score the average score for the reasons for missed care was 40.7 with SD of 7.13 and the average for each reason was 2.4 out of 5 that means 'little to moderate reason.'

Withinthe dimension of human resource, the item reported more significant as a reason for MNC was unexpected rise in patient flow in the unitby 185 (78%) followed by in adequate number of staff 166 (70%).

As for material resource related dimension the unavailability of medication when needed, unavailability of equipment when needed and not functional equipment when needed were reported as a reason for missed nursing care by 48% (114), 41% (99) and37% (90) respectively.

Regarding the communication dimension communication breakdown with medical staff was reported as significant reason by 149(54.4%) of individuals followed by lack of back up support from nursing team and in adequate hand off from previous shift 119(50.2%).49.3% (117) respectively.

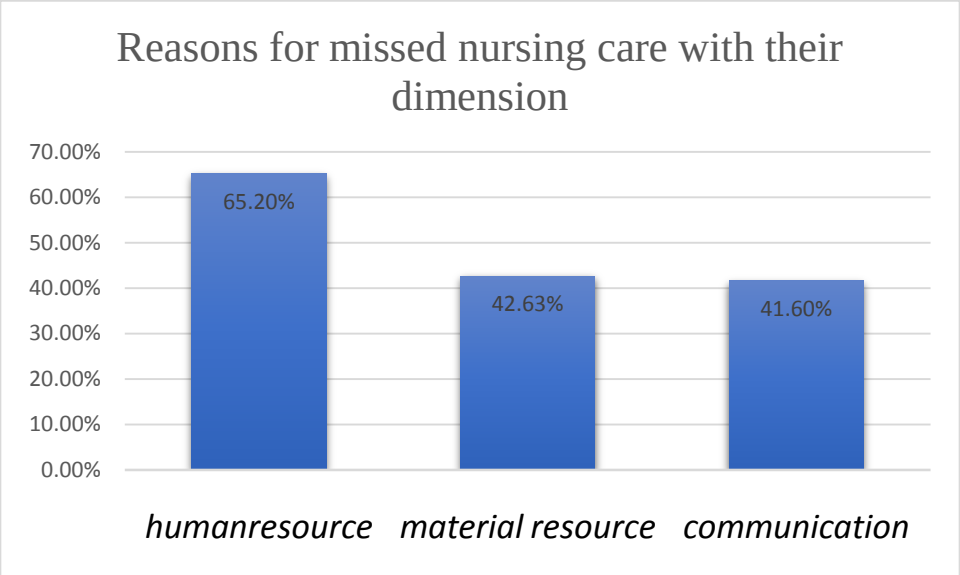

Figure 4: Dimension of reason for missed nursing in Jimma zone public hospitals, Jimma Ethiopia 2017

Table 5: Reasons of missed nursing care reported among nurses in Jimma zone public Hospitals Jimma zone, southwest Ethiopia, 2017 n=237

ITEM	Not a reason	Minor reason	Moderate reason	Significant reason
Human resource related	NO (%)	NO %	NO %	NO %
Inadequate number of staff	41 (17.3)	30 (12.7)	109 (46)	57(24.1)
Unexpected rise in patient volume in the unit	15(6.3)	37(15.6)	143(60.3)	42(17.7)
Urgent patient situations	32(13.5)	48 (20.3)	110(46.4)	47(19.8)
Inadequate number of assistive personnel	63(26.6)	49 (20.7)	102(43)	23 (9.7)
Unbalanced patient assignments	65 (22.7)	32 (13.5)	74(31.2)	66(27.8)
Materials and supplies related				
Medications were not available when needed	47(19.8)	76(32.1)	77(32.5)	37(15.6)
Equipment not functional when needed	73(30.8)	74(31.2)	59(24.9)	31(13.1)
Equipment not available when needed	83(35)	55(23.2)	69(29.1)	30(12.7)
Communication related				
Inadequate hand-off from previous shift or sending unit	38 (16.0)	82 (34.6)	79(33.35)	38(16)
Other departments did not provide the care needed	48(20.3)	119 (50.2)	54(22.8)	16 (6.8)
Lack of back up support from team members (nursing)	60 (25.3)	58(24.5)	71 (30)	48(20.3)
Communication breakdowns with supportive departments	47(198)	112(47.3)	56(23.6)	22(9.3)
Communication breakdowns within the nursing team	78(32.9)	75(31.6)	44 (23.6)	39 (16.5)
Communication breakdowns with the medical staff	53(22.4)	55 (23.2)	85(35.9)	44 (18.6)
That is not my job syndrome	52(21.9)	82(34.6)	49 (20.7)	54(22.8)
Caregiver off unit/unavailable	80 (33.7)	68(28.7)	68(28.7)	21(8.8)
Assistants did not communicate care was not done	54(22.8)	96(40.5)	61(25.7)	26(11)

