Examination of Critical Thinking Disposition in Nursing

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Abstract

Purpose: *The purpose of this study is to define and evaluate in a public hospital of nurses working The California Critical Thinking Disposition Inventory (CCTDI), related factors.*

Methods: *The sample size was 36 nurses who volunteered to participate in the study. The data are collected from March to June in 2010 year. 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 189.00 ±18.21. 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 in the truth-seeking subscale and analyticity subscale score means.*

Conclusions: *Development of critical thinking disposition in nursing must be provided educational opportunities of the institutional and outside the institution.*

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

1. Introduction

Critical thinking in nursing, as in the general literature on critical thinking, is an elusive concept that has as many definitions as there are authors who attempt to define it. Bandman and Bandman (1995) define critical thinking as "the rational examination of ideas, inferences, assumptions, principles, arguments, conclusions, issues, statements, beliefs and actions". In formulating this definition, the authors considered Siegal's theory of critical thinking in education, students' autonomy, empowerment of students and promoting rationality. Hickman (1993), defined critical thinking as: An investigation whose purpose is to explore a situation, phenomenon, qoestion, or problem to arrive at a hypothesis or conclusion about it that integrates all available information and that therefore, can be convincingly justified.

The National for Exellence in Critical Thinking Instruction defines critical thinking as: the intellectually disciplined process of a actively and skillfully conceptualizing, applying, analyzing, synthesizing and evaluating information gathered from or generated by observation, experience, reflection, reasoning, or communicating as a guide to belief and action. The council put forth two aspects of critical thinking. The first is a set of information and belief generating and processing skills and abilities, and the second is the habit, based on intellectual commitment and using these skills and abilities to guide behavior (Woods, 1993).

Critical thinking has been defined by many noted educators during the past century (Brookfield, 1991; Dewey 1910; Mezirow, 1990; Norris and Ennis, 1989; Paul, 1993; Watson and Glaser, 1964), with each definition emphasizing different aspects. As a result, the nature of critical thinking lacks consensus across academic disciplines (Myrick, 2002). Through a Delphi method with 46 experts, the American Philosophical Association developed a cross-disciplinary conceptual definition: We understand critical thinking to be purposeful, self-regulatory judgement which results in interpretation, analysis, evaluation, and inference, as well as the expiations of the evidential, conceptual, methodical, criteria logical, or contextual, considerations upon which that judgement was based (Facione, 1990). Besides these definitions, Beyer (1987) also brings out a new term for critical thinking: *evaluative thinking*. He indicates that critical thinking is evaluative in nature, because it entails precise, persistent, and objective analysis of any claim, source, or belief to judge its accuracy, validity, or worth. According to Yıldırım (2011), 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".

The importance of critical thinking is well documented in the nursing literature and is deemed to be essential within the nursing profession. Paralleling the renewed interest within the educational field in general, critical thinking has become a focus in nursing (Kintgen-ndrews, 1991; Miller, Malcolm, 1994). According to Daly (1998). The notion of critical thinking in relation to nursing has only recently begun to appear in the literature. The reasons behind the emerging interest in this construct appear to be threefold as follows:

- Healthcare and informational changes.
- Epistemological changes in nursing ideology; and
- Organizational and cultural changes in nursing education

Nurses are required to be safe, component and skillful practitioners in their profession. Decision making is a daily part of nurses' work in a society in which health care is bing reshaped on a continuous bases. Economics, the aging population, population diversity, techonology and information technology is moving health in a direction from the traditional hospital-based, physician directed health care to ambulatory and community based settings This paradigm shift in health care will require nurses to have well-developed decision-making skills (Catalano, 2000). The conclusions they reach lead them to chosoe and implement particular nursing actions from a list of all possible nursing actions avaible to them. Although research has not consistently demonstretad a strong relaionship between critical thinking and clinical judgements, characteristics of critical thinking match characteristics of sound clinical decision making (Case, 1994).

This direction places emphasis on individualized and holistic care and is in keeping with the demands of nursing practice in today's health care enviroment. According to Synder (1993) as stated in Dobrzykowski (1994), "Effective critical thinking skills are vital in order to provide competent, safe care of clients and families, manage shorter hospital says, use increasingly sophisticated Technologies, and implement changing and challenging care philosophies". Baker (1996) states that: As nursing moves into a more autonomous community-based practice, the challenge for nurse educators is to assist students to develop greater thinking skills, improve awareness of self and environment, and to facilite nurses' ongoing learning from their daily practice.

