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Original Article**Critical Thinking and Clinical Decision Making in Nurse**

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**Abstract**

**BACKGROUND:** Today, nurses are exposed to everchanging complicated conditions in health care services, they provide. To be able to cope with these conditions effectively, they should be competent decision makers. Besides, as decision making conditions get more complicated, using critical thinking is a need. The current study was carried out to evaluate the relationship between critical thinking and clinical decision making, in nurses of critical and general care units of hospitals in Isfahan. In addition, it is also aimed to compare the nurses of critical and general units in critical thinking and clinical decision making.

**METHODS:** This is a correlation, descriptive study of cross-sectional type. The participants are 140 nurses; 70 working in critical care unit and 70, working in general units. Sampling method was random stratified sampling and the data was collected using a questionnaire with three sections; containing items on demographic data, clinical decision making and California critical thinking skills test. The validity and reliability of the questionnaire was approved using content validity, test-retest method and internal correlation test. The data was analyzed using variance analysis, Pearson correlation and t-test.

**RESULTS:** The mean score of critical thinking and clinical decision making was 10.61, 63.27 and 10.67, 61.66 for nurses of critical care and general units, respectively. No statistical significant difference between two groups was observed in the area of clinical decision making and critical thinking. In addition, no statistical correlation was observed between the clinical decision making and critical thinking.

**CONCLUSIONS:** The findings of the study demonstrated that the mean score of critical thinking was low in nurses. Probably, it originates from the educational system shortages and also, the professional environment problems. Some experts believe that the reason for lack of correlation between critical thinking and clinical decision making goes back to the absence of appropriate tool to measure the correlation.

**KEY WORDS:** Critical thinking, clinical decision making, nurse

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Vast employment of new science and technology in health care center in recent 30 years, made reasoning and thinking abilities of nurses a must <sup>(1)</sup>. In addition, nurses should be competent decision makers to be able to meet the everchanging and complicated conditions and needs of patients <sup>(2)</sup>. Regarding what was mentioned and as the thinking process gets more complicated, critical thinking is important to be used. Critical thinking is a set of abilities including thinking, and targeted, self-regulated judg-

ment that was resulted from interpretation, analysis, evaluation and deduction <sup>(3,1)</sup>. As a nurse uses critical thinking in his daily work, he/she would solve the problems faster and easier, and would make more appropriate decisions for the patients <sup>(3)</sup>.

Decision making about patients care is one of the important roles of nurses, and critical thinking would help the nurse to make the appropriate decision. Critical thinking would help the person to get a good perception of the subject and consequently, make proper

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decisions <sup>(2,4)</sup>. The main aim of developing critical thinking in nursing education is to improve the independent decision making ability of nurses <sup>(5)</sup>.

Although different definitions were noted for critical thinking, decision making is a part of it, in all definitions. Decision making is the result of the process of critical thinking. Anyhow, the findings on the relationship between critical thinking and clinical decision making are not in accordance with each other. Some studies demonstrated an evident and significant correlation between the two subjects; while others could not define the two concepts in nurses and also, find a correlation between them. The current study was carried out to measure the critical thinking and clinical decision making ability scores in nurses of critical and general care units of some Medical University of Isfahan (MUI) hospitals in 2004. Also, the scores would be compared between the two groups, and the probable correlation would be assessed.

## Methods

This is a cross-sectional correlation descriptive study, in which was carried out on 140 nurses, 70 from the critical care units and 70 from the general care units in one stage, with random stratified sampling. It was fulfilled to evaluate the probable correlation between critical thinking and clinical decision making abilities in mentioned group in some MUI hospitals in 2005.

Target population was all the nurses with B. Sc of nursing in MUI Alzahra hospital. Inclusion criteria were all the B. Sc nurses with mental and physical preparedness to enter the study, which are working at the unit at least for six months.

The data was gathered using a questionnaire which was consisted of three parts. A part on demographic data and two other parts were on California critical thinking ability test and clinical decision making questionnaire.

The California critical thinking ability test includes 34 items that should be answered in

15 minutes. It would evaluate the logic thinking ability, efficacy of the education program, research, and long life education. It was prepared by the American Philosophy Association and California academic system <sup>(6)</sup>. The critical thinking questionnaire's validity and reliability was approved by 404 nursing B. Sc students of Tehran medical University. Confidence coefficient of the questionnaire was determined as 0.62 using internal correlation and Kuder- Richardson formula no. 20. To evaluate the validity of the questionnaire structure, the factorial content analysis, internal correlation and inter-group differences were used. Considering the norm of nursing students' scores, frequency distribution tables, indicated a normal distribution pattern in the critical thinking test scores <sup>(7)</sup>.

The decision making questionnaire was based on the book "IOWA outcomes project; nursing outcomes classification" <sup>(8)</sup>. The questionnaire contained 15 items on Likert scale with maximum score of 75. The author filled the questionnaire in about 10 minutes. In general, filling the questionnaire needs about 55 to 60 minutes.

