

## Investigation of Critical Thinking Disposition in a University Hospital of Nurses Working in Turkey

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### Abstract

**Objectives.** *The aim of this study is to define and evaluate in a university hospital of nurses working in The California Critical Thinking Disposition Inventory (CCTDI) related factors.*

**Material and methods.** *The present study was carried out in Isparta in Turkey between March and September 2011. The sample size was 323 nurses who volunteered to participate in the study. Socio demographic features data form and CCTDI, were used as data collection tools.*

**Results.** *Once total score means are examined, it is seen that the score mean obtained by the nurses was 200.21±24.11. It was determined that there was statistically significant difference between the in-service training take nurses and the in-service training not take nurses in the truth-seeking subscale score means and openmindedness subscale score means and inquisitiveness subscale score means ( $p<0.05$ ).*

**Conclusions.** *It is determined to have had scores at low levels (239 points and below). It is concluded that to improve the nurses' critical thinking disposition and skills course was helpful.*

**Key Words:** Critical thinking, critical thinking disposition, nurse

### 1.Introduction

Diminished economic resources and increased patient care responsibilities have dramatically altered the current environment of health care delivery. Some individuals have responded to the recent health care changes by becoming dissatisfied, demoralized, and ultimately leaving the practice setting. Others have continued to thrive professionally remaining excited and committed to their work. Nurses who have managed to maintain work excitement in these changing times may demonstrate attributes of critical thinking disposition and skills. Health care changes as reported in the literature, have led many nurses to experience decreased morale, role dissatisfaction, and increased rates of “burnout” (1,2,3,4,5,6).

In response to dissatisfaction, nurses are searching for positions which offer a greater sense of fulfillment and excitement in their practice (7). Despite the chaotic healthcare environment, it is encouraging to note that some individuals within the professional nursing workforce continue to thrive, develop professionally and shape their own future.3,8 Some nurses have responded to changes in the field by pursuing professional development through higher education.

Applications to advanced practice programs have increased during the past decade and a positive outlook for nurses with advanced degrees is forecasted by the American Association of Colleges of Nursing (9). A concern continues in the nursing profession because some nurses leave this changing health care system, while others remain committed and involved in meeting patient needs, and developing their expertise. The search for understanding about the reasons that some nurses thrive while others remain unchallenged in this changing health care system has spurred interest in research on work excitement (10,11,12).

Work excitement has been defined by Simms et. al (1990) as “personal enthusiasm and commitment for work as evidenced by creativity, receptivity to learning, and ability to see opportunity in everyday situations”. The development of work excitement in the individual may be influenced by factors such as critical thinking disposition and self-efficacy which are identified in the literature as important components of an individual’s professional development (11,13,14,15). There is a growing interest among educators in specially addressing the disposition of critical thinking. In addition, the critical concept and critical thinking concept have been described (15).

Despite the attention being devoted to critical thinking, educators are still wrestling with defining the term “critical thinking”. First, the concept of critical thinking may differ depending upon whether one’s definition is developed from the discipline of philosophy, psychology, or education. Second, the term “critical thinking” can apply to various frames of reference, referring to such situations as improving reading comprehension, resolving interpersonal conflict, or justifying one’s position on a controversial social issue. Third, the application of critical thinking can be done in small increments like changing a strategy for a lesson plan or on a large scale like making a comprehensive revision to a curriculum. Fourth, and finally, the nature of critical thinking instruction is influenced by grade level, subject area and each teacher’s unique teaching style (16). The aim of this study is to define and evaluate in a university hospital of nurses working in CCTDI related factors.

## **2. Material and methods.**

The population of the study consisted of 350 nursing studying in a university hospital of nurses working. The sample size was 323 nurses who volunteered to participate in the study. The data are collected from March to September in 2011. Socio demographic features data form and CCTDI, were used as data collection tools.

