Factors Affecting Clinical Decision-Making Practice among Nurses Working in Jimma University Medical Center; Jimma Southwest Ethiopia

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Abstract

Background: Clinical decision-making is a process of making judgments regarding patient care and management. Nurses should be able to use decision-making skills to provide safe and effective nursing care. The dynamic nature of health care environment requires nurses to be competent decision-makers in order to respond to clients’ health care need.

Objective: The main aim of this study was to assess factors affecting clinical decision making practice among nurses working in Jimma university medical center.

Method: Facility based descriptive cross-sectional study was conducted by using quantitative method supplemented by qualitative data among 251 nurses. Structured self-administered questionnaire and in-depth interview guide were used to collect data. Descriptive statistics and multivariable logistic regression analysis were used to analyse quantitative data. Statistical significance was declared at a p-value less than 0.05. Qualitative data was analysed based on thematic frameworks to support the quantitative results.

Results: Nurses who reported greater self-confidence were 3.482 times more likely to perform clinical decisions than less confident nurses (AOR3.482, 95% CI 1.655, 7.327). Those nurses who get support from immediate supervisor/s make clinical decision practice 2.878 times more likely than those not supported (AOR 2.87, 95% CI 8 1.388, 5.967) and nurses who doesn’t get chance of continuous educational development make clinical decision practice 79% less likely compared to nurses who already get continuous educational development (AOR 0.214, CI 0.116, 0.395).

Commitment, ongoing supervision and feedback, authority and autonomy, good communication facilitates clinical decision-making practice whereas poor resource management, patient-nurse ratio, structure and culture of the health care system, absence professional development, low level of self-confidence and level of knowledge inhibits clinical decision-making practice among the study participants.

Conclusion: Commitment, supervision and feedback, autonomy, good communication were identified as facilitating factors of clinical decision-making practice. On the other hand; poor resource management, patient-nurse ratio, structure and culture of the health care system, absence of continuous professional development, low level confidence and low level of knowledge on basics of nursing profession are identified as factors inhibiting clinical decision-making practice among nurses.

INTRODUCTION

Almost every country and health care system has witnessed a growing demand for health care services over the last few decades [1]; while health systems are facing an increasing number of challenges due to limited financial resources, environmental change, increasing health care cost, health care demand and public expectations [2]. Nurses are the largest group of professionals who serve health service organizations and community, practice should take 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’ nursing care needs [4,5].

In the recent years, the public and the government in developing country have censured nurses because of decreased
quality of nursing care. Due to this many studies have started to focus on nurses’ clinical decision-making practice and clinical skills [6-7]. So, identification of facilitators and inhibitors of clinical decision-making practice will be the first step in strengthening and empowering nurses to make better clinical decisions [8].

Judgments and decisions made by nurses may help healthcare systems, promote health and prevent harm. Evidence from healthcare systems throughout the world suggested judgments and decisions made by clinicians could be improved: around half of all adverse events have some kind of errors [9,10]

Understanding the concept of decision-making practice in the health care environment gave us insight about clinical decision-making practice and chance of choosing alternatives or options from series of judgments, problem-solving skills, best plan ability formulation of hypotheses and selection and determination of nursing interventions [11-17]. Clinical educators are currently challenged with knowing how to best support nurses in developing their clinical decision-making capacity [18,19]. Worldwide, 19 million nurses will exercise clinical judgment before making choices for their patients. These patients trust nurses to make decisions that do more good than harm [20].

Eleven percent of the patients in the UK experience some form of adverse event resulting in drug induced harm. Of the 34% of these events that are serious, 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 yearly. Similarly, in Canada, with 7.5% of patients experience 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 reports an increase in the number of disciplinary cases among nurses and these disciplinary cases reflect situations within which the nurse had made decisions to maintain, restore or promote the health of the patient. However, from these observations the researcher concluded 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 might be practice standards for quality care and effective clinical decision-making practice in nursing will be highly required. However, there are no such practice standards in the South African context, against which one can evaluate and assess nurse’s quality of clinical decision-making [21].

Study conducted in Iran stated that clinical decision-making practice is a vital element in nurses’ professional performance and it makes professional nurses distinct from non-professional personnel in medical care unit. The result of the study also identified there is a significant association among nurses’ clinical decision-making with age, gender, working background [22].

