

## **Investigation of Critical Thinking Disposition In Nurses Working In Public Hospitals**

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### **Abstract**

***Aim:** The aim of this study is to define and evaluate in public hospitals of nurses working The California Critical Thinking Disposition Inventory (CCTDI) related factors.*

***Methodology:** The sample size was 1353 nurses who volunteered to participate in the study. The data are collected from January to July in 2011 year. Socio demographic Features Data Form and CCTDI, were used as data collection tools.*

***Results:** CCTDI score means of the nurses taken into the scope of the study reveal that the score mean of the “truth-seeking” subscale was  $21.43 \pm 5.06$ ; the score mean of the “Openmindedness” subscale was  $40.70 \pm 6.38$ ; the score mean of the “systematicity” subscale was  $19.21 \pm 3.21$ ; the score mean of the “Self-confidence” subscale was  $27.84 \pm 5.07$ ; the score mean of the “Inquisitiveness” subscale was  $32.85 \pm 5.85$*

***Conclusion:** In this study 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.*

**Key Words:** Nurses, Critical Thinking, Critical Thinking Disposition

### **1. Introduction**

A historical perspective, Daly relates the traces of critical thinking back to the Greek philosophers of 400 B.C., whose early works first acknowledged this as instrumental to the development of the current conceptions of critical thinking. As far back as 2400 years ago, Socrates was recognized as the first to use probing and questioning to support knowledge development. Even before Socrates, Hippocrates had considered that the art of healing was based on a scientific framework that was not explained by folk wisdom. Hippocrates raised questions about the special nature of medicine to which Socrates responded with a description of a theoretical foundation for all of the new disciplines emerging at that time. Not until the mid twentieth century were the last two requirements of discreteness and systematicity formally added to Socrates' work. Although Plato expressed all five characteristics in his description of theory, he defined critical thinking as a removal of the object of knowledge from the everyday social world, so that the relations between explicit and abstract elements could be observed.

Aristotle was the first to question that such a narrow definition of a discipline based on scientific knowledge alone was not complete. While he agreed with the early Notion that a scientific discipline was based on universal principles or theory, he concluded that intuitive skill was required in order to apply the principles to particular situations (Dreyfus & Dreyfus, 1996).

Traditionally as nurses enter practice, their learning and knowing how to be a nurse are viewed as taking the knowledge they have acquired and applying it in a systematic way that enables them to practice the art of nursing. Nurse educator, scholars, and practice researchers are interested in defining and describing critical thinking for use. Critical thinking as a concept was adopted rather superficially from education for use in nursing and with little, if any, modification. The critical thinking term was used to refer to the rational examination of ideas, inferences, assumptions, principles, arguments, conclusions, issues, statements, beliefs, and actions. This is congruent with other definitions offered by Watson-Glaser (1980), and critical thinking was used interchangeably with problem solving, diagnostic reasoning, and clinical decision making in the nursing literature. Critical thinking has been broadly defined as a purposeful, self-regulatory judgement, which results in interpretation, analysis, evaluation, and inference in order to achieve a judgement based on evidence, concepts, methodologies, criteria, and contextual considerations (Facione & Facione, 1996). Critical thinking is “the process of searching, obtaining, evaluating, analyzing, synthesizing and conceptualizing information as a guide for developing one’s thinking with self-awareness, and the ability to use this information by adding creativity and taking risks” (Yıldırım 2011).

## **2. Methodology**

The population of the study consisted of 1406 nursing students in public hospitals of nurses working. The sample size was 1353 nurses who volunteered to participate in the study. The data are collected from January to July in 2011 year. Socio demographic Features Data Form and CCTDI, were used as data collection tools. SPSS 15.0 package software program were used in evaluation of data and numbers, percentage estimation, arithmetic mean, Kruskal-Wallis Test, t test and Pearson correlation analysis were used.

### **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 (Facione, 1990). 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 (Kökdemir, 2003). Kökdemir (2003) carried out an adaptation study to transform this inventory into Turkish version because of cultural concerns. After all items were translated into Turkish by eight persons including six psychologists, a simultaneous translator and the researcher himself, it was administered to 913 students in the Faculty of Economic and Administrative Sciences. Firstly, item-total score correlations were estimated and 19 items whose correlation under .20 was eliminated from the scale. Factor analysis was performed on the reduced scale. His study revealed that five items had lower factor loadings than .32 and items under open-mindedness and maturity constructs were loaded on one construct. 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. 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 .61 to .75.

