

Studying the Impact of Clinical Decision-Making and Critical Thinking on the Quality of Nursing Care

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Abstract

Critical thinking and the clinical decision-making power of nurses are among the factors to amend the quality of health care. This study aimed to investigate the relationship between clinical decision-making and critical thinking in the quality of nursing care in nurses. This descriptive-analytical study was done with the participation of 226 nurses working in internal surgical departments. Data were collected through California critical thinking skills questionnaires, clinical decision-making, and quality of nursing care and using multi-stage stratified sampling proportional to volume. The findings were analyzed by descriptive and inferential tests (Pearson correlation coefficient, independent t, and one-way analysis of variance) in SPSS software version 23. The average scores of quality of nursing care, clinical decision-making, and critical thinking were 199.43±26.97, 87.72±13.98, and 7.99±3.15, respectively. High nursing care quality and poor critical thinking were reported. Pearson's correlation coefficient did not show a significant relationship between critical thinking score and nursing care quality score ($P>0.001$), but the results demonstrated a significant relationship between clinical decision-making score and nursing care quality score ($P<0.001$). The findings of the current study showed that there is a significant relationship between the clinical decision-making score and the nursing care quality score, but no significant relationship was reported between the critical thinking score and the nursing care quality score. In addition, the critical thinking of the participants was reported at a weak level, so the need to train nursing students and nurses to strengthen critical thinking and ultimately improve clinical decision-making power and increase the quality of nursing care is recommended.

Keywords: Critical thinking, Nursing care, Clinical decision-making, Nurses

Introduction

As one of the most important members of the health care team, nurses have a vital role in providing holistic care. According to the statistics of the World Health Organization, 59% of the employees of the health system are nurses. According to global statistics, at least 50% of health services are done by nurses, and even in some countries, 80% of health services are done by nurses. Thus, the quality of health care largely depends on the way nurses do services [1-4].

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Today, the quality of nursing care is one of the main factors in the field of health services. Quality nursing care includes providing physical needs, providing psycho-social and spiritual support to patients, patient satisfaction with care, the responsiveness of nursing care to patients' needs, and ensuring comprehensive and holistic care for the patient [5, 6]. Patients have the right to receive quality care, and this is a fundamental responsibility of nurses. In most countries, the accreditation of hospitals is influenced by the quality of nursing care. One of the essential factors in providing quality care is nurses having critical thinking [7].

Critical thinking is purposeful and result-oriented logical thinking based on patients' needs and guided by professional standards and policies [8, 9]. Nurses with high critical thinking respond quickly to changes in the patient's condition and change care priorities based on the urgency of the situation. Critical thinking assists the nurse in knowing the events as part of the bigger picture and focusing on the problem [10, 11]. Without critical thinking, nurses simply perform task-oriented care [12]. Critical thinking improves problem-solving skills, improves the quality of nursing care [12], improves nurses' clinical competence, and finally moves towards optimal care [13].

Another factor affecting the quality of nursing care is clinical decision-making [14]. Clinical decision-making includes interventions and solutions that help to improve the clinical condition of the patient [15]. Clinical decision-making is a complex process of choosing between several options, which affects safe care and improving patient outcomes [16, 17]. Appropriate decision-making by nurses accelerates patient recovery and reduces health costs, and incorrect decision-making can prolong the illness and even the death of the patient [18].

Considering the importance of critical thinking and correct decision-making skills of nurses in preventing the deterioration of the clinical condition of patients and imposing additional costs on the health system and their families, this research aims to investigate the relationship between critical thinking and clinical decision-making with the quality of nursing care in The nurses of the internal surgery department performed the surgery.

Materials and Methods

The present cross-sectional research is a descriptive-analytical study. The statistical population contained nurses working in internal surgical departments. Based on multi-stage stratified sampling proportional to the volume and considering the expected correlation coefficient of 0.224, alpha of 0.05, and beta of 0.1, the required sample number was 205 people. 226 people were included in the study, including 10% dropout.