Another study done in Egypt showed that clinical experience, competence, education regarding decision-making, situation/work environment relationship, and self-confidence are identified as factors influencing clinical decision-making [23]. 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 [24-31].

The Ethiopian Health sector transformation plan (HSTP) annual report revealed that there is a deteriorating quality of nursing care in local hospitals across the country and noted that nurses’ motivation has been deteriorated in the past several years [32-34]. Quality nursing can be affected by clinical-decision making knowledge and practice. Meanwhile, factors that can facilitate or inhibit clinical decision-making practice were not investigated across the health care institutions as well to the study area Jimma zone. So, the main objective of this study was to identify factors affecting (facilitating and inhibiting) clinical decision-making practice among nurses.

METHODS AND MATERIALS

Study area and period

The study was conducted at 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 working units like: medical, surgical, gynecology, maternity, pediatrics, neonatology, Intensive care unit (ICU), psychiatry and ophthalmology. The study was conducted from March 10 to April 10 2017.

Study design

Institution based cross-sectional study involving both quantitative and qualitative methods of data collection were employed. This design was selected to enrich and support quantitative data.

Sample size determination

The sample size is 251 nurses which were determined by using formula for estimating a single population proportion.

Sampling technique & procedure

For quantitative: Working units in the hospital were categorized in to inpatient and outpatient departments. Then six and five working units were selected from inpatient and outpatient departments respectively. Finally, the required sample size was proportionally allocated for each selected inpatient and outpatient working units and participants were selected by simple random sampling techniques (Figure 1).

For qualitative study: Five Key informants were selected purposely from surgical, medical, gynecology and obstetrics, outpatient working units and nursing director office by purposive expert sampling technique. These key informants were purposively selected based on their responsibility of monitoring and evaluating nursing care practice at the study institution (Jimma University Medical center).
Figure 1 Figure showing Sampling technique and procedure on the study of Factors affecting clinical Decision-Making Practice among nurses working in Jimma University Medical Centre, Jimma South West Ethiopia.

Data collection instruments & Data collection procedure

Data collection instruments were adapted from Lethbridge Alberta December 1991. This instrument has four parts; socio-demographic information, factors influencing clinical-decision making practice, factors facilitating clinical decision-making practice. For the qualitative data, interview guide were used. Quantitative data was collected by 5 BSc nurses and two MSc nurse supervisors by using self-administered questionnaires.

Qualitative data was collected by principal investigator (Biskut Bezabih). Topic guided semi-structured, in-depth interviews were used to enable a detailed exploration of factors facilitating and inhibiting clinical decision-making practice among nurses. Interviews were audio-recorded at separate office, with participant permission, and lasted between 30-45 minutes. The data collection guide included the following stimuli to provoke nurse’s views and experiences: (1) what do you say about clinical decision-making practice among nurses in your institution, (2) What are factors that facilitate clinical decision-making practice (3) What are factors that influence clinical decision-making practice among nurses in your institutions. Ideas raised by participants were audio recorded and notes were taken by principal investigator and one assistant.

Data quality control

Data quality was controlled by pretest among 10 % of the sample nurses working in Shenent Giba hospital. Two days training was given for data collectors and facilitators to ensure the quality of the data, the supervisor was checking all questionnaires on daily bases.

Data analysis

Data was checked for consistency, completeness, missing values and then coded entered in to EpiData version 3.1 and exported to SPSS version 20 for analysis. Descriptive statistics, binary and multi-variable logistic regression analysis was computed to describe, select candidate and identify predictors of clinical decision-making practice. A p-value less than 0.25 were used to select candidate on Binary regression and p-value of less than or equal to 0.05 were considered to declare statistical significance.

Qualitative data was analyzed based on thematic frameworks to support the quantitative results after transcription of audio recorded data and data from note book. Deductive analysis was employed manually based on priory prepared interview guide. Different text highlight color was used to select similar concepts from the text data and to generate initial codes. Quotes were extracted from the text data and stored separately. After conceptualizing of related coded datum, searching of categories among codes was made. Then initial category was made. After reviewing the initial categories, categorizing of the categories into predetermined theme was done. Finally, interview result was written by compiling memos and quotes.