1.1 Disposition Toward Critical Thinking

Watson and Glaser (1964) believed that critical thinking is a composite of knowledge, attitudes and skills. Glaser (1941) felt that individuals involved in critical thinking needed to "(1) ….. consider in a thoughtful way the problems and subjects that come within the range of one's experience, (2) (have) knowledge of the methods of logical inquiry and reasoning, and (3) (demonstrate) skill in applying these two methods". Glaser suggested that critical thinkers want evidence for their beliefs. According to Watson and Glaser (1964), critical thinking requires weighing the accuracy and logic of evidence. The person who thinks critically is able to understand valid inferences, abstractions, and generalizations. Attitudes and knowledge.

The dictionary of Psychlogy (Reber, 1985) puts forth three definitions of the term "disposition". Generally, an ordered arrangement of elements which stand in a particular arrangement to each other such that certain functions may be carried out readly. This is the core meaning and arrives in straight translation from the Latin word for arrangement. By extension: 2. In the study of personality, any hypothesized organization of mental and physical aspect of a person that is expressed as a stable, consistent tendency to exhibit particular patterns of behavior in a broad range of circumstances…… 3. A tendency to be susceptible. This meaning is common in psychiatric and clinical psychological writings; e.g., a disposition for schizophrenia.

Enis (1985) identified two dispositions for critical thinking: open-mindedness and staying informed. Kennedy, Fisher, and Enis (1991) described a number of characteristics of critical thinkers, including seeking reasons, being well informed, taking into account the total situation, looking for alternatives, being open-minded, taking a position, seeking precision, and dealing in an orderly manner with complex parts. Nickerson, Perkins, Smith (1987) suggested that critical thinking involved transferring learning to new situations. He also suggested that a critical thinker recognizes the complexity of the world and realizes there is more than one simple answer to problems. Miller and Malcolm (1990) suggested that "learning to think critically takes practice-practice in maintaining an attitude of openness in inquiry, in learning

Facione (1990) identified twelve critical thinking affective dispositions: "inquisitiveness withregard to a wide range of issues; concern to become and remain generally well-informed; altertness to opportunities to use critical thinking; trust in the processes of reasoned inquiry; self-confidence in one's own ability to reason;

open-mindedness regarding divergent world views; flexibility in considering alternatives and opinions; understanding of the opinions; understanding of the opinions of other people; fair-mindedness in appraising reasoning; honesty in facing one's own biases, prejudices, stereotypes, egocentric or sociocentric tendencies; prudence in suspending, making or altering judgements; and willingness to reconsider and revise views where honest reflection suggests a change is warranted". He suggested that critical thinkers seek "clarity in stating the question or concern, orderliness in working with complexity, diligence inseeking relevant information, reasonableness in selecting and applying criteria, care in focusing attention on the concern at hand, persistence though difficulties are encountered, (and) precision to the degree permitted by the subject and circumstances".

Not everyone in Facione's study (1990) agreed that critical thinking includes both affective and cognitive dispositions. Although sixty-one percent of the panelists agreed that critical thinking includes both cognitive and affective dispositions, one-third felt that critical thinking involved only cognitive characteristics. Nevertheless, eighty percent of the panelists agreed that affective dimensions are a part of the characteristics of a critical thinker.

In order to point out the subskills of dispositional critical thinking skills, one may refer to the criteria of "CCTDI" (Facione, Facione, 1992), a test aiming at assessing critical thinking dispositions. The seven subskills of CCTDI (Facione, Facione, 1992) include:

1. Truth-seeking: Targets the disposition of being eager to seek the best knowledge in a given context, courageous about asking questions, and honest and objective about pursuing inquiry even if the findings do not support one's self-interests or one's preconceived opinions.
2. Open-mindedness: Measures one's tolerance of divergent views and sensitivity to the possibility of one's own bias.
3. Analyticity: Assesses prizing the application of reasoning and the use of evidence to resolve problems, anticipating potential conceptual or practical difficulties, and consistently being alert to the need to intervene.
4. Systematicity: Measures being organized, orderly, focused, and diligent in inquiry.
5. Inquisitiveness: A measure of one's intellectual curiosity and desire for learning even when the application of the knowledge is not readily apparent.
6. CT self-confidence: Measures the trust one places in one's own reasoning processes. CT self-confidence allows one to trust the soundness of one's own reasoned judgments and to lead others in the rational resolution of problems
7. Maturity: Targets the disposition to be judicious in one's own decision-making. The CT-mature individual is one who approaches problems, inquiry, and decisionmaking with a sense that some problems are necessarily ill-structured, some situations admit more than one plausible option, and many times judgments must be made based on standards, contexts and evidence that preclude certainty.

