

## Differences in Critical Thinking and Decision Making among Critical Care and Non-Critical Care Nurses

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### Abstract

Critical thinking and decision-making are essential for nurses to identify and analyze judgments for nursing care. Hence, this study aims to determine critical thinking and clinical decision-making among critical and non-critical care nurses. A cross-sectional study was conducted among 237 nurses using a self-administered questionnaire. This study discovered that critical and non-critical care nurses had a modest level of critical thinking and clinical decision-making. The findings of this study can serve as a guide for nursing administration employees in implementing effective techniques to enhance the critical thinking skills of nurses in on-the-job training and orientation programs for nursing staff.

**Keywords:** critical thinking; clinical decision making; critical care nurse, non-critical care nurses

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### 1.0 Introduction

Critical thinking is necessary for nurses to recognise and evaluate their nursing judgement. Despite terminological ambiguity and the absence of a widely acknowledged, clinically applicable conceptualization, critical thinking remains an important area of research (Zuriguell-Perez et al., 2015). With the rapid growth of technology and education, each nurse must be able to employ critical thinking to make effective nursing judgments and decisions for the nursing process. According to Stein and Harper (2012), the issues experienced by different nations extend beyond physical limitations, demonstrating the need for reforms to enhance patient safety and care quality. To maintain the safety and quality of patient care in the present climate of rapid clinical innovation and an informed population, nurses must apply critical thinking to make the best clinical decisions.

Conversely, critical thinking is a process of learning that occurs across and within all disciplines. According to Kaya et al. (2018), all nurses must be emotionally intelligent and able to utilise critical thinking to assess patient information from several viewpoints and make informed judgments. Critical thinking needs cognitive capabilities, such as interpretation, analysis, evaluation, deduction, and explanation of the conceptual, methodological, and criterion-based evidence upon which decisions must be made. Clinical judgement in nursing is vital for making clinical decisions. To ensure that patients receive appropriate nursing care, nurses must possess solid clinical decision-making

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abilities. Nurses must have the clinical decision-making abilities required to increase patient recovery and possibly reduce hospital stays. According to Johansen and O'brien (2016), clinical decision-making is crucial for nursing organisations. Clinical decision-making skills will influence the treatment and recovery of patients. The intervention and methods can enhance patients' current clinical situations by making prudent clinical decisions. Using clinical decision-making in nursing care can improve the patient's clinical status. Each nurse may have a unique clinical decision-making style, resulting in incorrect clinical decisions. Therefore, nurses should get appropriate and relevant training to enhance their clinical judgement skills. According to Thompson et al. (2013), the function of the nurse is one of the most potent factors for overcoming considerable challenges in the global healthcare system. This study aims to discover differences in critical thinking and decision-making between critical care nurses and non-critical care nurses. Consequently, the objective of this study is to examine the level of critical thinking and decision-making among critical care and non-critical care nurses, as well as the relationship between critical thinking and decision-making and its association with demographic data.

## 2.0 Literature Review

Assessing a nurse's critical thinking skills may demonstrate their understanding of providing high-quality patient care. Critical thinking is believed to result in appropriate and sensible behaviour by applying advanced cognitive talents such as evaluation, conceptualization, and analysis. As Hwang et al. (2010), nurses should constantly review and plan patient care using their critical thinking skills. Without critical thinking, it is possible that patient outcomes will not be met. Compared to nurses who do not specialise in critical care, critical care nurses should be highly critical thinkers. However, according to Ali-Abadi et al. (2020), the critical care nurse has a highly critical thinking-intensive work environment. Previous research has demonstrated that critical and non-critical care nurses lack critical thinking skills (Ali-Abadi et al., 2020; Babamohamadi et al., 2017). Studies indicate that nurses have moderate to average critical thinking (Mahmoud & Mohamed, 2017; Zuriguel-Perez et al., 2019). According to research by Mahmod and Mohamed in 2017, 10.7 per cent of nurses demonstrated a favourable attitude toward critical thinking. According to Ali-Abadi et al., the critical thinking abilities of critical care nurses and non-critical care nurses did not differ significantly (2020).