Ethical consideration

Ethical clearance and approval to conduct the study was obtained from Jimma University Ethical Review Board (JU IRB) and permission letter was secured in order to get support for the study from administrative body. The purpose of study was explained to the participants and they are told as participation was voluntarily, confidential and anonymity will be ensured throughout the execution. Finally, verbal and written consent was assured from the study subjects.

RESULTS AND DISCUSSIONS

Socio-demographic characteristics

A total of 251 questionnaires were distributed to study participants from which 249 were returned, yielding to 99.2% response rate. Majority 171 (68.7) of the study participants found in the age group of 20-29 years. More than half 134(54.2%) of the study participants were male (54.2%). 128 (51.4%) are degree holders 152 (60.6%) single, 219 (87.2%) have work experience of less than 10 years. Almost half 115 (45.9%) of the
Factors affecting clinical decision-making practice

From questions about facilitating factors of clinical decision-making practice among nurses, knowledge achieved in basic professional education, continuous review of literature, good collaboration among health care workers, continuing education and supported ranked as 1st, 2nd, 3rd, 4th and 5th ranks respectively (Table 2).

Results from qualitative study also point out factors that facilitate clinical decision-making practice among nurse. Among these, Participant two said “I have to have ongoing supervision and feedback for my activities from my first and next immediate supervisors in order to accomplish my duties meticulously and as expected; So that I want to be identified from those nurses not doing their duty and want to be categorized to the best achievers”.

The fourth participant also said “If I was committed and well trained I feel patients problem as my own, they come to me for help, I can do everything that are expected from me, I carry out in my duty time effectively, then I see my decision outcome and satisfied. This can facilitate my clinical decision-making. If you are not committed and cannot do your professional obligation this can influence your clinical decision-making.”

Concerning hindering factors, 184 (73.8%), 171 (68.7%), 66 (26.6%), 58 (23.1%), 72 (28.7%), 62 (24.7%), 17 (6.8%), and 45 (17.9%) of the study participants think as their previous nursing experience, working unit characteristics, Hospital policy, attitude of staffs, outcome of their own decision of care, level of confidence, observation of other staff members and time constraints to work influence clinical decision-making practice among the study participants respectively (Table 2). On the other hand results of in-depth interview showed working environment, low level of professional commitment and absence of freedom and authority for decision, poor management of resource for care; high nurse-bed ratio can hinder effective clinical decision making practice among study participants. For further confirmation, Participant one said “independent regular patient care can’t be performed even if standard formats are available. Nurses are expected to do nursing care as per nursing standard. For these low level of commitment to our professional responsibility and the environment in which we work with, way of management including resource, nurse to bed ratio can inhibit nurses’ clinical decision-making practice”.

The other two participants (Participant one & four) said “authority and autonomy” as a prerequisite in clinical decision-making and also as a critical factor in providing timely and quality care.

The third participant mentioned that “Starting from few things like water, patient monitoring machines, transportation beds, space for admission and nurse to bed ratio can be considered as negatively influenced nurse’s clinical decision”. In this situation nurses are restricted to provide full care to the patient which was influenced clinical decision-making”. In other way even if resource related limitation, close follow up in above mentioned managerial problems for e.g. maintenance of non-functional machines, available instruments for service provision site, patient care is team work; evaluation of each team is week so close follow up and feedback for each team is enabling nurse in there clinical decisions”.

The fifth participant considered structure and culture of the health care system was another important factor affecting nurse’s clinical decision-making practice as facilitating factor. Said I cannot see over other’s 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 do everything what expected from me on time. Also, management of working environment, equipping and creating good communication and on time supervision is related to organizational structure and organizational structure affect clinical decision-making practice among nurses.

The results of regression analysis showed that those self-confident nurses perform clinical decision-making practice 3.482 times more likely than those of non-self-confident nurses (AOR 3.482, 95% CI 1.655, 7.327). Those nurses who get support from immediate supervisor/s make clinical decision practice 2.878 times more likely than those not supported (AOR 2.878, 95% CI 1.838, 5.967) and nurses who doesn’t get chance of continuous educational development make clinical decision practice 79% less likely compared to nurses who already get continuous educational development (AOR 0.214, CI 0.116, 0.395) (Table 4).

The above findings are consistent with study in Egypt in which continuous education as facilitating factors with clinical decision-making practice 23, study in Norway Oslo where the absence of

Table 1: Socio-demographic characteristics of nurses working in Jimma university medical center, Jimma, south west Ethiopia, 2017 (n=249).