### **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.

Once total score means are examined, it is seen that the score mean obtained by the nurses was **188.72±20.71**. CCTDI score means of the nurses taken into the scope of the study reveal that the score mean of the “truth-seeking” subscale was **21.43±5.06**; the score mean of the “Openmindedness” subscale was 40.70±6.38; the score mean of the “systematicity” subscale was 19.21±3.21; the score mean of the “Self-confidence” subscale was 27.84±5.07; the score mean of the “Inquisitiveness” subscale was 32.85±5.85 (Table 2).

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 analyticity subscale and self-confidence subscale and inquisitiveness subscale score means ( $p<0.05$ ).

Once total score means are examined, it is seen that the score mean obtained by the in-service training take was 195.56±26.50 and the mean in-service training not take was 187.88± 19.74 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 ( $p<0.05$ ) (Table 3).

Once total score means are examined, it is seen that the score mean obtained by the 0-5 year nurses working periods was 189.37±19.20, whereas the mean were 186.26±22.78 6-10 year nurses working periods and 189.63±21.95 11 years and over nurses working periods. It was determined that there was statistically significant difference between the 0-5 year nurses working periods and the 6-10 year nurses working periods and the 11 year and over nurses working periods in the total scale score means ( $p<0.05$ ). It was determined that there was statistically significant difference between the 0-5 year nurses working periods and the 6-10 year nurses working periods and the 11 year and over nurses working periods in the analyticity subscale and self-confidence subscale score means ( $p<0.05$ ) (Table 4).

### **4. Discussion**

Facione & Facione (1992) used this definition to help identify the CCTDI to help identify individuals who would be likely to engage in critical thinking. Facione & Facione refer to the characteristics of individuals who are likely to use critical thinking as dispositions. The CCTDI targets the following desirable dispositions: inquisitiveness (intellectual curiosity and desire for learning), systematicity (use of an orderly, focused and diligent process in the inquiry stage), analyticity (use of reason and evidence to solve problems), truth-seeking (treats findings with honesty and objectivity, even if contrary to one’s own beliefs), open-mindedness (tolerance of divergent views), critical thinking self confidence (trust in one’s own reasoning powers), and cognitive maturity (recognition that some problems have more than one option). The implication is that these characteristics could be useful in identifying those individuals who have the disposition to use critical thinking in practice.

The population of the study consisted of 36 nursing studying in a public hospital of nurses working. The sample size was 36 nurses who volunteered to participate in the study. Once total score means are examined, it is seen that the score mean obtained by the nurses was 189.00 ±18.21. (Yıldırım, Özkahraman 2011).

A number of recent investigations examined critical thinking disposition (Eşer, Khorshid, Demir 2007; Dirimeşe, 2006; Glendon, 2002; Yıldırım, Özkahraman 2011) while these studies examined in the CCTDI scale score levels. In this study, once total score means are examined, it is seen that the score mean obtained by the nurses was 188.72 ±20.71 (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 2010 proved that the lowest score was 189.00 ±18.21 at low level, whereas the highest score was 261.10±22.50 at medium level (Eşer, Khorshid, Demir 2007; Dirimeşe, 2006). Therefore, although the scores obtained in the studies conducted on nurses abroad seem to be low and medium levels.

In this study, “truth-seeking”, “systematicity”, “inquisitiveness” and “self-confidence” subscales, the nurses was determined low level scores. In the “openmindedness” subscale, the nurses was determined medium level scores. In the “analyticity” subscale, the nurses was determined high 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 (Eşer, Khorshid, Demir 2007; Dirimeşe, 2006, Yıldırım, Özkahraman 2011).

There is support within the literature and clinical practice for knowledge, thinking, reflection, decision making, judgement, creativity and problem solving as being possible of critical thinking. These eight aspects were the most frequently discussed when all citations related to critical thinking were tallied from both nursing practice and education literatures.

