

**ASSESEMENT OF CLINICAL DECISION MAKING PRACTICE AND ASSOCIATED
FACTORES AMONG NURSES WORKING IN JIMMA UNIVERSITY MEDICAL
CENTER, JIMMA SOUTH WEST ETHIOPIA.**

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**A THESIS SUBMITTED TO JIMMA UNIVERSITY HEALTH SCINCE, SCHOOL OF
NURSING AND MIDWIFERY, IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER IN ADULT HEALTH NURSING.**

**JUNE 2017
JIMMA, ETHIOPIA**

JIMMA UNIVERSITY
INSTITUTE OF HEALTH
SCHOOL OF NURSING AND MIDWIFERY.

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JUNE 2017

JIMMA, ETHIOP

Abstract

Background: Clinical decision-making is essential to the future of professional nursing practice. Qualified Nurses should be able to use decision-making skills to provide safe and effective nursing care. Clinical decision making is a process that nurses use to make judgments regarding patient care and management. The dynamic and uncertain nature of health care environment requires nurses to be competent decision-makers in order to respond to clients' needs.

Objective: - The main aim of this study is to assess clinical decision making practice and associated factors among nurses working in Jimma university medical center south west Ethiopia.

Method: Facility based cross-sectional study was conducted among 251 nurses working at Jimma university medical center 2017. Data were gathered by using structured and semi-structured questionnaire and in-depth interview guide for quantitative and qualitative respectively. Descriptive statistics was used to describe study population, binary logistic regression and multivariable analysis was used to analyze data. A p-value less than 0.25 were used to select variables as candidate for multivariate logistic analysis. A p-value less than 0.05 were considered to declare statistical significance. Adjusted odds ratio and 95% CI were reported for interpretation.

Results: In this study clinical decision making practice of nurses are about 53.4%. Those self confident nurses perform clinical decision making practice 3.482 times more likely than those of not confident nurses. Being supported nurses perform clinical decision making practice 2.878 times more likely than those of not supported nurses. Those nurses not perceives continuous education as facilitating factor is 79% less likely make clinical decision than those of perceiving as facilitating factor.

Conclusion and recommendation: The study finding indicated that, clinical decision making practice of nurses is about 53.4%. Continuous education, being self confidence and being supported were significant predictors of clinical decision making practice. More extensive evaluation of the clinical decision making in different practice settings is therefore needed in order to explore clinical decision making practice.

Key words: Clinical, decision making, practice, nurses

ACKNOWLEDGMENTS

First and for most I am grateful to the Lord for comforting me throughout and giving me the energy to accomplish this study. I give Him thanks and praise.

I would thank Jimma University medical center, providing me this opportunity to conduct this study.

I would also like to thank the school of nursing & midwifery and department head for giving this golden opportunity.

Mr. Admasu Belay, my advisor, for his unique and important comments to correct the proposal as well as the thesis without which the report would never materialize.

A special - thank you to my advisor, Mr. Endalew Hailu for his guidance, support and unending encouragement without him I would never succeed in my studies.

Lastly, I would like to convey my heartfelt thanks to the study participants for their willingness to spend their precious time to give their responses, the data collectors and the staff of all selected unit for their cooperation and support during data collection

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ACRONOMYS AND ABBREVIATION

ART	Antiretroviral therapy
CDM	Clinical decision making
CDMP	Clinical decision making practice
EBM	Evidence based medicine
EBN	Evidence based nursing
HVs	Health visitors
ICU	Intensive care unite
JUMC	Jimma university medical center
KSA	Kingdom of Saudi Arabia
NHS	National Health Service
OBS	Obstetric
OR	Operating room
U.S.	United state
UK	United kingdom
WHO	World health organization

CHAPTER ONE: INTRODUCTION

1:1BACKGROUND:

Almost every country and health care system has witnessed a growing demand for health care services over the last two decades (1). While health systems are facing an increasing number of challenging factors such as limited financial resources, socio-demographic changes, rising health care cost, increasing health demands and heightened public expectations, the governments are responsible to meet the public's increasing need for accessible, affordable, quality health care. Therefore they are searching for strategies to more appropriately utilize the workforce and appeal to strategies such as decentralization and privatization (2).

Since Nurses are the largest group of serving staff in health service organizations (2). Their practice takes place in a context of ongoing advances in research and technology, which in turn changes the complexity of nursing care requirements (3). The dynamic and uncertain nature of health care environment requires nurses to be competent decision-makers in order to respond to clients' needs. In other words, they should be able to sift and synthesize information, make decisions and appropriately implement these decisions to solve their clients' problems in the context of a multidisciplinary team.

In the recent years, the public and the government have criticized nurses because of poor quality of patient care. Also many research studies have focused on nurses' clinical functioning, (6-7). However nurses' views and experiences on factors that affect their clinical function and clinical decision-making have rarely been studied. Thus, an important area for research is to obtain nurses' views on the facilitators and barriers for effective nurse decision-making. This is particularly essential for administrators and educators to note when designing strategies to improve the work environment and educational practices. Since recognition of facilitators and barriers is the first step in strengthening and empowering nurses to make better clinical decisions.

Nurses' judgments and decisions have the potential to help healthcare systems, allocate resources efficiently, promote health gain and patient benefit and prevent harm. Evidence from healthcare systems throughout the world suggests that judgments and decisions made by clinicians could be improved: around half of all adverse events have some kind of error at their core. For nursing to contribute to raising quality through improved judgments and decisions within health systems we need to know more about the decisions and judgments themselves, the interventions likely to improve judgment and decision processes and outcomes, and where best to target finite intellectual and educational resources [9,10]

Understanding of the concept of decision making as it relates to the nurse practice environment gives us views to Clinical decision making. Has often been defined as the process of choosing between alternatives or options (11). It is a complex process where data are gathered and evaluated, and then a decision, judgment, or intervention is formulated (2). It has also been defined as a series of decisions (13), a series of judgments (14); an ability to identify, prioritize, and establish a plan (15); a problem-solving activity (16); and a formulation of hypotheses or nursing interventions (17). Therefore Clinical decision-making is an essential component of professional nursing care and, nurses' ability to make effective clinical decisions is the most important factor affecting the quality of care (8).

1.2 STATEMENT OF PROBLEM

There has been significantly less attention given to the process of assessing nurses' clinical decision-making practice and novice clinical educators are often challenged with knowing how to best support nurses in developing their clinical decision-making practice.