To determine statistically predictors of missed nursing care, of the variables included in the bivariate analysis (Table 6), those variables that fulfilled the inclusion criteria to be candidate for multiple linear regression with p value of <0.25

Table 6: Bivariate analysis of predictors of Missed nursing care among Nurses in Jimma zone public hospitals Jimma Zone, South West Ethiopia (n=237)

Variable	**Unstandardized Coefficients**		**Standardized Coefficients**	**P**	**95%CI**	
	β	SD	Beta			
Age	0.856	0.116	0.433	0.001*	0.627	0.861
Sex						
Female ®						
Male	6.589	1.303	0.313	0.001*	4.023	9.155
Marital Status						
Ever Married ®						
Never Married	0.392	1.372	0.19	0.776	-2.312	3.095
Educational Status						
Diploma(Clinical Nurse)®						
Bsc N	-2.492	1.364	-0.118	0.069*	-5.17	0.195
Msc N	3.82	5.308	0.047	0.472	-6.638	14.277
Hospital Type						
Specialized (JUMC) ®						
Primary Hospitals	3.032	-1.545	0.127	0.051*	-0.011	6.076
Working Hour Per Week						
>=40hour ®						
<40hour	0.51	1.549	0.021	0.742	-2.542	6.076
Working Shift						
Rotation ®						

Night Shift	12.67	1.433	0.500	0.001*	9.847	15.945
Day 8 Hour	-2.337	1.415	-0.0107	0.100*	-5.125	0.45
Satisfaction To Being A Nurse Independent Of The Current Position						
Satisfied ®						
Not satisfied	0.214	1.37	0.1	0.87	-2.494	2.92
satisfaction to the level of team work						
satisfied ®						
Not satisfied	12.129	2.32	0.321	0.001*	7.535	16.725
Satisfaction to their current position						
Not satisfied ®						
Satisfied	3.534	1.361	0.167	0.01*	0.851	6.216
salary	0.001	0.001	0.112	0.085*	0.000	0.002
Experience in their unit	0.485	0.221	0.142	0.029*	0.049	0.921
Plan to leave their profession/ position						
yes ®						
no	2.955	1.371	0.139	0.032*	0.255	5.656
feeling toward staff adequacy						
High ®						
low	-0.461	1.592	-0.019	0.772	-3.597	2.675
team work level of the unit	-7.433	1.356	-0.337	0.001*	-10.104	-4.76
work absenteeism in the last three month						
none®						

at least one day/shift	14.82	0.978	0.703	0.001*	12.892	16.748
training in the last 1 year						
NO ®						
Yes	-3.438	1.402	-0.158	0.015*	-6.20	-0.675
hours of overtime in the last three month						
>12 hour ®						
None	-1.976	1.616	-0.079	0.223*	-5.160	-1.208
1-12 hour	-1.590	1.580	-0.066	0.315	-4.702	1.52
Number of bed in the unit	-0.036	0.013	-0.174	0.007*	-0.062	-0.10
No of patient they gave care in the last shift	0.732	0.154	0.296	0.001*	0.429	1.03
human resource factor	1.358	0.236	0.351	0.001	0.893	1.82
material resource factor	1.306	0.269	0.302	0.001	0.776	1.83
communication factor	0.689	0.158	0.274	0.001	0.379	1.00

®: Reference category, *****: Candidate variables that fulfill the inclusion criteria (p value < 0.25)for multi variable linear regression model

From the backward method of multiple linear regression the significant predictors of missed nursing were identified. Six variables with p value lea than 0.05 were identified. Age of the nurses, number of patients per nurses, score of teamwork, on job training, working shift and absenteeism were the statistically significant predictors of missed nursing care.