2. Methods

2.1 Study Design

This study was a descriptive type. The aim of this study is to define and evaluate in a public hospital of nurses working CCTDI related factors. The population of the study consisted of 40 nurses in a public hospital of nurses working. The sample size was 36 nurses who volunteered to participate in the study. The data are collected from from March to June in 2010 year. Socio demographic features data form and CCTDI, were used as data collection tools.

2.2 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 .80 Reliability coefficients of each subscale ranged from .61 to .73.

2.3 Statistical Analysis

SPSS 15.0 package software program were used in evaluation of data and numbers, percentage estimation, arithmetic mean, Kruskal-Wallis 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, critical thinking education.

Insert Table (1) about here

Once total score means are examined, it is seen that the score mean obtained by the nurses was 189.00 ±18.21. CCTDI score means of the nurses taken into the scope of the study reveal that the score mean of the "truth-seeking" subscale was 26.41±7.96; the score mean of the "Openmindedness" subscale was 41.33±8.27; the score mean of the "systematicity" subscale was 21.19±3.29; the score mean of the "Self-confidence" subscale was 25.22±4.05; the score mean of the "İnquisitiveness" subscale was 31.38±4.66 (Table 2).

Insert Table (2) about here

Once total score means are examined, it is seen that the score mean obtained by the 0-5 year nurses working periods was 190.40±10.40, whereas the mean were 189.00±20.93 6-10 year nurses working periods and 188.56±18.30 11 years and over nurses working periods. It was determined that there was no 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 ($p>0.05$) (Table 3). It was determined that there was no 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 3).

Insert Table (3) about here

Once total score means are examined, it is seen that the score mean obtained by the health vocational education nurses was 190.81±9.48, whereas the mean were 184.78±23.11 schoolassociate degree education nurses and 197.77±4.86 university education nurses. 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 in the total scale score means ($p<0.05$) (Table 4). 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 in the truth-seeking subscale and analyticity subscale score means ($p<0.05$) (Table 4).

Insert Table (4) about here

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 CCDTI scale, subscale score means ($p>0.05$).

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 ($p<0.05$)

4. Discussion

The CCTDI has been frequently used among college students to describe their disposition toward critical thinking. According to Facione, Facione, and Giancarlo (2001), CCTDI mean scores below 290 indicated a weak critical thinking disposition while scores above 350 indicated a strong disposition.

In a large study by Facione, Giancarlo, Facione, and Gainen (1995), 587 Freshman undergraduates who completed the CCTDI at the beginning of the 1992/93 academic year had a mean score of 298.22. Kawashima and Petrini (2004) reported a CCTDI mean score of 273.38 among 82 Freshman and Sophomore nursing students. In another study by Stewart and Dempsey (2005), they conducted a longitudinal study of Baccalaureate Nursing students' critical thinking dispositions. Although they did not report mean CCTDI total or subscale scores, they found that the participants' scores did not significantly change from Sophomore to Senior year. Further, CCTDI were not significantly correlated with GPA, NCLEX-RN, or ERI RN Assessment test (Stewart & Dempsey, 2005). May et al. (1999) reported a mean CCTDI score of 311 and mean CCTST score of 16.76 with senior baccalaureate nursing students. Although they did not report a relationship between the two variables, they also found no significant correlations between critical thinking and clinical competence. Leppa (1997) found the CCTDI to be useful with RN Baccalaureate students as part of their program assessment of critical thinking. After the CCTDI was completed, scores were returned to the students during an introductory, critical thinking course and served as a tool to discuss the skills, development, and importance of critical thinking in nursing.