[19]

Nurses are significant decision makers in any developed healthcare system. In the United Kingdom alone, more than 300,000 nurses make up 35% of a National Health Service employing more than one million people. Worldwide, 19 million nurses will exercise their clinical judgment before making choices with, for and on behalf of patients. These patients trust nurses to make decisions that do more good than harm. (20)

Eleven percent of the patients in the UK NHS experience some form of adverse event resulting in iatrogenic (drug induced) harm. Of the 34% of these events that are serious some 6% lead to permanent injury and 8% of patients die. Half of these deaths are preventable. In absolute terms, this represents 850,000 injuries per year and an (avoidable) healthcare spend of £1 billion (circa \$1.5 billion USD) per year. Similarly in Canada, with 7.5% of patients experiencing adverse events in hospital, 36.9% of these judged as preventable and 20.8% leading to premature death. The judgment and decision making of health care professionals including nurses is an important component in the etiology behind these statistics. [20]

South African Nursing Council's disciplinary reports, the following about nurses' clinical decision-making has been observed: (I) an increase in the number of disciplinary cases among nurses, and (ii) that these disciplinary cases reflect situations within which the nurse had made decisions to maintain, restore or promote the health of the patient. It was however concluded from these observations that nurses' clinical decision-making is ineffective, as it does not adhere to the framework of clinical, ethical and legal correctness for any nursing action, including clinical decision-making, a possible solution to the problem is practice standards for quality clinical decision-making in nursing are required. However, there are no such practice standards in the African context including our country Ethiopia, against which one can evaluate and assess nurse s' quality of clinical decision-making practice [21]

CHAPTER TWO: LITERATURE REVIEW

Study conducted in Iran, on Individual-Social Effective factors of clinical decision making among nurses showed there is a significant association among nurses' clinical decision making practice with age, gender, work experience and education degree has been one of the major effective factors on nurses' clinical decisions.[22].

The study conducted in USA on factors that affect decision making practice showed that, gender and age differences revealed statistically significant differences between men and women in sex. (10)

A result study done in Egypt on Factors Influencing Decision Making and Its Effect on nurse showed that, clinical experience, competence, education regarding decision making (56.0%), situation (work environment), (40.7%) relationship with instructors, (31.4%), self-confident(19.8%) are identified as factors influencing clinical decision making. Regard to the situation, clinical decisions were affected by the environment, and organizational system in which Nurses were made. Organizational systems Such as workloads, interruptions, and organizational policies and procedures also influenced decision making. Organizational system factors such as amount and distribution of workload influenced decision making by affecting the Time available to make decisions and provide intervention [23]

A qualitative study conducted in Iran on the factors facilitating and inhibiting effective clinical decision-making in nursing identified 'feeling competent', 'being self-confident', 'organizational structure', 'nursing education', and 'being supported' were considered as important factors in effective clinical decision-making. [24]

A cross-sectional survey conducted in Norway on clinical decision making of nurses working in hospital settings stated that, The decisions nurses make while performing nursing care will influence their effectiveness in clinical practice and make an impact on patients' lives and experiences with health care regardless of which setting or country the nurse is practicing in. Knowledge about nurses' decision making is therefore of utmost importance. Understanding how nurses make decisions is also a prerequisite to facilitating learning and development of decision making skills in nursing education [25]

Clinical decision-making plays an intimate role in the quality of care that nurses provide to patients. Poor decision-making can lead to adverse events and have negative consequences for patients. It is estimated that up to 65% of adverse events could have been prevent had nurses

made better decisions. That the decisions nurses make have such high consequences, it would be prudent to understand what factors contribute to clinical decision-making practice. (34)

The study conducted in USA on decision making practice among nurses, stated that. Decisions about health care are based on many factors, particularly when there is uncertainty or ambiguity concerning the optimum intervention. These factors include characteristics of the patient as well as characteristics of the practitioner and characteristics of the organization in which he or she works, resource availability and accessibility, as well as nurses beliefs about the effectiveness of interventions, affect decisions. [27]

The study conducted in UK on nurse's clinical decision making practice estimates show that an acute care nurse would make an average of one decision every ten minutes. Some estimates even higher, with, 30 (2000) observing one decision being made every 30 seconds in critical care. In primary care a health visitor (public health nurses) faces at least five decision per mother-baby consultation.[26]

A systematic review conducted in English & French on Barriers and facilitators to implementing decision-making in clinical practice among nurses stated that Eleven from UK , eight from the USA, four from Canada, two from the Netherlands, and one from each of the following countries: France, Mexico, and Australia. The three most often reported barriers were: time constraints (18/28), lack of applicability due to patient characteristics (12/28), and lack of applicability due to the clinical situation (12/28). The three most often reported facilitators were: provider motivation (15/28), positive impact on the clinical process (11/28), and positive impact on patient outcomes (10/28). [28]

EBN note book on Nurses, information use, and clinical decision making—the real world potential for evidence-based decisions in nursing stated that the number and types of decisions faced by nurses are related to the work environment, perceptions of their clinical role, operational autonomy, and the degree to which they see themselves as active and influential decision makers. Nurses working on a busy medical admissions unit admitting 50 patients per day face a different set of decision challenges compared with health visitors (HVs) or public health nurses, who may see 10 patients per day.[29]

Study done in United Kingdom, showed that 64% (range33-93%) of senior nurses make nursing diagnose, 71% (range 58-89%) order and interpret diagnostic tests and 94%(range87-100)make professionally autonomous decisions [30]

Conceptual Framework

Several factors play a role in determining factors that affect and facilitate clinical decision making. These factors may be inter-related and may contribute to factors that facilitating and inhibiting clinical decision making. This relationship between the factors is illustrated by reviewing different literatures.