From the final analysis result the age of the nurses and mean score of missed nursing care have positive association.As age of nurses increases by one year the mean score of missed nursing care was also increased by 0.44keeping the other variables constant(p=0.0001 and CI: 0.238,0.574).

The number of patient per nurses have also positive association with mean missed nursing care score. After controlling for other variables, as the number of patient to be cared for increases by one the mean score of missed nursing care also increases by0.54(p=0.001 and CI: 0.271, 0.804).

On job training on any type of nursing care in the last 12 month has a negative association with missed nursing care reported. Consequently after keeping other vales constant those nurses who had training in the last 12 month reduces the occurrence of missed nursing care by two(2.0) compared to those who had no training (p=0.018 and 95% CI -3.735, -2.051).

Regarding the working schedule of the nurses, night shift workers reported positively contribute for the missed nursing care.Nurses working in the night shift reported MNC on average 6.02 higher as compared to those working in the rotation shift keeping other values constant. (p=0.01 and CI: 3.08, 9.06).

From this study result absenteeism from work and missed nursing care have positive association. Those nurses who reported absent from work in the last three months for at least one day reported more missed nursing care12 .06 higher compared to those who were notabsent from work in the last three month(p=0.001 and 95% CI: 9.6960, 14.505) by keeping other variables constant.

On the other hand,the total score of perceived teamwork of the unit was negatively associated with mean score of missed nursing care. After keeping other variables constant , as the total score of team work increase by one score the mean score of missed nursing care decreased by 2.04 (B:-2.04 P= 0.012 and 95%CI: -4.42,-0.54).

Table 7. Multivariable linear regression analysis on Predictors of Missed nursing care among nurses In Jimma zone public hospitals and, Jimma Zone, Ethiopia, March 01-30, 2017 (n=237

Variable	**Unstandardized**		**t**	P	**95% CI**	
	β	SD				
(Constant)	49.434	6.000	8.240	.000	37.611	61.256
Age	.445	.108	4.136	.001*	.233	.658
Numbers of bed in the unit	-.020	.011	-1.895	0.059	-.041	.001
Overtime >12 hour in the last 3 months(R)						
NO over time	1.923	1.001	1.920	0.056	-.050	3.896
No on job training in the last 1 year (R)						
On job training in the last1 year	-2.041	.860	-2.375	0.018*	-3.735	-2.051
Rotation shift (R)						
Night shift schedule	6.058	1.508	4.017	0.01*	3.086	9.030
No absenteeism (R)						
At least one day or shift absenteeism	12.067	1.237	9.754	0.01*	9.629	14.505
Plan to leave their position (R)						
No plan to leave their position/unit	1.858	1.111	1.672	0.096	-.332	4.048
Teamwork score	-2.481	.984	-2.520	0.012*	-4.421	-.540
Communication score	.196	.102		0.056	-.005	.397
Patient to nurse ratio	0.537	.135	3.971	0.001*	.271	.804

Note: **Statistically significant at p-value < 0.05, 95% CI. β- Positive values indicate increased Missed nursing care score relative to the referent variable category, while negative values indicate decreased MNC score compared with the referent category. Adjusted R^2 for this result was 0.732 and maximum VIF=1.58.

CHAPTER SIX: DISCUSSION

The finding from this study identified a significant number of basic and clinically important nursing interventions were perceived to be missed in the units where patients with clinical conditions are admitted showing that missed nursing carewas common in all types of hospitals and their units. This finding is similar with a report from concept analysis of missed nursing care by Hinshaw ASet al iwhich says Missed nursing care is a universal phenomenon that could threaten patient safety across all countries and cultures.(1)

From this study, the prevalence of missed nursing carewas as low as 19.4% and as high as 77%.This study revealed that according to nurse's perception from the four dimensions of nursing care, basic care interventions and interventions to satisfy individual needs were reported as the most frequently missed nursing care dimensions.Items with in this dimensions may have potential adverse patient outcomes. This finding is similar with study conducted in Mexico 2014 by Moreno Monsivais(6).

Within the overall nursing care dimension the most frequently missed nursing care items were patient bathing, emotional support for patient/family, ambulation, mouth care and turning or positioning patient were the most frequently missed nursing cares.From these items except patient bathing similar finding was reported (all of them were reported as the most frequently missed nursing care items) by different studies(6)(8)(17)(19).