### **2.1. California Critical Thinking Disposition Inventory**

This inventory was developed based on the results of The Delphi Report in which critical thinking and disposition toward critical thinking were conceptualized by a group of critical thinking experts (17) The original CCTDI includes 75 items loaded on seven constructs. These are inquisitiveness, open-mindedness, systematicity, analyticity, truth-seeking, critical thinking self-confidence, and maturity. Briefly, the *inquisitiveness* construct including 10 items that measures one’s intellectual curiosity and one’s desire for learning without considering any profit. The *open-mindedness* construct contains 12 items that measures being tolerant of divergent views and sensitive to the possibility of one’s own bias. The *systematicity* construct comprised of 11 items, and it measures how a person is organized, orderly, focused, and diligent in inquiry. The *analyticity* construct involving 11 items addresses the application of reasoning and the use of evidence to resolve problems. The *truth-seeking* construct including 12 items measures the disposition of being eager to seek the best knowledge in a given context, courageous about asking questions, and honest and objective about following inquiry. The *critical thinking self-confidence* construct consisting of 10 items measures the trust the soundness of one’s own reasoning processes. Finally, the *maturity* construct involving 10 items measures cognitive maturity and the disposition to be judicious in one’s decision-making.18 Kökdemir (2003) carried out an adaptation study to transform this inventory into Turkish version because of cultural concerns.

Finally, 51 items with six constructs were kept in the scale reliability of the whole scale was found .88. Reliability coefficients of each subscale ranged from .61 to .78 (18). In this study, this scale was administered to the nurses. Finally, 51 items with six constructs were kept in the scale reliability of the whole scale was found .78. reliability coefficients of each subscale ranged from .60 to .72.

### **2.2. Ethical considerations**

For conducting the study, permission was taken from the Institutional Review Board of Süleyman Demirel University Faculty of Health Science. Verbal consent was obtained from all nurses stating that they were willing to participate in the study.

### **2.3. Statistical Analysis**

Statistical Package for the Social Sciences (SPSS version 16.00 for Windows) were used in evaluation of data and numbers, percentage, arithmetic mean, t test were used.

## **3. Results**

Socio-demographic characteristics of the nurses were determined. Table 1 illustrates the distribution of data related to characteristics such as, age group, working periods, education level.

**Table 1: Socio-Demographic Characteristics of Nurses**

Characteristics	Number	%*
<b>Age Group</b>		
17-25	136	42.4
26-34	152	47.0
35-40	35	10.6
<b>Working Periods</b>		
0-5 years	177	54.8
6 -10 years	77	23.6
11 years and over	69	21.6
<b>Education Level</b>		
Health Vocational School/associate Degree	59	18.3
University	60	18.5
Master	197	61.0
	7	2.2
<b>Total</b>	<b>323</b>	<b>100.0</b>

\*Column Percentage

Once total score means are examined, it is seen that the score mean obtained by the nurses was 200.21±24 (11). CCTDI score means of the nurses taken into the scope of the study reveal that the score mean of the “truth-seeking” subscale was 23.65±4.93; the score mean of the “Open-mindedness” subscale was 41.82±7.52; the score mean of the “systematicity” subscale was 21.90±3.97; the score mean of the “Self-confidence” subscale was 24.69±4.46; the score mean of the “Inquisitiveness” subscale was 33.44±5.67 (Table 2).

**Table 2: Nurses’ Distribution of CCTDI Scores**

Scale	$\bar{X}$	±	SD
Truth-seeking	23.65		4.93
Openmindedness	41.82		7.52
Analyticity	51.33		7.98
Systematicity	21.90		3.97
Self-confidence	24.69		4.46
Inquisitiveness	33.44		5.67
<b>Total</b>	<b>200.21</b>		<b>24.11</b>

Once total score means are examined, it is seen that the score mean obtained by the in-service training take was 213.00±30.19 and the mean in-service training not take was 198.71±22.89 nurses. It was determined that there was statistically significant difference between the in-service training take nurses and the in-service training not take nurses in the CCTDI scale score means (p<0.05). It was determined that there was statistically significant difference between the in-service training take nurses and the in service training not take nurses in the truth-seeking subscale and openmindedness subscale and inquisitiveness subscale score means (p<0.05) (Table 3).