The criteria for entering the study include having at least six months of experience working in a hospital, having at least a BSc degree, working in the internal or surgical department, not working in management positions, not having cognitive and mental disorders based on self-report, and not taking drugs. It affected the nurses' mood. Nurses who worked in several departments or hospitals at the same time and did not complete the questionnaires were excluded from the current study.

Data collection was done through a questionnaire consisting of 4 sections: 1) demographic characteristics, 2) a standard California critical thinking skills questionnaire, 3) a standard clinical decision-making questionnaire, and 4) a standard questionnaire on nursing care quality. The demographic characteristics questionnaire included 11 questions of sex, age, marital status, education level, ward name, number of children, hospital name, nursing experience, employment status, shift type, and position. The critical thinking questionnaire also contains 34 multiple-choice questions to specifically measure the level of critical thinking, for each correct question, one score is assigned to the individual, and by calculating the set of correct questions, the total score of the test is determined. The range of scores is between 0 and 34, with a higher score showing higher critical thinking. Fashion and colleagues have reported the reliability of this tool using Coder-Richardson's formula, 0.68-0.70 [19]. The standard clinical decision questionnaire consists of 24 statements about clinical decisions, which are graded based on a 5-point Likert scale (always (score 5), often, sometimes, rarely, and never (score 1)), and the range of scores varies from 24-120. A higher score indicates a better clinical decision-making ability. The function of the tool to classify nurses' decision-making is in one of the following models. A score less than 67 shows analytical decision-making. 68-78 score is the 2nd level of decision-making, i.e. analysis of intuition. A score above 78 shows the 3rd level of decision-making, i.e. intuition. The reliability of the tool has been confirmed by Tower *et al.* with Cronbach's alpha coefficient $r = 0.81$. Also, the questionnaire validity has been reported using the exploratory factor analysis method [20]. The nursing care quality questionnaire has 65 questions. For each item, a Likert scale was considered with answers rarely [1], sometimes, most of the time, and always [4]. The range of scores is between 65-260, and higher scores indicate high quality of nursing care.

After collecting information, the data were analyzed through descriptive (Mean \pm SD, frequency, percentage, mean) and inferential tests (one-way analysis of variance, independent t-test, and Pearson correlation coefficient) by SPSS23 software. A significance level was considered $P > 0.05$. The normality of all available variables was checked using the Smirnov Kolmogorov test, histogram, skewness and kurtosis, box plot, Q-Q-plot, and the distribution of data was normal.

Results and Discussion

In the present study, 226 nurses working in internal surgical departments were selected. The average age of the research units was 35.36 ± 7.97 and their average work experience was 10.91 ± 7.69 years. The majority of nurses (77.9%) were female, married (61.9%), and had a BSc degree (92.2%). Other demographic information of nurses is given in **Table 1**.

Table 1. Demographic information of the studied nurses.

Variable		Mean	Standard deviation
Age (years)		36.35	7.97
Work experience (years)		10.91	7.69
Gender	Female	176	77.9
	Male	50	22.1
Marital status	Single	81	35.8
	Married	140	61.9
	Divorced/Widow	5	2.2
Number of children	0	124	54.9
	1-2	95	42
	3-4	7	3.1
Degree of education	BSc	210	92.2
	MSc	16	7.1
Position	Nurse	206	91.1
	Staff (Deputy superintendent)	9	4
	Department manager	11	4.9
Shift type	Fixed	36	15.9
	In Circulation	190	84.1
	Project	47	20.8
Employment Status	Contractual	62	27.4
	Long term contract	26	11.5
	Official	91	40.3

The average scores of quality of nursing care, clinical decision-making, and critical thinking were 199.43 ± 26.97 , 87.72 ± 13.98 , and 7.99 ± 3.15 , respectively. High nursing care quality and poor critical thinking were reported (**Table 2**).

Table 2. Correlation between the nursing care quality with clinical decision-making and critical thinking of the studied nurses.