The decision making questionnaire was presented to some academic staff of Nursing and Midwifery School of MUI to be assessed for validity. Then, the reliability was tested using internal correlation. It indicates that all subtests have positive and significant correlation with the overall test, as the internal correlation coefficient of the test was determined as 0.83 by alpha Kronbach test. To evaluate the reliability of the questionnaire, test-retest was done for ten nurses in critical ad general care units. The reliability was approved by Pearson correlation test and determined as 0.92. After selecting the participants, if they were willing to participate in the study, the study was explained for them and they were given the questionnaire to fill it in specified time.

Finally, the scores of the questionnaires were determined and analyzed using variance analysis, t-test and Pearson correlation test, by SPSS software.

## Results

Findings of the study demonstrated that most of the participants (48.6%) were at the age range of 20- 30, although the age range of 31-40, also, had a high frequency (40.7%). 85% of the participants were female and 42.9% had one to five years work experience. Most participants graduated from the B. Sc with average of 15 to 17.5 between years 1371 to 1380. In addition, 60.7% of the cases were graduated from group a universities. The determined mean score for critical thinking was 10.67 (standard deviation (SD):  $\pm 2.87$ ) and 10.61 (SD:  $\pm 2.94$ ) for general and critical care unit nurses, respectively. The comparison of the scores between two groups did not reveal significant statistical differences.

In addition, the mean score for clinical decision making was determined as 61.66 (SD:  $\pm 8.10$ ) and 63.27 ( $\pm 5.98$ ) for general and critical care unit nurses, respectively. No significant statistical difference was noted between the two groups, in this area, also. Anyhow, the critical care unit nurses got higher marks on clinical decision making, but the difference was not significant.

In general, the mean score for critical thinking and clinical decision making was determined as 10.64 (SD:  $\pm 2.9$ ) and 62.46 (SD:  $\pm 7.14$ ) in nurses. Our findings did not reveal significant statistical differences between these two areas. Also, the probable correlation between critical thinking ability and some demographic properties such as age, gender, working background, Average of B. Sc, year of graduation and the university they were graduated from, were assessed using t-test, Pearson correlation coefficient, and variance analysis. These tests could not document any correlation between the items. In contrast, the mean score of clinical decision making had significant statistical correlation with age, working experience and year of graduation, but no correlation between other demographic properties was observed.

## Discussion

The findings of the study demonstrated that the mean critical thinking score is low; which

is consistent with the score, nurses and nursing students got, in other studies, around the country<sup>(3)</sup>. It could be caused by various factors such as educational system and occupational environments shortages. Also, the circumstances, under which the questionnaires were filled, could affect the results, as it needed enough attention and concentration, which was not completely met in hospitals. Besides, it seems that our country's educational system is based on memorizing the facts and does not encourage the critical thinking skills. After getting graduated, the occupational environment, also, does not support the development of these skills. So, to improve these skills in nurses, it is necessary that the educational system, just like developed countries, aims at developing the critical thinking skills using proper strategies. At the occupational environments managers should employ various methods, such as holding seminars, conferences and educational courses, to improve the critical thinking skills of the nurses.

The determined scores for clinical decision making were high, and no significant differences were noted between the two groups. Also, no significant correlations were noted between the scores of clinical decision making and critical thinking ability. This is in accordance with the findings of other studies, carried out by Gordon and Hicks, which could not reveal significant correlation between the two skills<sup>(9,10)</sup>. In contrast, other studies such as the ones carried out by Shin, Hill or Martin demonstrated a correlation between the two skills<sup>(11,12,13)</sup>.

Duchscher believes that being unable to find a correlation between clinical decision making and critical thinking abilities results from the absence of suitable tools to measure them; rather than a true lack of correlation. He also, believes that clear defining of the clinical decision making, critical thinking and evaluation of the validity and practicality of the tool, needs further studies<sup>(14)</sup>.

It was demonstrated that there is a correlation between the clinical decision making ability and the age, working background and the

year of graduation. It seems that as the nurses get older and have higher work experiences, their clinical decision making ability improves.

In addition, as there was a correlation between the age and the clinical decision making abilities, it is rational to expect a correlation between the skill and the year of graduation; because the year of graduation is correlated with the age and working experience. The study could not reveal any statistical correlations between the critical thinking and the demographic features.

Finally, it is recommended that similar studies be carried out with larger sample size and other tools to evaluate clinical decision making such as clinical scenario, or case studies with direct observations to assess these abilities. As it was mentioned, some researchers believe that absence of correlation between the two skills originate from the lack of proper tools rather than true lack of correlation. Regarding the low scores nurses got on critical thinking, it is recommended to carry out other experimental studies accompanied with educational programs, to assess the effect of education on the skill.

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