<table>
<thead>
<tr>
<th>variables</th>
<th>Category</th>
<th>F</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>20-29</td>
<td>171</td>
<td>68.7</td>
</tr>
<tr>
<td></td>
<td>30-39</td>
<td>69</td>
<td>27.7</td>
</tr>
<tr>
<td></td>
<td>40-49</td>
<td>7</td>
<td>2.8</td>
</tr>
<tr>
<td></td>
<td>&gt;=50</td>
<td>2</td>
<td>0.8</td>
</tr>
<tr>
<td>Sex</td>
<td>Male</td>
<td>134</td>
<td>54.2</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>115</td>
<td>45.8</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Amhara</td>
<td>59</td>
<td>23.6</td>
</tr>
<tr>
<td></td>
<td>Oromo</td>
<td>142</td>
<td>57.2</td>
</tr>
<tr>
<td></td>
<td>Gurage</td>
<td>24</td>
<td>9.6</td>
</tr>
<tr>
<td></td>
<td>Tigre</td>
<td>8</td>
<td>3.2</td>
</tr>
<tr>
<td>Educational status</td>
<td>Diploma</td>
<td>121</td>
<td>48.6</td>
</tr>
<tr>
<td></td>
<td>Degree</td>
<td>128</td>
<td>51.4</td>
</tr>
<tr>
<td>Working experience</td>
<td>&lt;10years</td>
<td>219</td>
<td>87.2</td>
</tr>
<tr>
<td></td>
<td>11-20years</td>
<td>27</td>
<td>11.6</td>
</tr>
<tr>
<td></td>
<td>21-30years</td>
<td>3</td>
<td>1.2</td>
</tr>
<tr>
<td>Religion</td>
<td>Orthodox</td>
<td>124</td>
<td>49.4</td>
</tr>
<tr>
<td></td>
<td>Protestant</td>
<td>62</td>
<td>25.1</td>
</tr>
<tr>
<td></td>
<td>Muslin</td>
<td>57</td>
<td>23.1</td>
</tr>
<tr>
<td>Marital status</td>
<td>Single</td>
<td>152</td>
<td>60.6</td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>96</td>
<td>39.0</td>
</tr>
<tr>
<td></td>
<td>Divorced</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Salary in Ethiopian Birr</td>
<td>&lt;3579</td>
<td>41</td>
<td>16.3</td>
</tr>
<tr>
<td></td>
<td>3579-4446</td>
<td>115</td>
<td>45.9</td>
</tr>
<tr>
<td></td>
<td>4447-5583</td>
<td>34</td>
<td>13.5</td>
</tr>
<tr>
<td></td>
<td>&gt;5583</td>
<td>59</td>
<td>24.3</td>
</tr>
</tbody>
</table>
Table 2: List of factors that might facilitate nurse’s clinical decision-making practice at Jimma university medical center, South west Ethiopia 2017 (n=249).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Response category</th>
<th>1st (N (%))</th>
<th>2nd (N (%))</th>
<th>3rd (N (%))</th>
<th>Least N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge achieved in basic professional education</td>
<td></td>
<td>124(67.0)</td>
<td>48(25.9)</td>
<td>7(3.8)</td>
<td>6(3.2)</td>
</tr>
<tr>
<td>Continuous review of literature</td>
<td></td>
<td>7(3.8)</td>
<td>43(55.5)</td>
<td>32(26.4)</td>
<td>39(32.2)</td>
</tr>
<tr>
<td>Knowledge about guiding principles of nursing practice</td>
<td></td>
<td>17(13.4)</td>
<td>25(18.7)</td>
<td>40(29.9)</td>
<td>51(37.2)</td>
</tr>
<tr>
<td>Regular continuing education</td>
<td></td>
<td>9(6.2)</td>
<td>19(15.9)</td>
<td>34(30.1)</td>
<td>54(48.8)</td>
</tr>
<tr>
<td>Knowledge about rules regulations of your health care institution.</td>
<td></td>
<td>3(5.8)</td>
<td>2(3.8)</td>
<td>12(23.1)</td>
<td>35(67.3)</td>
</tr>
<tr>
<td>Good collaboration among health care workers</td>
<td></td>
<td>7(11.0)</td>
<td>20(19.2)</td>
<td>36(34.6)</td>
<td>47(45.2)</td>
</tr>
<tr>
<td>Good knowledge about patients personal characteristics</td>
<td></td>
<td>8(11.5)</td>
<td>10(19.2)</td>
<td>12(23.1)</td>
<td>24(46.2)</td>
</tr>
<tr>
<td>Knowledge about your own values that guide your work</td>
<td></td>
<td>7(21.2)</td>
<td>5(15.2)</td>
<td>2(6.1)</td>
<td>19(57.3)</td>
</tr>
<tr>
<td>Knowledge about patient’s previous experiences in health care</td>
<td></td>
<td></td>
<td></td>
<td>3(18.8)</td>
<td>1(6.2)</td>
</tr>
<tr>
<td>Medical diagnoses</td>
<td></td>
<td>45(33.5)</td>
<td>38(29.3)</td>
<td>19(14.3)</td>
<td>30(22.5)</td>
</tr>
<tr>
<td>Feeling as you are competent</td>
<td></td>
<td>7(9.2)</td>
<td>12(22.2)</td>
<td>12(22.2)</td>
<td>65(66.3)</td>
</tr>
<tr>
<td>Being supported by your supervisor/s</td>
<td></td>
<td>7(9.9)</td>
<td>4(5.6)</td>
<td>8(11.3)</td>
<td>52(73.3)</td>
</tr>
</tbody>
</table>