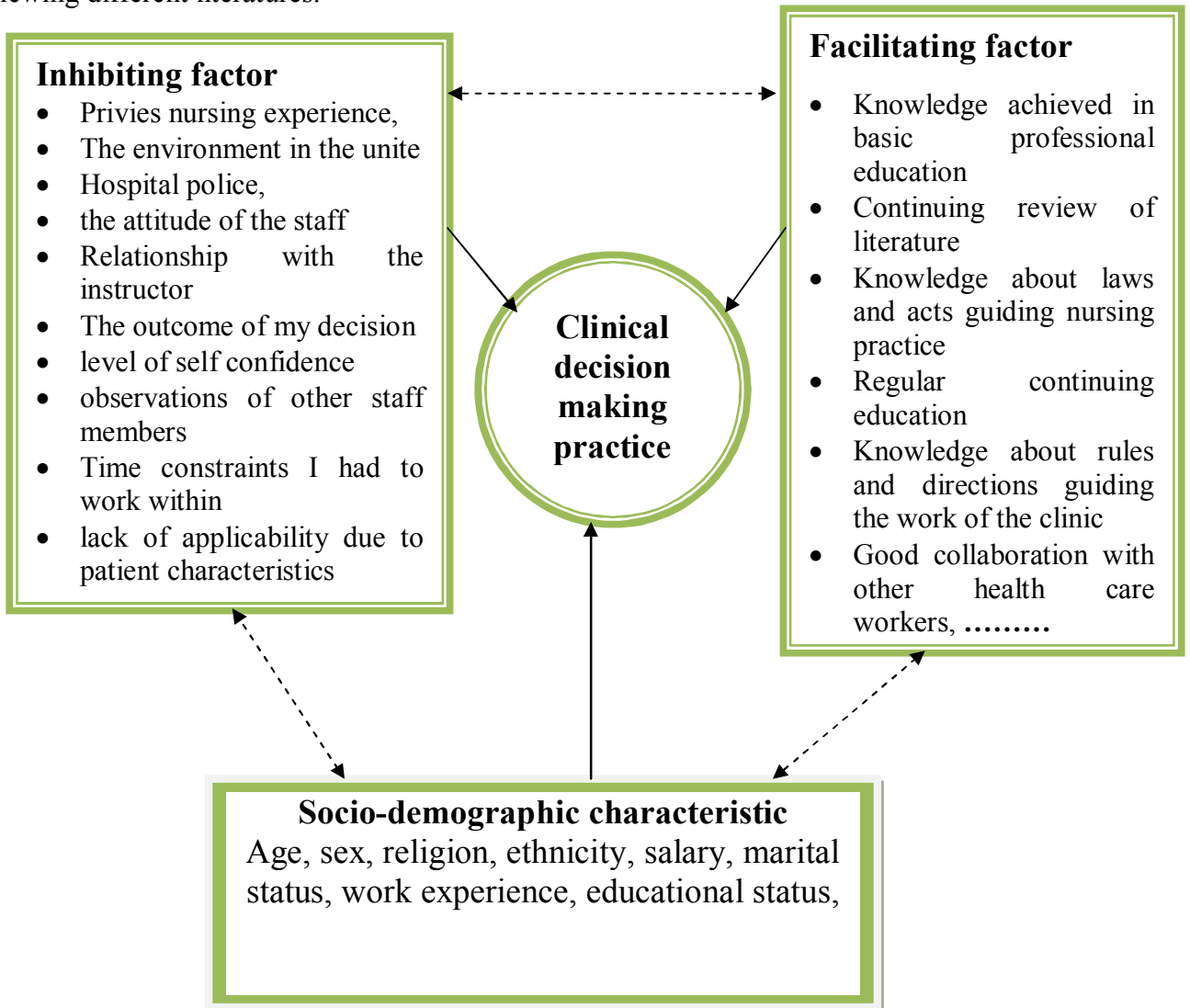


Figure 1: conceptual frame work adapted after reviewing different literatures.

SIGNIFICANCE OF THE STUDY

Neglecting clinical decision making practice in nursing can result in poor patient prognoses and even increase patient mortality and morbidity. Patients are the recipients of the care provided by nurse decision makers. Improved understanding of decision making practice results in improved decisions in the areas of assessment, diagnosis, planning, intervention and evaluation. The decisions nurses make while performing nursing care will influence their effectiveness in clinical practice and make an impact on patients' lives and experiences with health care regardless of which setting or country the nurse is practicing in. (16)

Because particular clinical circumstances or factors may result in serious decision errors, an investigation of inhibiting and facilitating factors of clinical decision making practice is an important area of study. Since there is no published research regarding the title in this country specifically in the study area, this study is therefore aimed to assess the clinical decision making practice and associated factors among nurses working in Jimma university medical center.

Identifying factors that associated with clinical decision making practice contributes to policy makers and health administrators to improve the health care services.

Findings of this study may have vital contribution for professionals those who need to know more about clinical decision making practice in nursing and associated factors to improve and update their knowledge and skill in relation to decision making practice.

It will also provide a base line data about assessment of clinical decision practice among nurses and associated factors.

CHAPTER THREE: OBJECTIVE

3.1. General objectives:

To asses clinical decision making practice and associated factors among nurses working in Jimma University Medical Center; Jimma South West Ethiopia, 2017

3.2. Specific objectives:-

- To determine clinical decision making practice among nurses working in JUMC
- To identify associated factors of clinical decision making practice among nurses in JUMC

CHAPTER FOUR: METHODS AND MATERIALS

4.1 Study area and period

This study was conducted in Jimma University Medical center which is one of the oldest public hospitals serving 15 million people in southwestern part of Ethiopia. It provides services for about 20,000 inpatients, 200,000 outpatient attendances, 5000 delivery and 15000 emergency services yearly. Currently the hospital has 23 service delivery units, 562 Staff nurses, and different professionals and wards (medical, surgical, gynecology, maternity, pediatrics, neonatology, ICU, psychiatry and ophthalmology)

The study was conducted from March 10 to April, 10, 2017.

4.2 study design:

Facility based cross-sectional study was conducted.

4.3. Population

4.3.1. Source population

All nurses working in Jimma University Medical center

4.3.2. Study population

All Selected nurses working in Jimma University Medical center.

4.4 Inclusion and Exclusion Criteria

4.4, 1.-Inclusion Criteria

Nurses with work experience of at least 6 months or more in the study area.

4.4.2 Exclusion criteria

Nurses who were not willing to participate in this study and participants who were annual leave during data collection period can be excluded.

4.5 Sample size determination and sampling technique

4.5.1 Sample size

The sample size was determined by using formula for estimating a single population proportion. Since there is no published research regarding the title in this country specifically in the study area by taking prevalence of 50%, with 5% marginal error, 95% confidence interval (CI).

The sample size should be

$$n = \frac{z \left(\frac{\alpha}{2} \right)^2 * P(1 - p)}{d^2}$$

Where;

n= initial sample size

p = estimation of the proportion.

d= the marginal error assumed to be 5%

z = The level of confidence which is 95%,

$$\text{THEN } n = \frac{(1.96)^2 * 0.50(1-0.5)}{(0.05)^2} = 384$$

The total number of nurses working in Jimma university medical center is 562 since it is less than 10,000 population correction formulas in order to get the required sample

$$nf = \frac{n}{1 + (n/N)}$$

Where;-

nf =desired sample size

n= the calculated sample size

N= total population (all nurses in selected hospital)

$$\frac{384}{1 + (384/562)}$$

$$= 228$$

by adding 10% for non-respondents, the final sample size were 251.

4.5.2 Sampling technique & procedure

For quantitative

First there are two areas where nurses are working (inpatient & out-patient) Units identified , then by simple random sampling six from inpatient and five from out-patient department were selected then , from selected Units proportional allocation was done , and by lottery method study participants were selected for the data collection.

For qualitative study Minimum five key informants (Head Nurses of different wards) were involved in the in depth interview till data was saturated

