

Original Article

Critical Thinking Competence and Dispositions among Critical Care Nurses: A Descriptive Study

Dikmen Yurdanur, RN, PhD

Associate Professor Sakarya University School of Health Department of Nursing, Sakarya, Turkey

Correspondence: Dikmen Yurdanur, Associate Professor Sakarya University School of Health Department of Nursing, Sakarya, Turkey E mail: nurdem.35@gmail.com

Abstract

Introduction: Critical thinking is widely accepted as being associated with the provision of quality care.

Aim: The aim of the study was to describe critical thinking dispositions among critical care nurses in Turkey, and to study whether background data had any impact on critical thinking dispositions.

Methodology: A descriptive study was performed. The data were collected between July 2014 to October 2014 using the nurse identification form and the California Critical Thinking Disposition Inventory (CCTDI). The sample included 85 nurses who were working at the public hospital and who volunteered to participate in the study. Data were analyzing used Kruskal-Wallis test, Pearson Correlation analyses and Mann-Whitney U test.

Results: This study, the average CTD scores of the total sample of critical care nurses was 194.11 ± 14.21 , meaning that the CTD scores at the low level. The mean scores for systematicity, CT self-confidence, open-mindedness, inquisitiveness and truth-seeking were all lower than the target score of 40, indicating weaknesses in those areas of critical thinking. Age and education level and years of experience of nurses not affects critical thinking disposition. This study found that nurses having certificate about intensive care unit have significantly high total critical thinking disposition score than the nurse lack of intensive care certificate ($p < 0.05$).

Conclusions: In this study the results were indicated as low level disposition toward CT of critical care nurses. In order to strengthen clinical competence in nurses, the development and enhancement of critical thinking should be emphasized at the college level and nurses should be empowered to make a clinical decision. Development of critical thinking disposition in nursing must be provided educational opportunities of the institutional and outside the institution.

Keywords: California Critical Thinking Disposition Inventory, critical thinking, critical care nurses, nurse education.

Introduction

Critical thinking is an important phenomenon in nursing science because of its implications for education, practice and the development of nursing knowledge (Hicks, 2001). Critical thinking is of great importance in an applied profession such as nursing since rapid changes are experienced and decision-making is of vital significance (Distler, 2007; Beckie et al., 2001). Recently, nursing care has become more complex resulting in emphasizing the increasing importance of CT in nursing practices. Therefore, nurses will move toward the establishment of best practices in an evidence-based healthcare environment by developing CT skills and attitudes (Berman & Synder 2010). It is regarded as the basis of professional judgment and has the potential to improve the quality of

judgments and decisions in clinical practice (Hwang et al., 2010, Fesler-Birch, 2005).

Seriously ill patients in intensive care units (ICUs) are closely monitored and when vital functions show changes, complex medical treatments need to be implemented immediately. Therefore, working in ICU environment requires that nurses make rapid and accurate decisions, be knowledgeable about complex scenarios and in general have more responsibility (Hicks et al., 2003; Eser et al., 2007). Nurses working in ICUs are skilled at determining minute changes in patient condition even under complex conditions (Eser et al., 2007). Since timely and correct decisions are the foundation of intensive patient care, it is critical that ICU nurses make accurate and timely decisions utilizing critical thinking based on science-specific and conceptual

knowledge (Hicks et al., 2003). Literature includes studies investigating critical thinking among nurses in Turkey and in the world (Freng et al., 2010; Dirimese & Diele, 2006; Arslan et al., 2009; Park et al., 2009; Sarioglu et al., 2013; Howenstein, 1996; Rodrigues, 2000; Hawley, 1998; Girot, 2000). Some studies only focus on critical care nurses in ICUs or other specific fields, however such studies are rather limited in number (Hicks et al., 2003; Eser et al., 2007).

Little is known about the dispositions to critical thinking of Turkish nurses working at intensive care unit. Although critical thinking in critical care nurses is an important issue, the number of studies conducted in Turkey on this issue has remained very limited. Therefore, it is designed to investigate the dispositions toward critical thinking of critical care nurses. The aim of this study was to describe critical thinking dispositions among critical care nurses in Turkey, and to study whether background data had any impact on critical thinking dispositions.