Also the study conducted by Williams and colleagues in 2009 revealed similar top five elements of essential nursing care missed by majority of the staff nurse (19).A possible explanation for discrepancy of the patient bathing report between this and other studies, this study was conducted in a set up where shortage of continuous running water is common and hold back the possibilities and frequency of patient bathing.

From all study participants the least frequently (never and rarely) reported missed nursing cares were vital sign assessment, medication administration within 30 minutes, patient assessment each shift and wound acre with the value of 19.3%,19.4% , 35.02% and 35.6% respectively.

Study conducted by Rebecca P et.al was supportive of this study finding concerning patient assessment and vital sign assessment, which were the least frequently, missed nursing care.Nevertheless, in the same literature timeliness of medication administration was reported as one of the most frequently missed nursing care, which is in contrast with this study finding .This may be due to the time limit difference to say medication is administered on time(21).

The possible suggestion for why these items missed lower than that of others due to it is significant that those missed care elements with the highest scores are those cares that when missed are unlikely to have immediate consequences to the patient and from supervisor or head nurse to the staff nurses.

This study revealed that from the three dimensions of reasons for missed nursing care human resource dimension was reported as the most significant reason for missed nursing careand the average score for the overall reason was 40.7/68. Within the human resource dimension unexpected rise patient volume was reported as the most significant reason for missed nursing care by 78% of nurses.This finding is similar with study conducted byRebecca P.Winsett 2016 which revealed unexpected rise in volume/acuity (76.2%)(21).

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In this study predictors of missed nursing care was viewed in terms of the socio demographic characteristics, job satisfaction,unit and work related characteristics and reason for missed nursing care of miss care survey. The miss care survey of reason for missed nursing care was treated both as descriptive and inferential by computing their score and considered for their possible association with missed nursing care.

The results of the current study revealed that age of the nurses, patient to nurse ratio, teamwork, on job training, working schedule/shift and absenteeism from work as predictors of missed nursing care and have statisticallysignificant association.

This study result shows ageof the nurses and reported missed nursing care have positive association.This show that older age individuals were not completing nursing care activities within the time limit.In contrast to this result, study conducted in Italy 2012 on predictors of missed nursing care among nurses in Italian medical units reported that the higher the age of the nurses were protective factor for reported missed nursing care(19) . The discrepancy may be due to older age nurses are mostly assigned to coordinate activities in the unit in addition to their role and they may expect younger nurses to perform activities on behalf of them.

As the number of patient to nurse ratio increases the missed nursing care also increases. In our study set up the average number of patient per nurse was nearly 12 with standard deviation of 4 which is higher than that of standard so it is not surprising if nursing care were reported as missed because it is difficult to complete all essential nursing care with in their schedule for all patients. Finding from other countries reported similar finding on the higher number of patients contributing for the missed nursing care(19)(20).Creativity and careful distribution of staff's analysis may be required to develop mechanisms to handle high flow of admissionsand unexpectedly high numbers of complex cases.

The result from this study revealed that staff working on night shift schedule reported more MNCs as compared to those working with the rotating work schedule. This report is in contrast with the finding from other countryby which literature found showed that night shift workers reported lower score of missed nursing care(23). This discrepancy may be due to during night shift some of the nursing care like ambulation were not performed or rarely provided in normal

context. For such like activity other studies provide an option not applicable while it was not included in this study.

Number of day'sabsenteeism from work in the last three months from work was also another significant predictor for the higher reported missed nursing care. This finding is consistent with other findings from different countries done on missed nursing care(17)(20).

In this study the mean score of team work status of the unit was 3.49 with standard deviation of 0.09. From the regression analysis, higher the score of teamwork was negatively associated with missed nursing care score. It is expected that good teamwork with in nursing team may reduce omission of nursing care delivering to the patient.

This study finding delivers indication that teamwork is important for the provision of quality and safe nursing care. When teamwork is present, it is much more likely that the care will not be missed because team members believe that the team is more important than the individual staff member and that the work is ''ours, and feel the sense of belongingness'' not just the particular staff members who is assigned to the patient.This finding is consistentwith result described by Kalisch onMissed Nursing Care: Errors of Omission2009 (8),Ausserhofer D, etál. Prevalence, Patterns and Predictors of Nursing Care Left Undone in European Hospitals(24)) andWinsett RP, et al. Medical surgical nurses describe missed nursing care tasks — Evaluating our work environment(25).