It has also been reported that some researchers have used the CCTDI as the main measure of a student's critical thinking ability (Tanner, 2005). This turn of events is an interesting finding as the CCTDI is an instrument intended to measure one's disposition toward critical thinking, rather than measure one's skill in being able to critically think (Facione et al., 2001; Facione et al., 2002). This was the case in a study by Nokes, Nickitas, Keida, and Neville (2005) who used the CCTDI to measure the effects of service learning on critical thinking. They used a pretest and posttest measure of CCTDI with 14 RN to BSN undergraduates and 3 graduate students. Their CCTDI mean score for the CCTDI pretest was 319.31 and 297.50 for the CCTDI posttest. The CCTDI mean score for the current study fell between these two means, although the participants differed in age and level of study.

Other CCTDI mean scores reported among nursing students include: 315.48 in 156 Sophomore Nursing students and 325.94 in 85 Senior Nursing students (McCarthy et al., 1999); 323.9 (pretest) and 332.5 (posttest) in 38 nursing students from Sophomore to Senior year of study (Thompson & Rebeschi, 1999); 264.70 in year 1, 2, and 3 Chinese nursing students (n = 122) (Ip, Lee, Lee, Chau, Wootton, & Chang, 2000); 268.36 in 222 Chinese nursing students and 287.73 in 162 Australian nursing students (Tiwari, Avery, & Lai, 2003); 318.74 in 65 registered nurses beginning a critical care orientation (Smith- Blair & Neighbors, 2000); and 313.52 in 232 practicing registered nurses (Rapps et al., 2001). Overall, most researchers have reported nursing students have having a positive disposition toward critical thinking while some students have displayed a negative disposition toward critical thinking.

The concept of critical thinking has only been recently addressed in nursing literature (Jones and Brown, 1991; Daly 1998). Daly (1998)states the reasons supporting the interest in this construct are related to the following issues: …..the increasing interest in critical thinking in education; ….instructional methods to develop critical thinking in nursing education; and ….a rapidly changing health care arena.

Critical thinking is gaining much popularity in nursing. Critical thinking has come to the forefront in nursing following the mandate by the National League of Nursing (1992), who stated that nursing programs must measure critical thinking as an outcome criteria for accreditation. It is a concept currently being used in nursing education and practice as an essential core skill in professional development. (Lenburg, 1997) However, nursing's endeavour to capture and utilize this concept has resulted in some confusion and uncertainty. Confusion arises when nurses, teachers and students use the term "critical thinking" interchangeably with other terms that are components of critical thinking, but have different meanings. In order to allay further confusion, it is timely to clarify the difference between and among these similar terms. A number of recent investigations examined critical thinking disposition (Eşer, Khorshid, Demir 2007; Dirimeşe, 2006; Glendeon, 2002; Hicks, Merrit, Elstein, 2003).

While these studies examined critical thinking disposition levels. Once total score means are examined, it is seen that the score mean obtained by the nurses was 189.00 ±18.21 (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±30.141 at low level, whereas the highest score was 261.10±22.50 at medium level (Eşer, Khorshid, Demir 2007; Dirimeşe, 2006). As for the descriptive studies carried out abroad, they determined that the score was 295.4±19.9 at medium level and 313.82±25.8 (Hicks et al., 2003; Glendeon, 2002). Therefore, although the scores obtained in the studies conducted on nurses abroad seem to be low and medium levels.

In the "truth-seeking", "systematicity", "inquisitiveness" and "self-confidence"subscales, the nurses were determined low level scores. In the "openmindness" and "analyticity" subscales, the nurses were determined medium level scores. It was observed that nurses had scores at low and medium levels in studies in which these subscale was investigated in Turkey (Eşer, Khorshid, Demir 2007; Dirimeşe, 2006).

Nurses 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. Benner (Benner, 1984; Benner, Hooper-Kyriakidis, Stannard, 1999; Benner, Tanner, Chesla, 1996) studied skill acquisition in nurses for more than two decades. Her research, drawing on earlier work by Dreyfus and Dreyfus (1980) on skill acquisition in other professions, showed that novice or advanced beginner nurses learn in particular ways, engage in concrete thinking focused on mastering technology, and often have difficulty making distinctions in clinical situations and setting priorities when confronted with multiple demands. Expert nurses, in contrast, grasp clinical situations as wholes, utilize extensive pattern recognition skills, and are able to make fine distinctions and anticipate problems before they occur.

Most nurses take at least 5 years to reach the expert stage, if they reach it at all (Benner, 1984; Benner et al., 1996). 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 et al., 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 et al., 1999). 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.