Method

Design and sample

Data for this descriptive study were collected from July 2014 to October 2014 during face-to-face meetings with the nurses. The universe of the research is composed of 105 intensive care nurses working in a public hospital in Turkey. All of the nurses in research universe is planned to participate in the study. However, during data collection 12 nurses are on leave and 8 did not accepted to participate in the study. So, 20 of the nurses are omitted in the sample size and excluded in the study. As a result, 85 nurses in total are included in research. The response rate is approximately 81% in this study. Data was collected using the nurse identification form and the California Critical Thinking Disposition Inventory (CCTDI).

California Critical Thinking Disposition Inventory (CCTDI)

Nurses' critical thinking dispositions were measured by the CCTDI, a tool developed to measure the dispositions or attitudes toward critical thinking. The CCTDI, developed by Facione and Facione (1996). The Turkish version of the scale, which was translated and tested for psychometric properties by Kokdemir (2003) was used in this study. The 75 items on the original scale were reduced to 51 items as a result of item-total point correlation analysis and

the Cronbach's alpha was found to be 0.88. Factor analysis of the 51 item scale resulted in six sub-scales and Cronbach's alpha coefficients were 0.61 for truth-seeking (7 items), 0.75 for analyticity (11 items), 0.75 for open-mindedness (12 items), 0.78 for inquisitiveness (8 items), 0.77 for self-confidence (7 items) and 0.63 for systematicity (6 items). The California critical thinking disposition inventory uses a six-item Likert-type scale from 1 'I absolutely do not agree' to 6 'I absolutely agree'. This Turkish version of scale is limited to 51 items. Examining the items located under the factors establishing the scale, we can see that the new Turkish scale is not so much different than the original one. However, some items switch their places located under items and union of the 2 factors (open-mindedness and maturity) can be seen (Kokdemir, 2003).

The Turkish version is scored by summing the items, dividing that total by the number of items and multiplying by ten, so that the minimum value of each sub-scale is 10 and maximum value is 60 and the range for the total scale is from 60 to 360. Individuals scoring less than 240 points on the total scale are considered to have a weak disposition toward critical thinking, while those scoring higher than 300 are assessed as having a high disposition for critical thinking. In conclusion, the Turkish version of the CCTDI has shown statistically acceptable levels of reliability and validity (Kokdemir, 2003).

Data Analysis

All data were analyzed using the statistical package programme in computer. All variables were initially analyzed descriptively. In analysis of the data; frequency, percentage, mean, standard deviation were calculated. Normality test of the obtained data is not performed (Kolmogorov-Smirnov test: 2.510, $p=0,01<0,05$), because of the data showed normal distribution to examine the relationship between variables the Pearson Correlation Analysis is performed, in the comparison of variables the Kruskal-Wallis test and for independent groups the Mann-Whitney U test is used. A test of hypothesis with p -value < 0.05 was considered as significant.

Ethical review

Written permission was obtained from the institution where the research would take place. Nurses who answered the questionnaires gave a verbal consent to participate in this study

Results

The average of ages of the nurses participating in the research is 25.15 ± 4.72 . The clinic nurses in the study were all women (100%). Nearly half ($n=41$, 48.2%) had a BSN as their highest degree. Almost half of the nurses (65.8 %) included in this study had an ICU experience between 0-5 years. Thirty six percent (36%) of the nurses

work in surgical ICU, 33.3 % of the nurses' work in medical ICU, 30.7 % of the nurses work in anesthesia and reanimation unit.

Table 1 presents CCTDI and subscales scores of nurses and Cronbach's alpha of CCTDI. This study the Cronbach's alpha value for the total CCTDI was 0.79.

Table 1: Critical Nurses' CCTDI scores*

Critical Thinking Dispositions Total & Subscales	Range	Mean	SD**	Cronbach's alpha
Open-mindedness	26-47	39.13	7.40	0.57
Analyticity	40-60	52.10	5.17	0.67
Inquisitiveness	28-43	34.98	6.07	0.70
CT self-confidence	24-37	29.13	4.52	0.62
Truth-seeking	18-33	23.06	5.04	0.64
Systematicity	10-30	16.83	2.10	0.63
Total CCDT Score	167-241	194.11	14.21	0.79

*Minimum = 10 & maximum = 50 achievable score for each subscale. **Standard Deviation

Table 2: Comparison of Critical Thinking Disposition Scores of Nurses in Intensive Care Unit According to Having Intensive Care Unit Certificate with Average Subscale Scores