1st (N (%)) = First Important number and percent
2nd (N (%)) = Second Important number and percent
3rd (N (%)) = Third Important number and percent
4th (N (%)) = Fourth Important number and percent
Last N (%) = Last Important number and percent

In this study 24.7 % of the respondents had confirmed as self-confidence can influence clinical decision-making practice. The finding is relatively similar with study done in Egypt [24] and Iran [26] in which both studies identified self-confidence as influencing factors for clinical decision-making practice among nurses. Self-confidence is considered a vital factor in effective clinical decision-making since it was believed that those nurses self-confident may have better control over their work, make effective and efficient decisions and intervene independently.

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 [26].

CONCLUSION

The findings of this study helped to reach a better understanding of the factors facilitating and inhibiting clinical decision-making practice among nurses. Accordingly, continuous educational development, support from immediate supervisors, level of self-confidence, professional commitment, personal commitment to help or care others, resource and its management, patient-nurse ratios are identified factors influencing clinical decision-making practice among nurses.

Commitments to once professional responsibility, ongoing supervision and feedback, authority and autonomy, creating good communication were identified as facilitating clinical decision-making practice. On the other hand ways of resource...
management. Patient-nurse ratio, resource and supply (water, patient monitoring machines, transportation beds, space for admission), structure and culture of the health care system, absence of continuous formal and informal professional development, lack of self-confidence and level of knowledge on basics of nursing profession are identified as factors inhibiting clinical decision-making practice among nurses.

Nurse Managers have to search for solutions on how to decrease and if possible completely avoid factors that affect clinical decision-making practice and encouraging implementation and utilization of facilitating factors. Providing continuous in-service training to increase nurses’ knowledge base, and ongoing supervision and feedback.

Table 4: Multivariate analyses of association with clinical decision making practice among nurses working in Jimma university medical center, South west Ethiopia 2017 (n=249).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency (n)</th>
<th>p-value</th>
<th>AOR</th>
<th>95% CI for AOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being self confidence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>187 (75.3)</td>
<td>0.001</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>62 (24.7)</td>
<td></td>
<td>3.482</td>
<td>1.655</td>
</tr>
<tr>
<td>Being supported</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>191 (76.9)</td>
<td>0.004</td>
<td>1</td>
<td>1.388</td>
</tr>
<tr>
<td>Yes</td>
<td>58 (23.1)</td>
<td></td>
<td>2.878</td>
<td></td>
</tr>
<tr>
<td>Regular continuous education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>138 (55.0)</td>
<td>&lt;0.001</td>
<td>1</td>
<td>0.116</td>
</tr>
<tr>
<td>Yes</td>
<td>113 (45.0)</td>
<td></td>
<td>0.214</td>
<td></td>
</tr>
</tbody>
</table>

Table 5: Categories of main theme, subthemes and quotes of data from in-depth interview on the study factors affecting clinical decision-making practice among nurses working at JUMC.