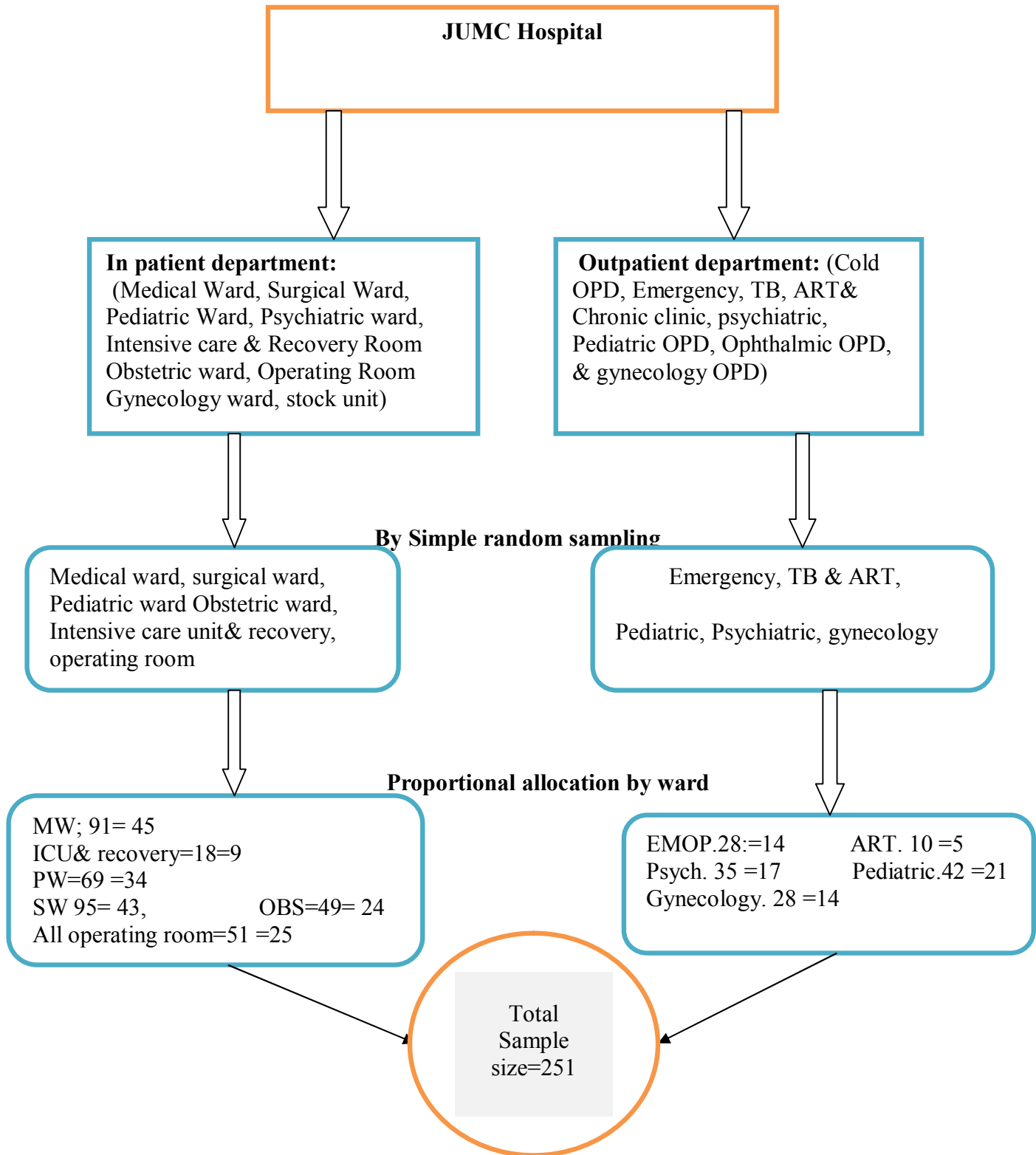


Figure: 2 Jimma university medical center service delivery units.

4.6 Variables of the Study

❖ Dependent variable

Clinical decision making practice

❖ Independent variable

- Socio demographic variables (age, sex, religious, Ethnicity, marital status, educational status, works experience, salary.)
- Inhibiting factors
 - previous nursing experience
 - The environment on the unit
 - Hospital police
 - the attitude of the staff
 - Relationship with the instructor
 - The outcome of my decision
 - level of self confidence
 - observations of other staff members
 - Time constraints I had to work within
 - lack of applicability due to patient characteristics
- Facilitating factors
 - ✓ Knowledge achieved in basic professional education
 - ✓ Continuing review of literature
 - ✓ Knowledge about laws and acts guiding nursing practice
 - ✓ Regular continuing education
 - ✓ Knowledge about rules and directions guiding the work of the clinic
 - ✓ Good collaboration with other health care workers
 - ✓ Continuous training on nursing care (nursing standards)
 - ✓ Good knowledge about patients personal characteristics
 - ✓ Knowledge about your own values that guide your work
 - ✓ Medical diagnosis of the patient
 - ✓ Knowledge about patient's previous experiences in health care
 - ✓ Feeling competent"
 - ✓ Being supported'

Operational definition

- ✓ In this study clinical decision making practice is participants response of using nursing process in their decision making practice above or equal to 50% score
- ✓ Factors inhibiting clinical decision making is a nurses response of those listed influencing factors ranking 3-1 is above 50% and using nursing process score a maximum value less than 50% score
- ✓ Factors facilitating clinical decision making is nurses response of selected five most important knowledge they used and nursing process scored above or equal to 50% score

4.7 Data collection procedure

4.7.1 Data collection instrument

The investigator prepared both structured questions and semi structured questionnaire, prepared in English. The structured questionnaire was adapt from (lethbridge, Alberta December, 1991).The questioner has four parts consisting of socio demographic information, factors influencing clinical decision making ten items, factors facilitating clinical decision making have thirteen items that is kinds of knowledge informs nurse in patient care, and description of nursing process (A, B, C, D, E) parts.(A, assessment, B, diagnoses, C, planning, D, implementation, E, evaluation). Each contains 10,14,14,10 & 7 items respectively. Points modified from nursing processes are assessment contain fourteen items, four can be removed and minimized to ten items, implementation also contain fourteen items four can be removed and minimized to ten items and evaluation seven items can be added when previously are not found as part of nursing processes

For the qualitative, Semi structured questioner using interview guide and probing questions were used. Which contain three open ended questions.

4.7.2 Data collector

The data was collected by 5 BSC Nurse Facilitator and two MSC supervisors

For qualitative study, data were collected by investigator.

4.9 Data quality control & management

Data quality was controlled by pretest in 10 % of the sample nurses working in Shenen Gibe hospital, and also method is triangulated .Two day training was given for data collectors and facilitator regarding the objectives of the study, the data collection tool, and ways of data collection .The collected data were checked every day by facilitator and investigator for its

completeness. To ensure the quality of the data, the supervisor was checking all the filled questionnaires for completion, clarity and consistency on daily bases. Then, the investigator was done double check for all questionnaires for the completion each day.

Problems faced were discussed over night with supervisors. Data was checked again for its completeness before data entry. The reliability of the tool were assessed, Cronbach's alpha for variables were tested and on 0.784.

4.10 Data analysis

Data was checked for consistency, completeness, missing value and coded .then entered in to Epidata version 3.1 and exported to SPSS version 20 for analysis. Descriptive statistics was used to describe the study population. Bivariate logistic regression analysis was computed to see the presence of association between independent and dependent variables. A p-value less than 0.25 were used to select variables which candidate for multivariate analysis. A p-value less than 0.05 were considered to declare statistical significance. Adjusted odds ratio and 95% CI were used for interpretation.

4.11 Ethical consideration

Ethical clearance and approval to conduct the research was obtained from Jimma University ethical review board (JU IRB) and permission letter was secured from the university to respective hospital management to gain support for the study; objectives of the study was explained to the participants & their participation was voluntarily. Confidentiality and anonymity was insured by not recording names or any personal identity

4.12 Dissemination of finding

The result will be disseminated to Jimma University, department of Nursing and Midwifery, Jimma University Medical center and Nursing service director office, institution of study area & finally efforts will also be made to publish on scientific journal.

CHAPTER FIVE: RESULTS

5.1. Socio-demographic characteristics of the study participants

A total of 251 questionnaires were distributed to study participants from which 249 were completed by study participants and making the response rate to 99.2%. Majority of age 171 (68.7%) grouped in between 20-29 are young's, 69 (27.7%) and grouped in 30-39. Regarding sex from all participants, male has higher number 134(54.2%) and female 115 (45.8%). Educational status of respondents shows 128 (51.4%) & 121 (48.6%) are degree and diploma respectively. Majority of participants work experience identified as 219 (87.2%), are <10 yrs, 27(11.6%) 11-20 and 21-30 3(1.2%) respectively. Ethnicity of the participants 142(57.2) was Oromo and 59(23.6) also are Amhara. Majority of respondents follow orthodox 124 (49.4), protestant 62(25.1), and Muslim 57(23.1).