Critical thinking disposition of nurses contribute to self-assessment, educational programs, critical thinking education, seminars, timeliness of information, pers (Dirimeşe 2006; Yıldırım 2010a; Yıldırım 2010b). 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 ( $p < 0.05$ ) (Dirimeşe 2006, Yıldırım Özkahraman, 2011). 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”, “openmindedness”, “self-confidence”, “inquisitiveness” subscales score means ( $p < 0.05$ ) (Eşer, Khorshid, Demir 2007; Yıldırım Özkahraman 2011). 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 analyticity subscale score means and self-confidence subscale score means and inquisitiveness subscale score means ( $p < 0.05$ ) (Table 3).

Critical thinking is a process involving constructing arguments, not just evaluating them. Learning to think critically is one of the most significant activities of adult life (Brookfield, 1987). When individuals become critical thinkers, they develop an awareness of the assumptions under which they, and others, think and act. They learn to pay attention to the context in which actions and ideas are generated. With proper guidance in the articulation and development of arguments, beginning nurses can be expected to think critically using clinical data to determine the implications and to Express their reasoning in arguments. Lacking the logical, sophisticated and in depth knowledge and experience that expert nurses have acquired, beginners need guidance in determining which data to attend to first. Through critical thinking, expert nurses know how to organize data to maximize the implications for clinical practice.

Expert nurses have established predetermined goals based on applied knowledge and experience over time. The expert nurses have developed a base of skills and knowledge that enables them to react to situations in clinical practice with an intuitiveness for predicting patient response or clinical outcome (Benner, 1984). Clinical knowledge is gained over time, and clinicians themselves are often unaware of their gains. Expertise develops when the clinician tests and refines principle-based expectations in actual practice situations. Experience is, therefore, a requisite for expertise. As nursing experience increases, nurses are better able to recognize problems and determine what information is applicable to the solution of a particular problem. Benner’s expert stage is characterized by a constant vigil of clinical forethought, which leads to early interventions in patient care (Benner, Hooper-Kyriakidis, Stannard, 1999). Most nurses take at least 5 years to reach the expert stage, if they reach it at all (Benner, 1984; Benner, Hooper-Kyriakidis, Stannard, 1999). 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 (Benner, 1984; Benner, Hooper-Kyriakidis, Stannard, 1999; Dreyfus, Dreyfus, 1996; Dreyfus, Dreyfus, Benner, 1996). Expert nurses who can recognize patient problems early, even before obvious changes in patient symptom presentation occur, intervene earlier to prevent ensuing complications (Ashcraft, 2004; Minick, Harvey, 2003). 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 (Benner, Hooper-Kyriakidis, Stannard, 1999).

Research shows that new graduates need several months to become minimally proficient and feel confident about clinical decision making (Del Bueno, 1990). 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 (Benner, 1984). In contrast, the advanced beginner operates using general rules and needs much clinical support in his or her patient care decision making, critical thinking (Benner, 1984; Duchscher, 2003; Ebright, Urden, Patterson, Chalko, 2004). 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 (Adams, 1999; Dirimeşe 2006; Eşer, Khorshid, Demir 2007; Hicks 2001; Hicks, Merritt, Elstein, 2003; Rodriguez, 2000). This study, It was determined that there was statistically significant difference between the 0-5 year nurses working periods and the 6-10 year nurses working periods and the 11 year and over nurses working periods in the total subscale score means ( $p < 0.05$ ) (Table 4). In this study, the 0-5 year majority nurses working periods have graduated from high school and over and the 11 year and over nurses working periods the level of critical thinking and clinical experience of nurses are due to be considered. However, some research findings do support this claim has effect on the level of critical thinking and clinical experience of nurses (Adams, 1999; Dirimeşe 2006; Eşer, Khorshid, Demir 2007; Hicks 2001; Hicks, Merritt, Elstein, 2003; Rodriguez, 2000).

### 5. Conclusion

The study examined in the CCTDI scale score levels. In this study, the 0-5 year majority nurses working periods have graduated from high school and over and the 11 year and over nurses working periods the level of critical thinking and clinical experience of nurses are due to be considered. The experienced nurses and high school graduated nurses 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.