Critical Thinking Dispositions Subscales	Nurses with certificate n:13		Nurses without certificate n: 72		U*	p
	Total & X	SD	X	SD		
Open-mindedness	38.69±7.05		33.52±4.73		309.010	**0.02
Analyticity	51.71±5.87		51.00±5.17		589.000	0.77
Inquisitiveness	35.90±5.63		35.01±5.08		662.000	0.80
CT self-confidence	29.76±4.91		26.04±4.03		278.800	**0.03
Truth-seeking	23.09±5.15		22.90±4.95		472.000	0.34
Systematicity	17.08±2.89		16.52±2.23		466.500	0.26
Total CCDT Score	194.40±15.87		183.18±17.07		314.800	**0.02

* Mann Whitney U Test, ** Significant at 0.05 (two-tailed).

In this study, there is not a significant difference between average critical thinking disposition scores according to working periods of nurses in intensive care unit ($p>0.05$).

In this study, it is stated that total critical thinking disposition scores are significantly higher in group of nurses having post graduate certificate related to intensive care unit than nurses without certificate ($p<0.05$). When the scores obtained in subscales according to having certificate of nurses about intensive care unit are examined the scores in subscales related to open-minded and CT self-confidence are higher significantly in group of nurses having certificate than nurses without certificate ($p<0.05$, Table 2).

Also it is stated in our study that according to educational status of nurses there is no statistically significant difference between CCTDI and average subscale scores ($p>0.05$).

Discussion

In this study, the average CTD scores of the total sample of Turkish critical care nurses were 194.11 ± 14.21 , meaning that the CTD scores are at the lower level. However, Park and Kim (2009) reported higher level CTD scores among Korean nurses, while Hicks et al. (2003) (295.4 ± 19.9) CTD scores among American nurses. Raymond and Profetto-McGrath (2005) reported overall score (331.55 ± 34.45) and all subscales scores above 40, which demonstrates a positive inclination in every disposition. When it is examine the results of this study in Turkey, the difference of CTD levels of the nurses can be seen and in general it can be mention about the very low levels of the CTD of nurses in Turkey (Eser et al., 2007; Dirimese & Dicle, 2006). In Turkey still different structures regarding nursing training and members of the same profession with different educational qualifications being employed under the same terms of payment and status (Çelik et al., 2011). Besides the results of other limited number of researches about this subject done in Turkey are low when compared with the results of other countries (Hicks et al., 2003; Park & Kim, 2009). Also, this may be related to factors such as differences in educational systems, heavier workloads, differences in organizational operations, workplace dissatisfaction, and the fact that management policies that support and stimulate critical thinking are limited. In addition,

individual differences among nurses and expectations of some nurses thinking to perform only the task that is given to them without CT may be the factors causing undesired CTD scores.

A wide range of individual scores were observed on each subscale, with the largest range for the analyticity subscale (45-60) and the smallest range for the systematicity subscale (10-30) in this study. The mean scores for systematicity, critical thinking self-confidence, open-mindedness, inquisitiveness and truth-seeking were all lower than the target score of 40, which indicates weaknesses in those areas of critical thinking. No mean scores were higher than 50 (Table 1). These findings suggest that the nurses in the study may lack some of the attributes representative of the ideal critical thinker.

This study, CT self-confidence was lower, indicating as weakness disposition toward CT (Table 1). Also in a study performed in Turkey, similar findings in this study like low level scores about subscale of self-esteem of critical care nurses are obtained (Eser et al., 2007). The person with strong CT confidence demonstrates the ability to make sound decisions and believes that others rely on them to solve problems and decide what to do (Facione & Facione, 2007). Therefore there should be a relationship between self-confidence and autonomy. Where a study conducted by Karadag et al. (2007) in Turkey reported a low level of autonomy in nursing. It is suggested that this low level is caused by the laws and regulations concerning nursing and that the existing law on nursing prevents nurses from making decisions and acting independently. In the current Turkish healthcare system, there are many challenges that influence nurses' autonomy.