In this study educational level, of respondent's shows more of degree holders, Regarding, in-depth interview of clinical decision making practices one nurse said that, *"Improving my profession is directly related to my nursing activity and empowering my decision making ability to do. Beside if I have at expected or good educational status, when I cannot committed, also it affects my clinical decision making, education with commitment the initiator to do your responsibility in nursing activity"*. Mentioned by A 46 yrs old male participant.

In this study majority of respondents work experience shows <10yrs this might be related to clinical decision making practices. Moreover, interview with the key informants showed that Saied *" if you have no exposure or not familiar with your working environment, your activity should be limited even if you know what you do "*The other respondents with 38yrs old Saied, *"With increased experience of working in the same context nurses developed familiarity with equipment that improved their efficiency and decision making practice.*

Table1. Socio-demographic characteristics of nurses working in Jimma university medical center. Jimma, south west Ethiopia, 2017 (n=251).

variables	category	N (249)	(%)	Clinical decision making score	
				Good	Poor
Age	20-29	171	68.7	90	81
	30-39	69	27.7	39	30
	40-49	7	2.8	5	2
	>50	2	.8	0	2
Sex	Male	134	54.2	79	56
	Female	115	45.8	60	55
Ethnicity group	Amhara	59	23.6	26	33
	Oromo	142	57.2	90	53
	Gurage	24	9.6	10	14
	Tigre	8	3.2	4	4
Educational status	Diploma	121	48.6	69	52
	Degree	128	51.4	65	63
Work experience	<10years	219	87.2	113	106
	11-20years	27	11.6	20	9
	21-30years	3	1.2	1	2
Religion	Orthodox	124	49.4	56	68
	Protestant	62	25.1	40	23
	Muslin	57	23.1	37	21
Marital status	Single	152	60.6	80	72
	Married	96	39.0	54	44
	Divorced	1	.4	1	0
Salary	<3579	41	16.3	27	14
	3579-4446	115	45.9	58	57
	4447-5583	34	13.5	18	16
	>5583	59	24.3	32	27

N.B * Ethnicity Others 16(6.4%)

*Religion Others 6(2.4)

5.2 Associated factors of clinical decision-making practices

The respondents were also asked about the factors that were associated with clinical decision making practices. Based on this information, factors that inform Nurses' activities while making clinical decision were identified as facilitating factors during clinical decision making. The respondents were asked about these factors using five likert scale questions. Therefore, knowledge achieved in basic professional education ranked as (5) by the respondents, which was 124(67.0%), then, the next facilitator ranked as(4) was continuous review of literature 43 (35.5%), third facilitator, good collaboration with other health care workers ranked as (3) was 36(34.6%), then, regular continuing education ranked as (2) was 38(33.6%) and the last one was being supported ranked as(1) which was 44(62.0%). These were chosen as the five most important facilitating factors of knowledge that help to make clinical decision in Nurses by the study participants.

On the other hand, the respondents were asked to rank the factors that were inhibiting the clinical decision making practices using three likert scales by ranking in hierarchal order (3-1) Based on this, the outcome of my decision was ranked as 3 which was about 38(52.8 %), the level of self-confidence ranked as 2 which was 30(48.4%) and the least inhibiting factor ranked as (1) was 24 (59.5%) are identified as influencing factors with regards to participants response.

Results of in-depth interview showed that, as one with 44yrs old Nurse gave her witness, she said, *“Independent regular patient care can't be performed even if standard sheets are available and they are expected to do nursing standards. Commitment to their professional responsibility or personal commitment to help or care others and the environment they work with, way of management including resource, patient-nurse ratio are influencing clinical decision making in nursing professional.”*

Table 2.shows factors that might facilitate or informs nurse’s activities while making clinical Decision in Jimma university medical center, South west Ethiopia 2017(n=251)

No	Variable	category					CDMP score	
		Highly Imp N (%)	Next imp N (%)	Third imp N (%)	Least imp N (%)	Last imp N (%)	Good	Poor
1	Knowledge achieved in basic professional education	124(67.0)	48(25.9)	7(3.8)	6(3.2)	---	134	115
2	Continuing review of literature	7(5.8)	43(35.5)	32(26.4)	28(23.1)	11(9.1)	121	138
3	Knowledge about laws and acts guiding nursing practice	17(13.4)	25(18.7)	40(29.9)	31(23.1)	20(14.1)	133	116
4	Regular continuing education	9(6.2)	19(15.9)	34(30.1)	38(33.6)	16(14.2)	116	133
5	Knowledge about rules and directions guiding the work of the clinic	3(5.8)	2(3.8)	12(23.1)	12(23.1)	23(44.2)	52	197
6	Good collaboration with other health care workers	5(11.0)	20(19.2)	36(34.6)	26(25.0)	21(20.2)	108	141
8	Good knowledge about patients personal characteristics	6(11.5)	10(19.2)	12(23.1)	12(23.1)	12(23.1)	52	197
9	Knowledge about your own values that guide your work	7((21.2)	5(15.2)	2(6.1)	10(30.3)	9(27.3)	33	216
10	Knowledge about patient's previous experiences in health care	-----	3(18.8)	1(6.2)	4(25)	8(50)	233	16
11	Medical diagnoses	45(33.5)	38(29.3)	19(14.3)	22(16.5)	8(6.8)	133	116
12	Feeling competent'	7(9.2)	12(22.2)	12(22.2)	21(21.4)	44(44.9)	98	151
13	'Being supported'	7(9.9)	4(5.6)	8(11.3)	8(11.3)	44(62.0)	71	178
	Total (N)	237(%)	227(%)	215(%)	212(%)	216(%)		

Table 3. shows factors that inhibiting nurses while making clinical decision about patient care in Jimma university medical center, South west Ethiopia, 2017(n=251

variable		category			Clinical decision making score	
No		Highly inhib n(%)	Next inhib n(%)	Least inhi n(%)	Good	Poor
1	The environment on the unit	65 (41.7)	72 (47.4)	17 (10.9)	154	95
2	My previous nursing experience	60(41.8)	34(24.0)	51(34.2)	145	104
3	Hospital police	33(24.8)	50(37.2)	51(38.0)	134	115
4	the attitude of the staff	16(27.6)	22(37.6)	20(34.5)	58	191
5	Relationship with the instructor	4(9.5)	13(31.0)	24(59.5)	41	208
6	The outcome of my decision	38(52.8)	16(22.2)	18 (25.0)	72	177
7	my level of self confidence	8(12.9)	30(48.4)	24(38.7)	62	187
8	my observations of other staff members	2(11.8)	5(29.4)	10(58.8)	17	232
9	Time constraints I had to work within	18(40.0)	4(8.9)	23(51.1)	45	204
10	lack of applicability due to patient characteristics	5(26.3)	3(15.8)	11(57.9)	19	230
	Total (N)	249	249	249		

- ❖ Binary logistic analyses of factors associated with clinical decision making practice to identify p value <0.25 which are candidate for multivariate analyses contains socio-demographic characteristics, inhibiting and facilitating factors are shown below in tables.