**Table 3: According to the Nurses’ In-Service Training Take Distribution of CCTDI Scores**

Scale	IN-SERVICE TRAINING		*t	p
	In-Service Training was Take (n=22) $\bar{X} \pm SD$	In-Service Training was not Take (n=289) $\bar{X} \pm SD$		
Truth-seeking	26.55±5.63	23.31±4.74	-3.696	**0.000
Openmindedness	45.79±8.06	41.36±7.33	-3.298	**0.001
Analyticity	52.79±8.14	51.16±7.96	-1.125	0.261
Systematicity	22.73±4.67	21.80±3.88	-1.285	0.200
Self-confidence	25.88±5.88	24.55±4.25	-1.642	0.102
Inquisitiveness	35.52±6.70	33.20±5.50	-2.274	**0.024
<b>Total</b>	<b>213.00±30.19</b>	<b>198.71±22.89</b>	<b>-3.318</b>	<b>**0.001</b>

\*Independent Samples t Test , \*\*p<0.05

It was determined that there was statistically significant difference between the 0-5 years nurses working periods and the 6-10 years nurses working periods and the 11 years and over nurses working periods in the CCTDI total score mean, subscale score means ( $p < 0.05$ ). In this study, it was determined that there was statistically significant difference between the health vocational education nurses and the school associate degree education nurses and the university education nurses and master education nurses in the CCTDI total score mean, subscale score means ( $p < 0.05$ ). It was determined that there was not statistically significant difference between the nurses' marital status, income level, and education level of parents in the CCTDI total score mean, subscale score means ( $p > 0.05$ ).

#### 4. Discussion

The conceptualization of critical thinking consists of two dimensions: cognitive skills and affective dispositions.19 Facione et al. (1995) have developed two instruments based on the American Philosophical Association's Delphi Report (1990) to measure the two dimensions of critical thinking. The California Critical Thinking Skills Test measures the following six global reasoning skills: Interpretation, Analysis, Evaluation, Inference, Explanation and Self-regulation. CCTDI measures "the dispositional description of a critical thinker"(15,20). Seven were developed to score the following attributes: Inquisitiveness, Open-mindedness, Systematicity, Analyticity, Truth-seeking, Critical Thinking Self-confidence, and Maturity. In the evaluation of the original scale used abroad, the score below 280 of the total score obtained from the scale with seven subscales and 75 items is deemed as low, whereas the score above 350 of the total score is deemed as high. Performed the validity and reliability study of the scale in Turkey Kökdemir stated that the CCTDI was reduced to six subscales and 51 items and the score below 240 was accepted as low critical thinking disposition score, whereas the score above 300 was accepted as high score of critical thinking disposition (18).

A number of recent investigations examined critical thinking disposition while these studies examined in the CCTDI scale score levels (21,22,23,24). In this study, once total score means are examined, it is seen that the score mean obtained by the nurses was  $200.21 \pm 24.11$  (Table 2). They are determined to have had scores at low levels (239 points and below). In descriptive studies conducted using the CCTDI in nurses in Turkey between 2006 and 2007 proved that the lowest score was  $191.01 \pm 30.141$  at low level, whereas the highest score was  $261.10 \pm 22.50$  at medium level (21,22). As for the descriptive studies carried out abroad, they determined that the score was  $295.4 \pm 19.9$  at medium level and  $313.82 \pm 25.8$  (23,24). Therefore, although the scores obtained in the studies conducted on nurses abroad seem to be low and medium levels.

In the "truth-seeking" subscale, the nurses was determined  $23.65 \pm 4.93$  low level scores. In the "openmindness" subscale, the nurses was determined  $41.82 \pm 7.52$  medium level scores. In the "analyticity" subscale, the nurses was determined  $51.33 \pm 7.98$  high level scores. In the "systematicity" subscale, the nurses was determined  $21.90 \pm 3.97$  low level scores. In the "self-confidence" subscale, the nurses was determined  $24.69 \pm 4.46$  low level scores. In the "inquisitiveness" subscale, the nurses was determined  $33.44 \pm 5.67$  low level scores. It was observed that nurses had scores at low levels and medium levels and high levels in studies in which these subscale was investigated in Turkey (21,22).

Nursing programs were unable to find enough full-time faculty to meet this new demand and filled this gap by hiring many partime faculty to teach in clinical areas. Because many faculty were no longer teaching both theory and clinical work, challenges increased for remaining full-time faculty to sustain a cohesive curriculum between classroom and clinical setting. The gap between demand and actual capacity continues to widen (25).