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

| Characteristics                          | Number      | %*           |
|--|-------------|--------------|
| <b>Age Group</b>                         |             |              |
| 17-25                                    | 570         | 42.4         |
| 26-34                                    | 630         | 47.0         |
| 35-40 and over                           | 143         | 10.6         |
| <b>Working Periods</b>                   |             |              |
| 0-5 years                                | 736         | 54.8         |
| 6 -10 years                              | 317         | 23.6         |
| 11 years and over                        | 290         | 21.6         |
| <b>Task</b>                              |             |              |
| Service responsible nurse                | 124         | 9.2          |
| Nurse Service                            | 863         | 64.3         |
| Operating Room Nurse                     | 91          | 6.8          |
| Intensive Care Nurse                     | 244         | 18.2         |
| Supervisor Nurse                         | 21          | 1.6          |
| <b>Education Level</b>                   |             |              |
| Health Vocational Schoolassociate Degree | 252         | 18.8         |
| University                               | 260         | 19.4         |
| Master                                   | 813         | 60.5         |
|  | 18          | 1.3          |
| <b>Total</b>                             | <b>1343</b> | <b>100.0</b> |

\*Column Percentage

Table 2: Nurses' Distribution of CCTDI Scores

| Scale           | $\bar{X}$ | $\pm$ SD |
|-----------------|-----------|----------|
| Truth-seeking   | 21.43     | 5.06     |
| Openmindedness  | 40.70     | 6.38     |
| Analyticity     | 50.77     | 8.08     |
| Systematicity   | 19.21     | 3.21     |
| Self-confidence | 27.84     | 5.07     |
| Inquisitiveness | 32.85     | 5.85     |
| Total           | 188.72    | 20.71    |

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

| Scale           | IN-SERVICE TRAINING                 |  |               |               |
|-----------------|-------------------------------------|--|---------------|---------------|
|                 | In-Service Training was Take (n=22) | In-Service Training was not Take (n=289) | *t            | p             |
|                 | $\bar{X} \pm SD$                    | $\bar{X} \pm SD$                         |               |               |
| Truth-seeking   | 20.99±9.77                          | 21.61±9.94                               | 0.606         | 0.545         |
| Openmindedness  | 42.13±8.66                          | 40.46±9.81                               | -1.922        | 0.055         |
| Analyticity     | 52.12±7.97                          | 50.60±8.08                               | <b>-2.154</b> | <b>*0.031</b> |
| Systematicity   | 18.98±4.08                          | 19.24±3.09                               | 0.917         | 0.359         |
| Self-confidence | 29.04±6.73                          | 27.69±4.81                               | <b>-3.051</b> | <b>*0.002</b> |
| Inquisitiveness | 34.78±6.60                          | 32.61±5.71                               | <b>-4.262</b> | <b>*0.000</b> |
| Total           | <b>195.56±26.50</b>                 | <b>187.88± 19.74</b>                     | <b>-4.270</b> | <b>*0.000</b> |

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

Table 4: According to The Nurses' Working Periods Distribution of CCTDI Scores

| Scale           | 0-5 year<br>$\bar{X} \pm SD$ | 6-10 year<br>$\bar{X} \pm SD$ | 11 year and over<br>$\bar{X} \pm SD$ | KW*           | P             |
|-----------------|------------------------------|-------------------------------|--------------------------------------|---------------|---------------|
| Truth-seeking   | 21.43±11.55                  | 21.49±11.64                   | 21.90±12.63                          | 0.717         | 0.699         |
| Openmindedness  | 41.15±9.96                   | 39.46±9.55                    | 40.71±10.35                          | 5.247         | 0.073         |
| Analyticity     | 50.98±7.85                   | 48.90±9.30                    | 52.21±6.81                           | <b>19.532</b> | <b>*0.000</b> |
| Systematicity   | 19.19±3.31                   | 19.45±2.84                    | 19.01±3.32                           | 3.435         | 0.179         |
| Self-confidence | 27.49±5.08                   | 27.85±4.78                    | 28.69±5.26                           | <b>10.103</b> | <b>*0.006</b> |
| Inquisitiveness | 32.86±5.51                   | 32.69±5.90                    | 32.94±6.63                           | 1.299         | 0.522         |
| Total           | <b>189.37±19.20</b>          | <b>186.26±22.78</b>           | <b>189.63±21.95</b>                  | <b>6.265</b>  | <b>*0.044</b> |