Variable	Mean	Standard deviation	Quality of nursing care	
			p-Value	r
Quality of nursing care	199.43	26.79	-	-
Critical Thinking	7.99	3.15	0.280	0.072
Clinical decision making	87.72	13.98	< 0.001	0.316

Pearson's correlation coefficient did not show a significant relationship between critical thinking and the quality of nursing care ($P=0.28$), but there was a significant relationship between clinical decision-making score and score of nursing care quality ($P<0.001$) (**Table 2**).

Pearson's correlation coefficient was utilized to investigate the relationship between clinical decision-making, critical thinking, and nursing care quality with the demographic variables of age and work experience. The findings revealed that there is no significant relationship between these two demographic variables with clinical decision-making, critical thinking, and nursing care quality ($P>0.05$) (**Table 3**). Also, to investigate the relationship between clinical decision-making, critical thinking, and nursing care quality with the demographic variables of gender, shift, degree, and type of department, an independent t-test was used, and the variables of

marital status, number of children, position and employment status were utilized with one-way analysis of variance. The findings revealed that there is no significant difference between the mentioned demographic variables and clinical decision-making, critical thinking, and nursing care quality ($P>0.05$). Except for marital status, which had a significant difference with clinical decision-making and Tukey's post hoc test results showed, the divorced and widowed subclass had higher clinical decision-making ($P=0.020$) (**Table 3**).

Table 3. Relationship between clinical decision-making, critical thinking, and nursing care quality with the demographic information of the studied nurses.

	Variable	Clinical decision-making (Mean \pm SD)	Critical Thinking (Mean \pm SD)	Quality of nursing care (Mean \pm SD)
Gender	Female	88.27 \pm 14.22	7.92 \pm 3.22	201.22 \pm 27.34
	Male	85.76 \pm 13.07	8.22 \pm 2.96	193.14 \pm 24.89
	P-value	0.263	0.555	0.061
Marital status	Single	88.67 \pm 12.35	7.91 \pm 2.84	198.06 \pm 28.07
	Married	86.60 \pm 14.49	7.98 \pm 3.34	201.52 \pm 26.33
	Divorced/Widow	103.60 \pm 16.64	9.40 \pm 3.05	195.60 \pm 26.08
	P-value	0.02	0.595	0.333
Number of children	0	87.19 \pm 12.96	8.33 \pm 3.06	198.13 \pm 27.22
	1-2	88.42 \pm 14.72	7.61 \pm 3.31	201.07 \pm 27.28
	3-4	87.43 \pm 21.50	7 \pm 2.52	200.29 \pm 19.15
	P-value	0.813	0.774	0.725
Degree of education	BSc	87.90 \pm 14.16	8.02 \pm 3.12	199.37 \pm 26.99
	MSc	85.31 \pm 11.48	7.5 \pm 3.65	200.31 \pm 27.68
	P-value	0.477	0.524	0.893
Position	Nurse	87.5 \pm 13.83	8.06 \pm 3.13	199.69 \pm 27.27
	Staff (Deputy superintendent)	91.22 \pm 19.47	6.11 \pm 3.29	201.89 \pm 26.07
	Department manager	88.91 \pm 12.78	8.09 \pm 3.39	192.55 \pm 22.93
	P-value	0.708	0.192	0.669
Employment Status	Project	88.21 \pm 13.25	8.26 \pm 3.54	197.64 \pm 25.96
	Contractual	88.74 \pm 13.89	7.94 \pm 3.31	198.73 \pm 29.10
	Long term contract	88.62 \pm 12.85	8.08 \pm 1.92	204.96 \pm 30.56
	Official	86.79 \pm 14.85	7.89 \pm 3.16	199.26 \pm 25.11
	P-value	0.853	0.913	0.721
Shift	Fixed	89.06 \pm 14.38	7.06 \pm 2.98	200.64 \pm 24.69
	In Circulation	87.46 \pm 13.93	8.16 \pm 3.17	199.21 \pm 27.45
	P-value	0.532	0.053	0.771

This research was conducted to investigate the relationship between clinical decision-making and critical thinking in the nursing care quality in internal-surgical nurses. The results showed low critical thinking, above-average clinical decision-making skills, and favorable quality of nursing care. There was no relationship between critical thinking and nursing care quality, but there was a relationship between the score of clinical decision-making and the nursing care quality.