Table 4. Bivariate logistic analyses of socio-demographic characteristic of nurses working in Jimma university medical center. Jimma, south west Ethiopia, 2017 (n=251).

	variables	Frequencies(n)	Sig.	COR Exp(B)	95.5% CI for Exp(B)	
					Lower	Upper
sex	male	134		1		
	female	115	.105	1.512	.917	2.493
Ethnicity	Amahra	59	.015	.464	.251	.859
	Oromo	143		1		
	Guragie	24	.054	.421	.175	1.014
	Tigray	8	.229	3.000	.501	17.954
	Others	15	.007	.196	.060	.640
Religion	Orthodox	124	.202	1	.467	36.279
	Protestant	63	.055	8.696	.956	79.065
	Muslim	58	.054	8.810	.964	80.531

Table 5. Bivariate logistic analyses of factors inhibiting clinical decision practice in nurses working in Jimma university medical center. Jimma, south west Ethiopia, 2017 (n=251)

variable	Frequencies	Sig.	COR Exp(B)	95% CI for Exp(B)	
				lower	upper
Attitude of staff					
No	191(76.9)	.001	1		
Yes	58(23.1)		2.742	1.486	5.060
Outcome of my decision					
No	177(71.3)		1		
Yes	72(28.7)	.018	.503	.285	.887
Level of self confident					
No	187(75.3)		1		
Yes	62(24.7)	.230	1.422	.800	2.529
My observation of other staff members					
No	232(93.2)		1		
Yes	17(6.8)	.130	2.214	.792	6.186
Time consternates to work					
No	204(82.1)		1		
Yes	45(17.9)	.103	.574	.294	1.119

Table 6 Bivariate logistic analyses of Factors facilitating clinical decision practice in nurses working in Jimma university medical center. Jimma, south west Ethiopia, 2017 (n=251).

Variables	frequencies (n)	Sig.	COR Exp(B)	95% CI for Exp(B)	
				Lower	Upper
Continuous review of literature					
No	128(51.8)		1		
Yes	121(48.2)	.157	1.433	.871	2.358
Regular continuing education					
No	136(55.0)		1		
Yes	113(45.0)	.000	2.563	1.538	4.274
Knowledge about pt character					
No	197(79.3)		1		
Yes	52(20.7)	.187	.657	.352	1.227
Medical diagnoses					
No	116(47.0)	.000	.265	.157	.447
Yes	133(53.0)		1		
Feeling competent					
No	151(61.0)		1		
Yes	98(39.0)	.084	.636	.380	1.063
Being supported					
No	178(71.3)		1		
Yes	71(28.3)	.153	.666	.381	1.164

The above Tables 4,5 and 6 shows bivariate logistic analyses of factors associated with clinical decision making practice to identify p value <0.25 which are candidate for multivariate analyses contains socio-demographic characteristics, influencing and facilitating factors.

Predictors for Clinical decision making practice

A number of variables emerged as a significant predictors of Clinical decision making practice. Among these variables, sex, ethnicity, religion, Attitude of staff, Outcome of my decision, My observation of other staff members , Time consternates to work Being self-confidence, Being supported, Continuous review of literature, Knowledge about pt character, Feeling competent, Medical diagnoses, Regular continuous education were the significant at ($P<0.25$) to Clinical decision making practice. Furthermore, continuing education, being self confidence and being supported are significant at ($P<0.05$), predictors in multivariate analysis that determines the association between Clinical decision making practice. However, no statistically significant relationships were observed between sex, ethnicity, religion Outcome of my decision, Continuous review of literature, Knowledge about pt character. Feeling competent, attitude of staff, continuous review of literature, Knowledge about pt character and Medical diagnoses.

Table 7. Result of multivariate analyses of association with clinical decision making practice among nurses working in Jimma university medical center, South west Ethiopia 2017(n=251)

variables	Frequencies(n)	p-value	AOR Exp(B)	(95% CI)	
Being self confidence				lower	upper
1.no	187(75.3.)		1		
2.yes	62(24.7)	0.001	3.482	1.655	7.327
Being supported					
1.no	191(76.9)		1	1.388	5.967
2.yes	58(23.1)	0.004	2.878		
Regular continuous education					
no	138(55.0)		1		
yes	113(45.0)	0.000	0.214	0.116	0.395

The results of the multivariable logistic regression analysis showed that those self confident nurses perform clinical decision making practice 3.482 times more likely than those of not confident nurses (AOR3.482, 95% CI 1.655, 7.327). Being supported had 2.878 times more likely make clinical decision than those not supported (AOR 2.878, CI 1.388, 5.967) and nurses not believe continuous education as facilitating factors had 79% less likely to make clinical decision than those believe continuous education as facilitating factors (AOR 0.214, CI 0.116, 0.395)

For qualitative studies the following themes were develop after data analysis

From the participants 'points of view, 'organizational structure, self commitment 'are emerged themes. The structure and culture of the health care system was another important factor affecting nurse's participation in clinical decision-making. Structure was defined as the rules and regulations, which determine the limits of authority. Also an environment that emphasizes tasks and physician-centeredness. And in bases of management of working environment, facilitation, equipping creating good communication and on time supervision is related to organizational structure.

Nurses considered "authority" as a pre-requisite in clinical decision-making practice and also as a critical factor in providing timely and quality care.

In depth interview One nurse said, *"I mean that I should have the authority and permission to do my job, to be able to do what I can do in my territory, and I must have the right to do nursing care based on my diagnosis. But I dependently following physician order to carry outpatient problem this is one of frequently observed challenge in clinical decision in nurses.*

Another nurses mentioned *"that staring from few things like water, patient monitoring machines, transportation beds, no sufficient space, to admission, patient- nurse ratio are some influencing factors in clinical decision. In this situation I was restricted to provide full care to the patient in my understanding it influence nurses decision. "When we have only two or more nurses for a number of patients, certainly they cannot provide a good care. They can only monitor the blood pressure and give the drugs,"*

In other way even if resource related limitation, close follow up in above mentioned managerial problems for e.g. maintenance of non functional mach ions, available instruments to more service provision site than less service site, training, getting chance to improve our profession and rich in current information to update yourself and evaluation of each team is close follow up and feed back for each team is enabling nurse in there clinical decisions. *"The other head nurses also Saied "I have felt frustrated, when I have made clinical decisions and have needed to be supported by the higher managers, but they didn't support me. This caused the nurses not to be able to concentrate on their patients' problems and make clinical decisions"*

As mentioned by nurse instructor *"Improving your profession is directly related to your nursing activity and empowering my ability to do. Beside if I have at expected or good educational*

status, when I cannot committed, also it affects my clinical decision making, education with commitment is one of the initiator to do your responsibility in nursing activity”.

Commitment is personal willingness to do something not pushed by others. Professional initiation to care for others. The concept of commitment is considered as facilitating clinical decision making .One head nurse Said *“if I was committed I feel patients problem as my Owen, they come to you for help, I can do everything that are expected from me, I carry out in my duty time effectively, then I see my decision out come and satisfied .This can facilitate my clinical decision making. If you are not committed and cannot do your professional obligation, can influence clinical decision making”* Another head nurse also considered as facilitating factor. said *“I cannot see over others health professionals or my boss until their instruction to do something, I know why I was being here, and both suffering from different cases are looking to you., So I did everything that was expected from me on time”.*

CHAPTER 6: DISCUSSION

This study was aimed to assess clinical decision making practice and associated factors among nurses working at Jimma university medical center. Findings of study indicate that over all clinical decision making practice is about 53.4%. Nurse can make clinical decision in patient care mainly is associated with continuous education, self confidence, being supported are identified in multivariate analysis.