Effective critical thinking and problem solving actually depends on relevant knowledge and previous experience (McKeachie, 1999). Based on these findings, there was no statistically significant relationship between the level of experience and total CTD scores for critical care nurses ($p>0.05$) in this study. Actually there are some contradictory results in the literature. Martin (1998) and Hawley (1998) declared that as the years about professional experience after post-graduation increase, analytic score of subscale of critical thinking disposition scale also increases. Besides, Dirimese and Dicle (2006),

Hicks et al. (2003) with Eser et al. (2007) all stated in their study that clinical experience do not affect the level of critical thinking disposition of the nurses. However, critical thinking is an ability that improves decision making processes by using cognitive abilities such as analysis, problem solving, evaluation and deduction. Because of this clinically experienced nurses are expected to have a high clinical ability, high critical thinking disposition and fine clinical decision making. (Eser et al., 2007).

In present research, there also was no statistically significant difference among education level of critical care nurses and total CTD scores ($p>0.05$). Hicks et al. (2003) and Arslan et al. (2007) found that education level and clinical experience do not affect the CTD of nurses. In this study, it is found that nurses having certificate about intensive care unit have significantly high total critical thinking disposition score than the nurse lack of intensive care certificate. If we examine the results related to scores obtained in subscales in respect of nurses having intensive care certificate, it can be concluded that nurses having certificate have significantly higher scores in the subscales open-mindedness of and CT self-confidence than the nurses without certificate ($p<0.05$). Similar to findings of our study, Eser et. al. (2007) have stated that nurses having certificate about intensive care unit have significantly high total critical thinking disposition score. It is known that Intensive Care Unit departments in which higher technology is used have rather complicated devices and equipments. Despite this fact intensive care units are the working places where skills and knowledge have to be improved continuously. Consequently, to compensate the demands of the critical care patients, to be oriented to the continuously developing and changing treatment modalities, the nurses who are always spending their all day time with patient in the same environment have to be educated specially and this education must be standardized and it is important that all nurses have to be certificated approved by authorized institutional (Badır, 2004). Thus, it is stated by Madrid Declaration (1993) that to meet effectively the needs of patients and society, the intensive care unit nurses had to have sufficient knowledge and skills and also had to renew their skills and knowledge. Also it is stated that nurses of intensive care unit have to be always equipped with the newest and latest knowledge and skills.

Again in this report it is stated that in the intensive care units working of certificated nurses having specific education is mandatory (Badır 2004; Declaration of Madrid, 1993).

The results obtained in this study support this knowledge and have a positive effect on the critical thinking disposition of the critical care nurses according to having certificate about intensive care. Thus, in the first dimension of the critical thinking model which is developed by Kataoka-Yahiro and Saylor (1994) to make decision about nursing: it is stated that knowledge about profession is a component of critical thinking. Besides, nurses having certificate have significantly higher scores in the subscales of catholicity and self-esteem than the nurses without certificate. This result shows that the certificate programs of nurses about intensive care have positive effects on improvement of critical thinking disposition of intensive care unit nurses. However, this level of positive effect is not sufficient. Within 20 years in our country, the certificate programs related to intensive care have serious problems about their content, preparation, execution and validity of the program while they are becoming widespread. In our country the studies related to the certification programs of intensive care unit nurses have come into question during 1990's. In Turkey with the coming into force of Nursing Law (*number 5634 with date 25.04.2007*) changes the previous law number 6283 with date 25.2.1954, it is mandatory to make a legal regulation about certification programs of critical care unit nurses. However, in our country still some problems exist about the certification programs of nurses (<http://www.turkhemsirelerdernegi.org.tr>).

Conclusion

In this study indicated that critical thinking of critical care nurses is at a low level. The highest mean score was on the analyticity subscale and the lowest on the truth-seeking and the systematicity subscale. On the other hand, age, education level and years of experience of nurses not affects critical thinking disposition. Although certificated nurses have increased CTD scores for critical care nurses, scores are still not at the optimal level. Thus, it is obvious that nurses working in intensive care units have to improve their skills and their critical thinking disposition abilities and also have to make a fast and accurate decision. This suggests that educational policies that provide opportunities for nurses to think

critically and increase autonomy should be encouraged. In order to strengthen clinical competence in nurses, the development and enhancement of critical thinking should be emphasized at the college level and nurses should be empowered to make a clinical decisions. Nurses should be encouraged to follow scientific publications and to participate in both institutional and other professional activities. Also, development and enhancement of critical thinking should be emphasized at the college level and nurses should be encouraged to make a clinical decision with greater prudence. In the future qualitative studies that investigate the factors affecting critical thinking starting from the beginning of nursing education should be conducted so that improved solutions can be proposed.

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