Strength and Limitation of the study

To my knowledge this study is the first of its kind to consider prevalence of missed nursing care and its predictors inEthiopiaparticularly in Jimma zone public hospitals.

The other strength of this study was including nurses with different qualification in different units involved in direct continuous patient care as opposed to many literatures considering only medical and surgical nurses/units. Also considering different types of hospital have value for credibility, validity and richness of the findings.

The ideal standard to determine actual nursing care being missed is direct observation of nursing care with long period follow up. Howeverwith in this time limit it is unbearable to conduct direct observation study. Shortage of similar studies in Ethiopia and Africa also makes the comparisondifficult in discussion part.

CHAPTER SEVEN: CONCLUSSION AND RECOMENDATION

7.1 CONCLUSSION

This study aimed at revealing what care is missed from the nurse's point of view in order to understand how nurses manage their work within their working unit. Nurses working in Jimma zone public hospitals reported that missed nursing care was prevalent across their working hospitals by 19.4% -77%.

Basic care intervention dimension was the most frequently missed nursing care,while patient bathing and emotional support for patient and /family were the top leading item of nursing care being missed.

Human resource relateddimension was reported as the main reason for missed nursing care from descriptive statistics and unexpected rise in patient number/volume was reported as the top reason within this dimension and across all reason item.

This study revealed that missed nursing care have significant association with age , working schedule/shift, on job training,teamwork in the unit, patient to nurse ratioand work absenteeism of the nurses. None of reason for MNC dimensions were significantly associated with missed nursing care when treated in regression analysis.

7.2 RECOMMENDATION

Staff nurseshave to:

- Consider monitoring of missed nursing care on a daily basis to minimize missed nursing care and patient suffering.
- Communicating essential nursing care which was not completed to the next shift
- Make certain their team work spirit in reducing occurrence of MNC
- Be vigilant at all of their working schedule

For Administrative/head nurses

- Ensure that each staff nurse is assigned to a manageable patient load to deliver all the needed care.
- Recognize the importance teamwork, role in supporting and acknowledging the work of the staff nurses.
- Preparing refreshment training on nursing care

For researchers

- Considering longitudinal study to examine actual missed nursing care
- Separately studying items of nursing care
- Area of research that needs to be promoted is the impact of missed care on patient outcomes

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Annex

Jimma University

Institute of health science

Departments of Nursing

English version

Questionnaire

Questionnaire for data collection on Missed nursing care and it's predictors in JUMC Jimma zone south west Ethiopia

Informed consent form

Dear respondent

Hello, my name is ---------- and I am working with Jimma university research team School of nursing and midwifery. I am here to enroll and distribute self-administered for eligible study participants like you and fill in the questionnaire forms prepared by research team. I am glad to inform you that you are one of the chosen study participants to participate in this study the purpose of which is to assess Missed nursing care and it's predictors in Jimma zone public hospitals. The study results was used to address issues related to quality of nursing care services in Ethiopia. The information in this questionnaire was kept strictly confidential, will not be divulged to any one and only the research team will have access to the information you gave but your name and address will not be recorded or identified even by the research team. This questionnaire will be filled only if you agree to take part in the study. However your genuine and true responses give value for success of the study and also will help for better understanding of the problem that would eventually help in designing appropriate intervention to solve the problems and I sincerely ask you to give your genuine and true responses to the questions provided .The questionnaire contains three parts and will take not more than 20 minutes.

So, would you like to participate in the study?

Yes/agree ----------No/disagree ----------

Thank you!

Date ----------Signature of the data collector to certify the informed consent verbally -------

Annexes I

MISSED NURSING CARE (The MISSCARE Survey)

SECTIONA- SOCIO-DEMOGRAPHIC AND JOB RELATED FACTORS			
Sr. No	**Questions**	**Response**	**SKIP**
A.1	Name of the hospital	1. JUMC 2. Shenen gibe 3. Limmugennet 4. Sekacholorsa 5. Agaro	
A.2	Name of the unit you work on	1. Medical 2. surgical 3. Gynecology 4. Maternity and labor 5. pediatrics 6. EOPD 7. Ophthalmology 8. Psychiatry 9. ICU	
A.3	I spend the majority of my working time on this unit:	YES= 1 NO=0	
A.4	Age:	_____ in years	
A.5	Sex:	1. Male 2. female	
A.6	4. Marital status	1. Single 2. Married 3. Divorce 4. Widow	
A.7	. Highest education level:	1.Diploma 2.Bachelor's degree 3.Graduate degree	
A.8	Salary	_____ in ETB	