This study is consistent with study done in Egypt and Saudi Arabia, 51.4% of them were clinical decision making autonomy. (31) .This might be educational status of respondents more of there are degree holders, taking attention for different specialties, training and access to information when the hospital is the only referral in south west of Ethiopia

This study was inconsistent with the study conducted in USA Nurses' decision making scores 72% during clinical decision making practice.(16) and United Kingdom that 94 % make professionally autonomous decisions [30] also the study in Lethbridge, 73% of the nursing They believed that the use of intuition resulted in their best decisions about patient care.(25) this may be because of differences of reach in information , due to characteristics of the patient as well as characteristics of the practitioner and characteristics of the organization in which he or she works, that resource availability and accessibility, as well as nurses beliefs about the effectiveness of interventions, affect decisions making practice. (27)

In this study 45.0% were use their continuous education as facilitating factors associated in clinical decision making practice. Statistically, this study found as fourth most important factors that informs Nurses while making clinical decision. Nurses' use of clinical decision making practice differed according to field of practice and country (23,). Education has been one of the major effective factors on nurses' clinical decision making practice.[22]. Supported by continuous education may enable nurses to decide what nursing care is needed to that specific patient. And act on time rather searching different information. And may have resulted from differences in awareness, educational level of the nurses, and better access to information, continuous training and as teaching hospital tacks attention in quality improvement.(25)

This finding is slightly lower than study in Egypt education regarding decision making 56.0%. This is due to differences in clinical situation. (29) study conducted in Iran supports this study, They believed that the mode, type and levels of participation of nurses in the clinical decisions making practice "depend on their education." (1). But contradict with study in study in Asian Regarding education level, the majority portion of studied nurses (97.9%) had Bachelor's degree way of participation in clinical decision making has not significantly varied at various educational levels (22)

Finding of this study was also reviled in in-depth interview study, as nurse one head nurse Saied *"Improving your profession is directly related to my nursing activity and empowering my ability to do, but I don't remember anybody teaching me that I have the authority to make an independent decision and implement it based on my own judgment"*

In this study 24.7 % of the respondents had identified self confidence as inhibiting factor in clinical decision making practice. Statistically, this study identified as next influential in ranking and associated with clinical decision. Similarly study done in Egypt identified as influencing factor. Study in Iran also identified self confidence as influencing factors in clinical decision making. Self-confidence is considered a vital factor in clinical decision-making. Those nurses having more confidence have better control over their work, make more efficient decisions and intervene more independently (24,).

A Confident nurse will be more assertive in their Decision-making and this allows them to take control of Situations. By contrast, a nurse who is not confident will have Self-doubt in their decisions, feel powerless, and be unsure of their choices. Proactive decision-making is also associated with confidence. Confident nurses were initiators and made Preventative decision making practice rather than merely responding to Problems (26)

Also this finding of qualitative study shows, One head nurses mentioned that *"I mean that I should have the authority and permission to do my job, to be able to do what I can do in my territory, and I must have the right to do nursing care based on my diagnosis." But I dependently following physician order to carry outpatient problem this is one of frequently observed challenge in clinical decision making in nurses"*.

In this study 23.1% being supported in clinical decision making practice are identified as facilitating factors statistically this study found as the last facilitating factor 62.0% from ranking the five most important promoting factors.

A study done in Iran identified as facilitating factor. For the participants, support was mainly characterized as supportive management. Their experiences on support were "provision of financial welfare," "provision of care facilities," and "provision of emotional support." "Being supported" was considered as a necessity for the development of clinical decision-making. However a feeling of "being unsupported" was ruling over the nurses (1).

Also this study finding of qualitative study shows, one head nurse Saied *“even if resource related limitation, e.g. maintenance of non functional machines, available instruments to more service provision site than less service site, even if patient care is team work, evaluation of each team is week so close follow up and feed back for each team is enabling nurse in there clinical decisions making.”*

A nurse pointed out the lack of support is barriers to clinical decision-making. One of the supervisors said: *"I have felt frustrated, when I have made clinical decisions and have needed to be supported by the higher managers, but they didn't support me. This caused the nurses not to be able to concentrate on their patients' problems and make decisions”*,

They mentioned frequently that the doctors don't value nurses' decisions and the managers also don't support them when a disagreement occurs, *“when we have only two or more nurses for a number of patients, certainly they cannot provide a good care. They can only monitor the blood pressure and give the drugs,”*

CHAPTRE 7. LIMITATION OF THE STUDY

This study was conducted with a certain limitation:

- Expanding comparison is faced difficult due to no similar study was conducted in our country/setting on the topic the questionnaire also created limitations.
- Strength: The study was supported by in depth interview in nurse's view of clinical decision making practice from key informants to assess their clinical decision making practice.

CHAPTER 8.CONCLUSION

The present study findings can be concluded that Clinical decision making practice of nurses providing patient care was 53.4%. This represents reasonably as good clinical decision making practice. Continuous education, being supported is identified facilitating factors that result in good clinical decision. Factors that identified as inhibiting clinical decision making practice is self confidence are also associated with clinical decision making practice of nurses.

It still indicates that a significant number of nurse 47.6% were poorly Make clinical decision. This poses a serious threat because of decision making Process, particularly in nursing, is influencing patient outcomes and safety.

Since Clinical decision-making practice in nurses can be affected through different factors, Nurses are key decision makers within the healthcare team and largest group of serving staff in health service organizations they are expected to participate in decision making practices and implement in practice.

CHAPTER 9. RECOMMENDATIONS

This is the first time to assess nurses' clinical decision making practice in our setting reported. More extensive evaluation of the clinical decision making practice in different practice settings is therefore needed in order to explore clinical decision making practice. Based on findings of the current study: **specifically**

- **Nurse managers**, have ensure' a nursing contribution to decision making at all levels of policy development and implementation, address the obstacles in particular medical dominance for actualizing nursing autonomy.
- **All head nurses**, encouraging nurses' autonomy by enabling them to exercise clinical decision-making, first in safe environments, such as nursing rounds, and then implementing.
- Actively supporting nursing decisions and nursing accountability.
- Providing continuous in-service training to increase nurses' knowledge base, and ongoing supervision and feedback.
- **All nurses**, working in each units are expected to do and exercise clinical decisions making practice in daily base patient care activity.

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ANNEXES

English version questionnaire and consent form for data collection on assessment of clinical decision making practice and associated factors among nurses working in Jimma university medical center, south west Ethiopia.

Date -----

Time at the beginning of the filling questions-----

Informed consent form

Dear respondent

This questionnaire is presented to you to obtain relevant information about assessment of clinical decision making practice and associated factors among nurses in order to have a better understanding.

All information you give will be kept confidential and you are not going to be mentioned by name. Filling the questions is totally depending on your willingness and you are also the right to decline at any point through the course of administering the question. If you are need more clarification you can ask the facilitator.

The Questionnaire contains four parts and will take not more than 20-30 minutes.

Are you willing to participate in this study?

Yes/agree.....No/disagree.....

Thank you!!!

If you have any doubts or questions, you may contact the investigator *Biscuit Bezabhi*

Tel. no 0916831921

Email bisbez@gmail.com

I would greatly appreciate your response and like to thank you further on taking your time to give this information.