<table>
<thead>
<tr>
<th>Main theme</th>
<th>Subthemes</th>
<th>Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factors affecting clinical decision-making practice</td>
<td>1. Continuous supervision and feedback from immediate supervisors.</td>
<td>Participant two said &quot;I have to have ongoing supervision and feedback for my activities from my first and next immediate supervisors in order to accomplish my duties meticulously and as expected; So that I want to be identified from those nurses not doing their duty and want to be categorized to the best achievers&quot;.</td>
</tr>
<tr>
<td></td>
<td>2. Maintenance and replacement non-functional equipments</td>
<td>The fourth participant said &quot;If I was committed and well trained I feel patients problem as my own, they come to me for help, I can do everything that are expected from me, I carry out in my duty time effectively, then I see my decision outcome and satisfied. This can facilitate my clinical decision-making. If you are not committed and cannot do your professional obligation this can influence your clinical decision-making,</td>
</tr>
<tr>
<td></td>
<td>3. Team work and collaboration</td>
<td>The other two participants (participant one &amp; four) said &quot;authority and autonomy&quot; as a prerequisite in clinical decision-making and also as a critical factor in providing timely and quality care.</td>
</tr>
<tr>
<td></td>
<td>4. Continuous professional development</td>
<td>The third participant mentioned that &quot;Starting from few things like water, patient monitoring machines, transportation beds, space for admission and nurse to bed ratio can be considered as negatively influenced nurse’s clinical decision-making practice&quot;.</td>
</tr>
<tr>
<td></td>
<td>5. Commitment</td>
<td>The fifth participant considered structure and culture of the health care system was another important factor affecting nurse’s clinical decision-making practice as facilitating factor. ‘Said I cannot see over other’s 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 do everything what expected from me on time’. Also, management of working environment, equipping and creating good communication and on time supervision is related to organizational structure and organizational structure affect clinical decision-making practice among nurses.</td>
</tr>
<tr>
<td></td>
<td>6. Working environment</td>
<td>Participant one said &quot;independent regular patient care can’t be performed even if standard formats are available. Nurses are expected to do nursing care as per nursing standard. For these low level of commitment to our professional responsibility and the environment in which we work with, way of management including resource, nurse to bed ratio can inhibit nurses’ clinical decision-making practice&quot;.</td>
</tr>
<tr>
<td></td>
<td>7. Professional freedom.</td>
<td>The other two participants (participant one &amp; four) said &quot;authority and autonomy&quot; as a prerequisite in clinical decision-making and also as a critical factor in providing timely and quality care.</td>
</tr>
<tr>
<td></td>
<td>8. Authority for decision</td>
<td>The third participant mentioned that &quot;Starting from few things like water, patient monitoring machines, transportation beds, space for admission and nurse to bed ratio can be considered as negatively influenced nurse’s clinical decision-making&quot;. In this situation nurses are restricted to provide full care to the patient which was influenced clinical decision-making&quot;. In other way even if resource related limitation, close follow up in above mentioned managerial problems for e.g. maintenance of non-functional machines, available instruments for service provision site, 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”.</td>
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<td>9. Management of resource for care</td>
<td>The fifth participant considered structure and culture of the health care system was another important factor affecting nurse’s clinical decision-making practice as facilitating factor. ‘Said I cannot see over other’s 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 do everything what expected from me on time’. Also, management of working environment, equipping and creating good communication and on time supervision is related to organizational structure and organizational structure affect clinical decision-making practice among nurses.</td>
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<td></td>
<td>10. Nurse-bed ratio</td>
<td>The other two participants (participant one &amp; four) said &quot;authority and autonomy&quot; as a prerequisite in clinical decision-making and also as a critical factor in providing timely and quality care.</td>
</tr>
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Supplementary Data

Table 5: Categories of main theme, subthemes and quotes of data from in-depth interview on the study factors affecting clinical decision-making practice among nurses working at JUMC.
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Authors’ Contribution

Biskut Bezabih, Admasu Belay and Endalew Hailu conceived and designed the protocol. Additionally, Biskut Bezabih and Desalegn Tamiru performed the data collection and contributed equally. Admasu Belay and Biskut Bezabih contributed on data analysis, and wrote the draft. Admasu Belay prepared the manuscript. Endalew Hailu approved it. All authors read and approved the final paper.

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