A.9	Job Title/Role:	1. Staff Nurse (clinical) 2.Staff Nurse (Professional) 3.Nurse manager, assistant manager 4.Other [Please specify	
A.10	Number of hours usually worked per week	1.<= 40 hours per week 2.>= hours or more per week	
A.11	9. Work hours (check the one that is most descriptive of the hours you work)	1. Morning 6hour shift 2. Afternoon 6 hour shift 3. Day 8 hour shift 4. Nights (12 hour shift) 5. Rotates between days, nights or evenings	
A.12	Experience in your role:		
A.13	Experience on your current patient care unit	_____months/years	
A.14	Have you get on job training in the last one year on nursing care?	1. Yes 2.No	
A.15	In the past 3 month, how many hours of overtime did you work?	1. None 2. 1-12 hours 3. More than 12 hours	
A.16	In the past 3 months, how many days or shifts did you miss work due to illness, injury,extra rest etc. (exclusive of approved days off)?	1) None 2) 1 day or shift 3) 2-3 days or shifts 4) 4-6 days or shifts 5) over 6 days or shifts	
A.17	Do you plan to leave your current position?	1) in the next 6 months 2) in the next year 3) no plans to leave	
A.18	How often do you feel the unit staffing is adequate?	1. _____ 100% of the time 2. _____ 75% of the time 3. _____ 50% of the time 4. _____ 25% of the time 5. _____ 0% of the time	
A.19	On the current or last shift you	____ In number	

	worked, how many patients did you care for		

Rate with score: Very satisfied=4, satisfied=3, , dissatisfied=2 and very dissatisfied=1.

ITEM		1	2	3	4
B.1	How satisfied are you in your current position?				
B.2	Independent of your current job, how satisfied are you with being a nurse?				
B.3	How satisfied are you with the level of teamwork on this unit?				

Annexes II

SECTION C: Missed Nursing Care

To the best of your knowledge, how frequently are the following elements of nursing care MISSED by the nursing staff (including you) on your unit?

Note. 5= always, 4= frequently, 3= occasionally, 2= rarely, 1=never.

SNO	Items of nursing care	**1**	**2**	**3**	**4**	**5**
C.1	Ambulation					
C.2	Turning patient as needed					
C.3	Feeding patient when the food is still warm (NG tube)					
C.4	Dietary advices & communicating to the providers					
C.5	Medications administered within 30 minutes before or after scheduled time					
C.6	Vital signs assessed as ordered/ needed					

C.7	Monitoring intake/output					
C.8	Full documentation of all necessary data					
C.9	Patient teaching					
C.10	Emotional support to patient and/or family					
C.11	Patient bathing					
C.12	Mouth care					
C.13	Hand washing					
C.14	Patient discharge planning and teaching					
C.15	Bedside glucose monitoring as ordered					
C.16	Patient assessments performed each shift					
C.17	Focused reassessments according to patient condition					
C.18	IV/, Catheter (central line site)care and assessments according to hospital policy					
C.19	Response to patient call or alarm is initiated within 5 minutes					
C.20	PRN medication requests acted on within 15 minutes					
C.21	Assess effectiveness of medications					
C.22	Attend interdisciplinary care conferences whenever held					
C.23	Assist with toileting needs within 5 minutes of request					
C.24	Skin/Wound care					

SECTION D: Thinking about the missed nursing care on your unit by all of the staff (as you indicated on Part 1 of this survey), indicate the REASONS nursing care is MISSED on your unit. *Mark the sign **X** under only one box for each item.*

Note: 4= Significant reason, 3= Moderate reason, 2= Minor reason, 1= NOT a reason for missed care