Name and signature of facilitator _____

Annex 1 questionnaire Part I

S. no	Socio-Demographic characteristics	Classification	Thick(√)	Remark
1	Age	1.20 -29		
		2.30-39		
		3.40-49		
		4.>50		
2	Sex	1.Male		
		2.Female		
3	Ethnicity group	1.Amhara		
		2.Oromo		
		3.Gurage		
		4.Tiger		
		5.Others specify &write on remark space		
4	Religion	1.Orthodox		
		2.Protestant		
		3.Muslim		
		4.Others specify &write on remark space		
5	Salary	------(gross)		
6	Marital status	1.Single		
		2.Married		
		3.widowed		
		4.divorced		
7	Educational status	1.Diploma		
		2.Degree		
		3.Msc		
8	Work experience	1.< 10yrs		
		2.11-20yrs		
		3.21-30yrs		
		4.31-40		
		5.>41		

Part II:

The Following statements are list of factors that might influence nurses while making decisions about patient care. Choose, rank1- 3 and tick (√) that influence your decision highly them. =3 the next influential, =2 and the third least influential=1

S.NO	Factors in flouncing while making decision	Rank &(√)			S.NO	Factors in flouncing while make decision	Rack &(√)		
		3	2	1			3	2	1
1	My previous nursing experience				7	my level of self confidence			
2	The environment on the unit				8	my observations of other staff members			
3	Hospital police				9	Time constraints I had to work within			
4	the attitude of the staff				10	lack of applicability due to patient characteristics			
5	Relationship with the instructor								
6	The outcome of my decision								

Part III :The following statement talks about kind of knowledge that informs your activity when you are defining your client's/Patient's health problems/illness and planning his/her nursing care. (choose and rank five most important ones) rank 5 as highly informs your activity the next as 4, the third as 3, then as 2, & the last as 1.

S. NO	Facilitating factors while making clinical decision	Rank 5-1	S.NO	Facilitating factors while making clinical decision	Rank 5-1
1	Knowledge achieved in basic professional education		8	Good knowledge about patients personal characteristics	
2	Continuing review of literature		9	Knowledge about your own values that guide your work	
3	Knowledge about laws and acts guiding nursing practice		10	Medical diagnosis of the patient	
4	Regular continuing education		11	Knowledge about patient's previous experiences in health care	
5	Knowledge about rules and directions guiding the work of the clinic		12	Feeling competent'	
6	Good collaboration with other health care workers		13	'Being supported'	
7	Continuous training on nursing care (nursing standards)				

Part IV. Listed below are some statements that describe different stages of Nursing. Please read each statement carefully and circle the number that best describes your own action.

COLLECTING INFORMATION FOR DIFINING PATIENT CONDITION

When collecting and defining patient information:	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1. I collect as much advance Information as possible from the patient's records					
2. On the basis of my advance information, I specify all the items I intended to monitor and ask the patient about.					
3. I assess all advances information against my own knowledge					
4. I confine my first impressions by seeking for clear symptoms that support those impressions					
5. I collect a lot of information about the patient's symptoms and complaints.					
6. I try to keep all the Advance information in my mind.					
7. I always rely on my own Interpretations when it comes to defining the Patient's condition.					
8. I make assumptions for the coming nursing Problems during the first Contact with the patient.					
9. I acquire additional information to establish my own assumptions of the patient's situation.					
10. It is easy for me to make a distinction between important and unimportant information in defining the patient's condition and health					

B.HANDLING INFORMATION AND DEFINING NURSING PROBLEMS

When I am handling the information I have obtained about the patient and defining expected nursing problems (**during nursing diagnoses**)

When diagnosing patient problem	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1. I compare the information I have received with my earlier knowledge of similar Individual patients.					
2. I compare the information I have received with my earlier knowledge of patient behavior in different life situations					
3. I compare the information. I have received with the nursing model I have created on the basis of my own experience					
4. I compare the information I have received with medical knowledge about patient's disease and its symptoms					
5. I compare the information I have received with the nursing models I have learned					
6. I compare the information I have received with my own knowledge about health and welfare					
7. I carefully analyze the information I have received before defining the patient's Nursing problems					
. 8. It is easy for me to see, even Without closer analysis, which pieces of information are relevant to defining the patient's nursing Problems					
9. It is easy for me to recognize the importance of the patient's subjective experiences in defining his/her nursing problems					
10.I organize the Information I have received into blocks for easier definition of nursing Problems.					
. 11. I define the patient's nursing problem objectively on the basis of the symptoms and complaints observed					
12. I check with my colleagues that I have made right conclusions about the patient's health status					
13. It is easy for me to form an overall picture of the patient's situation and major nursing problems					
14. I draw on nursing process thinking to define the patient' nursing problems					

C.PLANNING

When I am planning the nursing care of a patient:

planning the nursing care of a patient:	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1.I use the plan for the Patient’s medical treatment as a frame of reference					
2. I aim in my planning to resolve the current situation.					
3. It is easy for me to get. the patient to take part in the planning					
4. I focus more on the future on the patient's chances rather than on current nursing needs.					
5. I use the patient's own views on his/her care and treatment as the frame of reference for my planning.					
6. I base my nursing plans on the regimes prescribed for the patient's disease.					
7. I base my nursing plans on my own experiences of the treatment of similar patients.					
8. I have no difficulty in outlining the general directions of nursing in the patient's medical report.					
9. I set out targets for nursing that are easy to measure					
10. I tend to emphasize measures of immediate treatment.					
11. I normally record patient's nursing plan according to the nursing process model.					
12. I have no difficulty in preparing individualized long-term nursing plans.					
13. I anticipate the impacts of different nursing measures on the patient.					
14. I rely on information about health to a greater extent than on information about illness					

D.IMPLEMENTATION. When I am implementing nursing care:

Implementing nursing care	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1. I act rationally and consistently even in unexpected situations					
2. I follow as closely as possible existing nursing plans for different diseases or situations.					
3. It is easy for me to assess the impacts of my actions on the patient's condition and health					
4.I predict changes in the patient's situation on the basis of individual Cues even before there are any clear symptoms					
5. I know how to motivate the patient to take care of Him/her self and to take Self-care responsibility.					
6. I know how to motivate the patient's family to take part in the patient's treatment.					
7. I follow the patient's Individual treatment plan as closely as possible.					
8. I use specific information about the treatment of the Patient's disease when making nursing decisions.					
9.I often try to explain my own observations of changes in the patient's condition					
10. I flexibly change my line of action on the basis of feedback on the patient's situation.					

E. EVALUATION: When evaluating patient outcome:-

When evaluating patient outcome	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1 I observe patients condition on bases of my care plane and compare them with my observation					
2. I collect both subjective &objective information from patient to compare with my plane and to evaluate them					
3. Simply I see over patient's symptom and decide the out com when what I was observed					
4, I evaluate on my previous experience of patients with same cases					
5.I evaluate on bases of psycian drug prescription and diagnoses					
6.I follow the patients request and complaints to evaluate patient condition					
7. I evaluate the patient's condition at the time when the discharge is ordered.					

❖ Open-ended question to allow respondent to explain their own views and experiences as fully as possible.

1. .In your opinion, what factors facilitate or inhibit clinical decision-making in nursing?
 2. What is your view a bought clinical decision making practice in nursing in your institution?
 3. What is your recommendation regarding clinical decision?
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