Clinical decision-making integrates knowledge to control the patient's surroundings and provide the necessary care. The three phases of clinical decision-making are watching the patient's condition, analysing the observation, and acting to achieve the intended outcome. Effectiveness of good patient care and improvement of the patient's clinical status when nurses are able to make the correct clinical decisions. Critical care nurses must possess a high level of clinical decision-making due to their patients' rapid status changes and clinical complexity. Critical care nurses must promptly and logically make clinical judgments (Ramezani-Badr et al., 2010). A patient undergoing critical care is treated immediately for a significant medical condition (Huang et al., 2012; Choi & Kim, 2015). Marhameh et al. (2016) discovered that the clinical decision-making of critical care nurses was impacted by their working experience and was made together with physicians.

## 3.0 Methodology

### 3.1 Sample

This study utilised a cross-sectional research design. This research was carried out in a private hospital in the Klang Valley. A purposive sampling method was chosen for this research using Krejcie & Morgan, 1970 to estimate the research sample size. and the formula suggested 237 samples from the Nilai Medical Centre in Negeri Sembilan and the Columbia Asia Hospital Setapak Branch in Kuala Lumpur. The inclusion criteria were nurses with full-time working and working experience of more than six months. The exclusion criteria were nurses who were on maternity leave or sick leave.

### 3.2 Research Instruments

The variables of the study were measured using a self-administered questionnaire. This study used the Malay and English versions of the Short Form-Critical Thinking Disposition Inventory-Chinese Version (SF-CTDI-CV). The SF-CTDI-CV contains eighteen items with three subscales, which include systemic analysis (five items), thinking within the box (eight items), and thinking outside the box (five items). This section uses a five-point Likert scale ranging from "strongly disagree" to "strongly agree." agree' (1-Strongly disagree, 2-Disagree, 3-Neither agree nor disagree, 4-Agree, 5-Strongly agree) to rate their answer to each item. This instrument was tested with Cronbach's alpha 0.860.

The Clinical Decision-Making in Nursing Scale (CDMNS) was employed to measure clinical decision-making. This instrument comprised of four subscales, each with ten items. The four subscales are looking for alternatives or possibilities (ten items), searching for information and unbiased assimilation of new knowledge (ten items), evaluation and re-evaluation of consequences (ten items), and canvassing of objectives and values (ten items) utilising a five-point Likert scale ranging from "strongly disagree" to "strongly agree" to answer each question. Reliability test was done with Cronbach's alpha of 0.923. To score the participant's level of critical thinking and clinical decision-making using the interpretation of the mean statistic from Landell (1997), it is suggested that a mean value of 1.0 to 2.33 represents a low level, 2.34 to 3.67 represents a moderate level, and 3.68 to 5 represents a high level.

### 3.3 Data Collection Methods

The Research Ethics Committee, UiTM Shah Alam, Deputy Director of Nursing, Nilai Medical Centre and Chief Nursing Officer, Columbia Asia Setapak, provided ethical approval and authorisation for the conduct of this study. The data was collected after screening respondents

for eligibility based on inclusion and exclusion criteria. The participants then described this study's aims. Those who opted to participate in the study were required to sign a consent form prior to completing the questionnaire to protect the confidentiality of all information collected. Respondents were required to complete the sociodemographic, SF-CTDI-CV, and CDMNS questionnaires.

### 3.4 Statistical analysis

The collected data were entered into Statistical Package for the Social Sciences (SPSS) version 25. The data were described using both descriptive and inferential statistics. The descriptive analysis method is used to evaluate and assess the level of critical thinking and clinical decision-making to calculate the mean and standard deviation. The relationship between demographic data with critical thinking and decision making was determined using independent t-test and ANOVA.

## 4.0 Findings

### 4.1 The level of critical thinking

The response to this study was 100% (n=237). The level of critical thinking among critical care and non-critical care nurse is seen in Table 1. The analysis of the 18 items on the critical thinking test found that thinking outside the box has the highest mean score: 4.03 (0.65) for critical care nurses and 3.63 (0.67) for non-critical care nurses. However, the total mean score for critical thinking among critical care nurses was 3.46 (0.71). Meanwhile, the mean score for non-critical care nurses in critical thinking was 3.30 (0.76).

Table 1. Level of critical thinking between critical care and non-critical care nurses

Critical Thinking Domains	Critical Care mean (SD)	Non-Critical Care mean (SD)
Systemic Analysis	4.01(0.56)	3.53(0.71)
Thinking within the box	2.37(0.92)	2.75(0.91)
Thinking outside the box	4.03(0.65)	3.63(0.67)
Total Domains	3.46(0.71)	3.30(0.76)

### 4.2 The level of clinical decision making

Results from descriptive statistics of the level of clinical decision-making among critical care and non-critical care nurse per Table 2. Critical care nurses and non-critical care nurses had a moderate level of clinical decision-making, 3.64 (0.57) critical care nurses, while for non-critical care nurses were 3.51 (0.53). The total mean score level of clinical decision-making for the critical care nurse was 3.47 (0.52). Meanwhile, the means score level of clinical decision-making for non-critical care nurses was 3.41 (0.52).