According to the findings, nurses' critical thinking was at a low level. The findings of many studies, including Rababa *et al.* [21] and Nair *et al.* [22] also confirm the weak critical thinking of nurses and nursing students. The low critical thinking skills of nurses and nursing students can be because of the lack of skills and knowledge in this field, so it is felt necessary to try to improve these skills by planning the education of students and continuing education programs for nurses. The conflicting results with the current study can be due to the utilization of different tools to examine critical thinking, the smaller sample size of nurses, and the difference in the service area in the mentioned studies.

The clinical decision-making score of the nurses in the current study shows that their clinical decision-making skills are higher than average. In line with the findings of the current study, the results of the study by Rababa *et al.* [21] and the study by Soini *et al.* [23] revealed that the clinical decision-making of most nurses is moderate to

high. Meanwhile, the findings of the study by Martin *et al.* [24] revealed that the clinical decision-making skills of nurses and nursing students are at a low level. This difference can be due to the different platforms of the various instruments and the fact that the majority of the samples of the two mentioned studies were nursing students whose poor clinical decision-making is expected due to their lack of experience.

According to the average score of the nursing care quality of the nurses, in the current study, the quality of the nursing care of the nurses was at a high level. In line with the current study, many studies including Cho *et al.* [25] have also confirmed the favorable nursing care quality. The findings revealed that there is no relationship between critical thinking and nursing care quality. While the findings of other studies show that critical thinking and the nursing care quality have a direct relationship with each other so critical thinking increases the quality of nursing care [26, 27]. The conflicting results with the current study can be due to the different tools used to evaluate these two variables in the aforementioned studies. It should be noted that the use of critical thinking is an undeniable necessity for basic patient care, and it is necessary to remove the factors that can prevent the application of this skill at the patient's bedside.

In addition, the results revealed that there is a positive and significant relationship between the score of clinical decision-making and nursing care quality. With the review done by the researcher on the relationship between the clinical decision score and the nursing care quality, no parallel or non-parallel studies were found in the present study. Nurses with optimal clinical decision-making power in clinical situations can provide optimal nursing care for their patients. Therefore, to improve the nursing care quality, health system officials should pay attention to the type of decision-making of nurses in employing and arranging them [14]. The findings revealed that there is no relationship between the score of clinical decision-making, critical thinking, and the nursing care quality with the demographic characteristics of nurses, except for marital status, which had a significant difference with clinical decision-making. So divorced/widowed nurses had a higher clinical decision score. Meanwhile, the findings of Ludin *et al.* [28] have shown that there is a significant relationship between the clinical decision-making score of nurses and some demographic characteristics of nurses. Also, about critical thinking, studies by Yurdanur [29] and Hicks *et al.* [30] showed that age, level of education, and work experience do not have a significant relationship with critical thinking. Meanwhile, the results of findings by Ludin *et al.* [28], and Feng *et al.* [31] showed that age, gender, education level, and work experience have a significant relationship with critical thinking.

Studies show that there is no significant relationship between the nursing care quality and demographic variables such as marital status, age, shift work, employment status, nursing degree, and service history of nurses, but between the quality of care, there is a significant relationship between gender and nursing, so that the nursing care quality is better in female nurses than in male nurses [32].

Conclusion

The findings of the current study revealed that there is a significant relationship between the clinical decision-making score and the nursing care quality score, but no significant relationship was reported between the critical thinking score and the nursing care quality score. In addition, the critical thinking of the participants was reported at a weak level. Therefore, due to the low level of critical thinking of nurses, and because higher critical thinking of nurses in the work environment can be effective in promoting better performance and playing an effective role, the necessity of training nursing students and working nurses at the university and hospital levels in It is recommended to strengthen critical thinking, clinical decision-making power, and increase the quality of nursing care.

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