Facione, Facione, Sanchez (1994) notes that skills and dispositions are mutually reinforced so a strong disposition may insure the use of crtical 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 chalenges to provide quality care for patients. A workplace that supports and encourages risk-taking and decision making encourages individuals who are disposed to think crtically to use these skills more effectively.

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 no 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 3).

Because younger nurses and 51.2% have graduated from vocational high school 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;). These results are parallel with the results of the study.

Once total score means are examined, it is seen that the score mean obtained by the health vocational education nurses was 190.81±9.48, whereas the mean were 184.78±23.11 schoolassociate degree education nurses and 197.77±4.86 university education nurses. The study rated the average university education nurses were higher CCDTI. 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 in the total scale score means ($p<0.05$). 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 in the truth-seeking subscale and analyticity subscale score means ($p<0.05$)(Table 4). The study is to be expected.

Critical thinking disposition of nurses contribute to self-assessment, educational programs, critical thinking education, seminars, timeliness of information, pers (Yıldırım, 2010a; Yıldırım, 2010b; Yıldırım, Özkahraman, 2011). 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).

5. Conclusion

This literature review has demonstrated that critical thinking is necessary not only in the clinical practice setting but also as a daily experience in nursing education programs to develop nurses' critical thinking abilities. Nursing education today places much emphasis on developing techniques and designing learning experiences that foster the development of nurses' critical thinking abilities in the clinical field. The challenge for future research on critical thinking is the need to concentrate on development of an evaluation instrument that is specific to the discipline of nursing in Turkey. Utilize critical thinking evaluation instruments to assess nurse educators' teaching techniques for instructional effectiveness.

It is concluded that to improve the nurses' critical thinking disposition 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	%*
Age Group		
17-25	4	11.1
26-34	20	55.6
35-40	12	33.3
Working Periods		
0-5 year	5	13.9
6 -10 year	15	41.7
11 and over	16	44.4
Education Level		
Health Vocational Schoolassociate	21	51.2
Degree	16	39.0
University	4	9.8
Critical Thinking Education		
Yes	11	30.6
No	25	69.4
Total	36	100.0

*Column Percentage

Table 2: Nurses' distribution of CCTDI scores

Scale	$\overline{X}$ ± SD	
Truth-seeking	26.41	7.96
Openmindedness	41.33	8.27
Analyticity	43.44	6.67
Systematicity	21.19	3.29
Self-confidence	25.22	4.05
İnquisitiveness	31.38	4.66
Total	189.00	18.21

Table 3: According to the nurses' working periods distribution of CCTDI scores

Scale	0-5 year $\overline{X}$ ± SD	6-10 year $\overline{X}$ ± SD	11 year and over $\overline{X}$ ± SD	KW	P
Truth-seeking	25.60±2.07	28.40±11.16	24.81±4.86	**3.329**	**0.18**
Openmindedness	43.60±5.89	40.40±8.25	41.50±9.18	**0.891**	**0.64**
Analyticity	44.00±5.78	44.13±5.27	42.62±8.22	**2.460**	**0.29**
Systematicity	22.80±2.04	19.73±2.86	22.06±3.56	**3.313**	**0.19**
Self-confidence	24.60±4.21	24.60±3.43	26.00±4.61	**0.942**	**0.62**
İnquisitiveness	29.80±2.94	31.73±3.47	31.56±6.01	**2.547**	**0.28**
Total	**190.40±10.40**	**189.00±20.93**	**188.56±18.30**	**0.407**	**0.81**

Table 4: According to the nurses' education level distribution of CCTDI scale

Scale	Education Level				
	Health Vocational $\overline{X}$ ± SD	Schoolassociate Degree $\overline{X}$ ± SD	University $\overline{X}$ ± SD	KW	P
Truth-seeking	25.00±2.86	26.57±10.69	28.11±4.86	**9.689**	**0.00**
Openmindedness	44.30±7.95	39.94±8.55	42.00±7.41	1.862	0.39
Analyticity	44.54±4.74	40.78±6.55	46.66±7.00	**6.280**	**0.04**
Systematicity	21.81±2.82	21.10±3.85	21.00±2.29	0.797	0.67
Self-confidence	24.90±4.10	24.78±4.37	27.66±2.23	3.975	0.13
İnquisitiveness	29.90±2.66	31.57±5.82	32.33±2.69	4.896	0.08
Total	**190.81±9.48**	**184.78±23.11**	**197.77±4.86**	**5.362**	**0.04**