Table 2. The level of clinical decision making

Clinical decision-making domains	Critical Care mean (SD)	Non-Critical Care mean (SD)
Search of alternatives or options	3.47(0.36)	3.39(0.49)
Search for the information or unbiased assimilation of new information	3.64(0.57)	3.51(0.53)
Evaluation and re-evaluation of consequences	3.22(0.54)	3.31(0.55)
Canvassing of objectives and values	3.55(0.59)	3.44(0.49)
Total Domains	3.47(0.52)	3.41(0.52)

### 4.3 Relationship between critical thinking and decision making

Spearman's coefficient of correlation shows that a positive correlation between critical thinking and decision-making is significant ( $r = 0.712$ ,  $p = 0.001$ ).

### 4.4 Relationship between demographic data with critical thinking and decision making

As per Table 3, the relationship between critical thinking and the age of the staff nurse is significant with  $F(4, 232) = 17.933$ ,  $p < 0.001$ , and the relationship between critical thinking and marital status is statistically significant  $F(2, 234) = 11.980$ ,  $p < 0.001$ . The relationship between critical thinking and education level  $F(2, 234) = 8.738$ ,  $p < 0.001$ . Moreover, the study reveals a relationship between critical thinking and work experience  $F(3, 233) = 32.379$ ,  $p < 0.001$ .

The analysis result, as per Table 3, shows the relationship between critical thinking and the age of the staff nurse is significant with  $F(4, 232) = 19.053$ ,  $p < 0.001$ , and the relationship between critical thinking and marital standing is statistically significant  $F(2, 234) = 11.679$ ,  $p < 0.001$ . The relationship between critical thinking and education level  $F(2, 234) = 9.445$ ,  $p < 0.001$ . Moreover, the study reveals a relationship between critical thinking and work experience  $F(3, 233) = 28.284$ ,  $p < 0.001$ .

Table 3. The relationship between demographic data with critical thinking and decision making

Demographics	Critical thinking			Decision making	
	n	stat(df)	p-value	stat(df)	p-value
Age					
21 to 25 years old	79	17.933(4)	0.000	19.053(4)	<0.001 <sup>a</sup>
26 to 30 years old	63				
31 to 35 years old	70				
36 to 40 years old	10				
More than 40 years old	15				
Gender					
Female	224	-0.800	0.425	0.066	0.947 <sup>b</sup>
Male	13				
Ethnic Group					
Malay	198	.253(2)	0.776	0.024(2)	0.977 <sup>a</sup>
Indian	34				
Chinese	5				
Marital Status					
Single	87	11.980(2)	0.000	11.679(2)	<0.001 <sup>a</sup>
Married	144				
Widowed	6				
Education level					
Diploma	173	8.738(2)	0.000	9.445(2)	<0.001 <sup>a</sup>
Degree	13				
Post basic	51				
Working Area					
Critical Care	55	1.100	0.273	0.819	0.414 <sup>b</sup>
Non-Critical Care	182				
Working Experience					
1-5 years	90	32.379(3)	0.000	28.284(3)	<0.001 <sup>a</sup>
6-10 years	77				
11-15 years	50				
> 15 years	20				

a = ANOVA

b = t-test

## 5.0 Discussion

### 5.1 The level of critical thinking

The findings of this study indicated that both nurses possessed a modest level of critical thinking. This result is consistent with the findings of other research that investigated critical thinking using various tools (Mahmoud & Mohamed, 2017; Zuriguel-Perez et al., 2019). Ali-Abadi et al. (2020) observed no significant difference in critical thinking between critical care nurses and non-critical care nurses. Prior research has revealed that critical care and non-critical care nurses had inadequate critical thinking (Ali-Abadi et al., 2020; Babamohamadi et al., 2017). In the meantime, Ludin (2017) discovered that Malaysian critical care nurses had a high level of critical thinking.