Benner's concept of clinical forethought is important to considering the expertise gap. Clinical forethought is the ability to foresee, anticipate, and prevent future patient problems. Benner's expert stage is characterized by a constant vigil of clinical forethought, which leads to early interventions in patient care (26). Most nurses take at least 5 years to reach the expert stage, if they reach it at all. Benner's work suggests that the proficient and expert stages of nursing practice are characterized by the ability to make subtle distinctions based on a deep, individualized knowing of the patient in the particular context of the situation (26,27,28,29). Expert nurses who can recognize patient problems early, even before obvious changes in patient symptom presentation occur, intervene earlier to prevent ensuing complications (30,31). This skill in the expert nurse is manifested as an intuitive gestalt that moves the nurse to use proactive measures to prevent likely complications and prepare for the possibility of crisis (26). Expert-level skills enable clinicians to make keen judgments about when, for example, a patient is responding differently to treatment than most patients do and may require an alternative intervention.

This kind of discrimination is particularly important as medical care protocols become increasingly “evidence based.” Although such protocols are properly based on large studies of what works best for most people with a given condition, it is particularly important to have informed, vigilant clinicians who can detect signs that a *particular* patient is not like “most people” in some way and thus may not be helped (or may be harmed) by following standard protocols (32,33,34,35). Facione et al. (1994) notes that skills and dispositions are mutually reinforced so a strong disposition may insure the use of critical thinking skills. Nurses have frequently been told to remain flexible in the workplace. But there is little place in the practice environment to encourage or support critical thinking for individuals with the disposition to be a critical thinker. The experienced nurse may also need encouragement with critical thinking development. A tendency exists to use traditional approaches as the foundation for practice instead of seeking new challenges to provide quality care for patients. A workplace that supports and encourages risk-taking and decision making encourages individuals who are disposed to think critically to use these skills more effectively (36).

Research shows that new graduates need several months to become minimally proficient and feel confident about clinical decision making (37). New graduates verbalize such concepts as clinical judgment, critical thinking, and problem solving as linear processes, showing little awareness of context and salience. Expert nurses, in contrast, seamlessly absorb contextual information, which situates their knowing of the patient; they then intuitively assign different levels of salience to this information, leading to sound clinical action. In contrast, the advanced beginner operates using general rules and needs much clinical support in his or her patient care decision making, critical thinking (27,38,39). These results are parallel with the results of the study. However, some research findings do not support this claim has no effect on the level of critical thinking and clinical experience of nurses (21,22,24,40,41,42). It was determined that there was statistically significant difference between the 0-5 years nurses working periods and the 6-10 years nurses working periods and the 11 years and over nurses working periods in the total subscale score means ( $p < 0.05$ ). Because, it was determined that there was statistically significant difference between the the 6-10 years nurses working periods and the 11 years and over nurses working periods are due to be considered. These results are parallel with the results of the study.

Critical thinking disposition and skills of nurses contribute to self-assessment, educational programs, critical thinking education, seminars, timeliness of information (22,43,44). The study was determined that there was statistically significant difference between the in-service training take nurses and the in-service training not take nurses in the CCTDI total scale score means ( $p < 0.05$ ) (22). In this study was determined that there was statistically significant difference between the in-service training take nurses and the in-service training not take nurses in the CCTDI total scale score means ( $p < 0.05$ ) (Table 3). There was a statistically meaningful difference between the in-service training take nurses and the in-service training not take nurses in the truth-seeking subscale score means and openmindedness subscale score means and self-confidence subscale score means ( $p < 0.05$ ) (21). It was determined that there was statistically significant difference between the in-service training take nurses and the in-service training not take nurses in the truth-seeking subscale score means and openmindedness subscale score means and inquisitiveness subscale score means ( $p < 0.05$ ) (Table 3). These results are parallel with the results of the study. It was determined that there was statistically significant difference between the health vocational education nurses and the schoolassociate degree education nurses and the university education nurses and master education nurses in the CCTDI scale, subscale score means ( $p < 0.05$ ). The study is to be expected.

It was determined that there was not statistically significant difference between the nurses' marital status, income level, and education level of parents, critical thinking studying with the CCTDI scale, subscale score means ( $p > 0.05$ ) (21). This study, it was determined that there was not statistically significant difference between the nurses' marital status, income level, and education level of parents, critical thinking studying with the CCTDI scale, subscale score means ( $p > 0.05$ ). These results are parallel with the results of the study. Critical thinking is an important phenomenon in nursing science because of its implications for education, practice, and the advancement of nursing knowledge. It is concluded that to improve the nurses' critical thinking disposition and skills course was helpful. The higher the educational level of nurses increased in critical thinking disposition scale score. Development of critical thinking disposition in nursing must be provided educational opportunities of the institutional and outside the institution.

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