		1	2	3	4
	labor resource related				
D.1	Inadequate number of staff				
D.2	Urgent patient situations (e.g. a patient's condition worsening)				
D.3	Unexpected rise in patient volume and/or acuity on the unit				
D.4	Inadequate number of assistive and/or clerical personnel				
D.5	Unbalanced patient assignments				
	Materials and supplies related				
D.6	Medications were not available when needed				
D.7	Supplies/ equipment not functioning properly when needed				
D.8	Supplies/ equipment not available when needed				
	Communication Related				
D.9	Inadequate hand-off from previous shift or sending unit				
D.10	Other departments did not provide the care needed (e.g. physical therapy did not ambulate				
D.11	Lack of back up support from team members (nursing)				
D.12	communication breakdowns with supportive departments				
D.13	communication breakdowns within the NURSING TEAM				
D.14	communication breakdowns with the MEDICAL STAFF				
D.15	That is not my job syndrome				
D.16	Caregiver off unit/unavailable				
D.17	Assistants did not communicate care was not done				

Annexes III

NURSING TEAMWORK RELATED QUESTIONARY

Please fill in all of the following items regarding **YOUR TEAM**. Team is defined as the group of people working on a patient care ward/unit including **all nurses in your shift. Tick** one **response for each question. 1= rarely, 2=25%, 3=50%, 4=75%, 5= always.**

	ITEM	**1**	**2**	**3**	**4**	**5**
E.1	All team members understand what their responsibilities are throughout the shift.					
E.2	The nurses who serve as team leaders monitor the progress of the staff members throughout the shift.					
E.3	Team members frequently know when another team member needs assistance before that person asks for it.					
E.4	Team members communicate clearly what their expectations are of others.					
E.5	Mistakes and annoying behavior of teammates are not ignored but are discussed with the team member.					
E.6	When changes in the workload occur during the shift (admissions, discharges, patients problems etc.), a plan is made to deal with these changes.					
E.7	Team members know that other members of their team follow through on their commitment.					
E.8	8) The nurses who serve as charge nurses or team leaders balance workload within the team.					
E.9	9) My team believes that to do a quality job, all of the members need to work together.					
E.10	10) The shift change reports contain the information needed to care for the patients.					
E.11	11) Team members usually return from breaks on time.					

E.12	12) Team members respect one another.					
E.13	13) When a team member points out to another team member an area for improvement, the response is never defensive.					
E.14	14) Team members are aware of the strengths and weaknesses of other team members they work with most often.					
E.15	15) If the staff on one shift is unable to complete their work, the staff on the on-coming shift do not complain about it.					
E.16	16) Staff members with strong personalities do not dominate the decisions of the team.					
E.17	17) Most team members tend to deal with conflict rather than avoid it.					
E.18	18) Nursing assistants and nurses work well together as a team.					
E.19	19) The nurses who serve as charge nurses or team leaders are available and willing to assist team members throughout the shift.					
E.20	20) Team members notice when a member is falling behind in their work.					
E.21	When the workload becomes extremely heavy, team members pitch in and work together to get the work done.					
E.22	Feedback from team members is often helpful rather than judgmental.					
E.23	My team readily engages in changes in order to make improvements and new methods of practice.					
E.24	Team members readily share ideas and information with each other.					
E.25	Team members clarify with one another what was said to be sure that what was heard is the same as the intended message.					
E.26	Team members' work together to achieve the total work of the team.					
E.27	The nurses who serve as charge nurses or team leaders give clear and relevant directions as to what needs to be done and how to do it.					
E.28	Within our team, members are able to keep an eye out for each other without falling behind in our own individual work.					
E.29	Team members understand the role and responsibilities of each other.					

E.30	Team members willingly respond to patients other than their own when other team members are busy or overloaded.					
E.31	Team members value, seek and give each other constructive feedback.					
E.32	When someone does not report to work or someone is pulled to another unit, we reallocate responsibilities fairly among the remaining team members.					
E.33	Team members trust each other.					

ASSURANCE OF PRINCIPAL INVESTIGATOR

The undersigned agrees to accept responsibility for the scientific ethical and technical conduct of the research project and for provision of required progress reports as per terms and conditions of the Faculty of Public Health in effect at the time of grant is forwarded as the result of this application.

Name of the student: _____

Date._____ Signature _____

APPROVAL OF THE ADVISORS

Name of the first advisor:_____

Date._____ Signature _____

Name of the Second advisor:_____

Date._____ Signature _____

Name of the examiner---------- Date----------Signature----------