### 5.2 The level of clinical decision making

The present study was undertaken to investigate the level of clinical decision-making among critical care nurses and non-critical care nurses. Nonetheless, the results suggested that both groups of nurses exhibited moderate clinical decision-making in clinical situations. In a study conducted in Malaysia, Ludin (2017) found that the level of critical thinking significantly affected clinical decision-making. Critical thinking was as influential as clinical decision-making in this study. In addition, Choi & Kim (2015) reported in research on a Korean paediatric nurse that 52 per cent of nurses in paediatric critical care had a high degree of clinical decision-making since they work in uncertain and unpredictable patient conditions.

### 5.3 Relationship between critical thinking and decision making

Critical thinking and decision-making are interrelated. Dewi et al. (2021) confirm nurses' association between critical thinking and clinical decision-making. According to Mahmod and Mohamed (2017), nurses possess a favourable tendency toward critical thinking.

### 5.4 Relationship between demographic data with critical thinking and decision making

Critical thinking levels correlate significantly with age, marital status, education level, and work experience. Age will influence nurses' critical thinking (Zuriguel-Perez et al., 2019; Ludin, 2018). However, the research found no correlation between critical thinking and nurses' age (Ali-Abadi et al., 2020; Mahmoud & Mohamed, 2017). In the present studies, there was a correlation between job experience and critical thinking ability. The longer-tenured nurses may have a high level of critical thinking (Zuriguel-Perez et al., 2019). However, several studies have revealed no correlation between years of work experience and the level of critical thinking (Ali-Abadi et al., 2020; Mahmoud & Mohamed, 2017). Higher-educated nurses will exhibit a high level of critical thinking (Zuriguel-Perez et al., 2019; Ludin, 2017). Other

research indicated that the amount of critical thinking is unrelated to educational attainment (Ali-Abadi et al., 2020). This study demonstrated that marital status has an effect on critical thinking. However, most research has found no association between marital status and critical thinking (Ludin, 2017; Zuriguel-Perez et al., 2019; Mahmoud & Mohamed, 2017). In the present study, gender, racial background, and working environment had no effect on critical thinking. According to studies, gender and the occupational sector have no bearing on critical thinking (Mahmoud & Mohamed, 2017; Ali-Abadi et al., 2020). However, Ludin (2017) found significant differences in ethnicity and gender.

In addition, the association between clinical decision-making and age, years of work experience, education level, and marital status was identified. Several studies have identified a correlation between age and clinical decision-making capacity (Ludin, 2017; Bjork & Hamilton, 2011). However, Choi and Kim (2015) found an association between the age of nurses and their ability to make clinical decisions. Some study indicates a correlation between the number of years nurses have worked and their clinical decision-making skills (Ludin, 2017; Maharmeh et al., 2016). Nurses grow increasingly aware of their role in clinical decision-making and judgement as they gain experience. The correlation between education level and clinical decision-making was demonstrated to be statistically significant in this study. According to Bjork and Hamilton's (2011) research, the education level of Norwegian nurses who participate in clinical decision-making is substantial. There is evidence that the level of schooling is unrelated to clinical decision-making (Choi & Kim, 2015). This study did not associate gender, ethnicity, or job location with clinical decision-making. Bjork and Hamilton (2011) found a link between males and clinical decision-making. The male nurse was able to make complex clinical choices, despite having less experience and being younger. In their investigation, Choi and Kim (2015) showed that working conditions had no effect on clinical decision-making. However, the working environment may impact clinical decision-making quality.

## 6.0 Conclusion & recommendations

Critical and non-critical care nurses reported moderate levels of critical thinking, clinical decision-making, and their link. A number of elements influence critical thinking and clinical decision-making. The level of critical thinking and clinical decision-making is affected by age, marital status, level of education, and years of experience. Regularly, critical and non-critical care nurses improve their critical thinking and clinical decision-making skills. The older and more experienced staff will be able to think critically and make therapeutic judgments more effectively. According to this study, age and professional experience have a considerable impact on critical reasoning and clinical decision-making. Despite the large sample size, this study has limitations, as questionnaire responses may not adequately reflect nurses' actual critical thinking and clinical decision-making. This study included a self-administered questionnaire. As a result of the respondents' misunderstanding of each questionnaire item, there are variations in their interpretations and assessments of each question. Furthermore, continuous education and in-service orientation are advised for the development of effective critical thinking and decision-making abilities among nurses, taking demographic and clinical differences into account.

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## Paper Contribution to Related Field of Study

This study validated the evidence that nurses need to develop their critical thinking and clinical decision-making skills and the component on which they should concentrate to enhance their abilities.

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