Original Article

Critical Thinking Skills of Nursing Candidates

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Abstract

Background: A thought requires various skills regarding intellectual process. This process is examined under three aspects as thinking, emotion and desire.
Objectives: This study was planned to determine the nursing department and the factors affecting the level of critical thinking of students.
Methods: The sample of the study voluntarily participate in the study a total of 272 students who have been accepted. The research was collected using Information Form with the California Critical Thinking Disposition Inventory. Frequency analysis of the study, Mann-Whitney U test, t-test and Krusskal Wallis test were performed.
Results: 65.8% of the students were female, 85.7% were single, 33.1% is read in the first grade. 56.7% of students in social activities, participates in scientific activities of 43.3%, and 55.5% identical to their own opinion and are not to pursue programs.
Students with an increased number of classes they read, the truth is found to increase the search and open-mindedness. Students' critical thinking trends, the results of analysis of variance according to the class they read, the right of women to male students were found to search and higher dimensions where the open-mindedness and the way highly significant difference.
Conclusion: The right of every step with the increase of students' professional approach, and it was found that they received training in search and broadmindedness increases. To increase awareness of the profession with each passing school year, provide better express themselves and the right to find more comfortable.

Keywords: Critical thinking, nursing student, education

Introduction

A thought requires various skills regarding intellectual process. This process is examined under three aspects as thinking, emotion and desire. The main purpose of thinking is to assign meanings to our life events, to classify these events into categories, and to create an identity for them in a subjective way. Our actions such as judgement, analysis, explanation, comprehension, identification, comparison and making a synthesis occur within the scope of thinking (Sensekerci, & Bilgin, 2008).Critical thinking is an elusive process that is not clearly understood in nursing and has been defined in multiple ways (Polat, Kutlu, Ay, et al. 2018; Riddell, 2007). Walsh and Seldom ridge (2005) specified "critical thinking is not one, monolithic thing" (p. 216); so, capturing the essence of what it means to think critically requires an in-depth exploration. So as to understand the intricacy of how best to advance students' critical thinking in nursing education, investigators should examine nurse educators' critical thinking, along with social and contextual factors that affect how they think critically. Clinical training is heart of nursing education (Sensekerci, & Bilgin, 2008). The aim of clinical teaching in nursing is to enhance students' learning, and to improve the personal growth of clinical instructors in their performance of the educational role in the clinical situation, where the learning situation is often one that cannot be repeated (Colln-Appling, &

Giuliano, 2017).Critical thinking is an indispensable reasoning process bearing some characteristics such as gathering information from the resources and analysing them, deciding on the needs in the light of this analysis and selecting and applying among the possible approaches, and evaluating the results (Werner, & Bleich, 2017).Critical thinking is a multifaceted process involving many mental activities. A critical thinker attempts to identify the main point by explaining the cause of the problem, reaching reliable sources and handling it as a whole to determine the main point, and is open to the innovations. A critical thinker respects others' opinions, pays attention toothers, and bases his opinions on a scientific knowledge (Colln-Appling, & Giuliano, 2017). During the last a few decades it has been emphasized that it is vital to acquire critical thinking skills in order to apply them in both personal and professional lives of people who are struggling with the problems in our country and all over the world (Riddell, 2007; Werner, & Bleich, 2017). The development of science and technology gradually increases the need for a qualified human power in the knowledge era that we are in. Thus, today's people should know themselves well, value personal and social development, think, inquire, investigate, and make intelligent decisions, and have critical thinking skills (Colln-Appling, & Giuliano, 2017). The complex care, including the complexity of services offered in various fields, has increased the number of evidence-based practices, technological knowledge and practices, made nurses more flexible and critical. For this reason, critical thinking is very important for nurses who usually have to think more than one option at the same time and make quick decisions (Toofany, 2008; Banning, 2006).

One of the factors affecting the students' critical thinking skills is the evaluation processes of the examinations. According to Glasser (2000) the students tend to forget the information they have obtained for the examinations that require strict memorization only after they are over. Glasser points out that this situation resembles "excavating information pits and later filling them with waste of knowledge". In this sense, for most of the students, passing the tests becomes far more important than acquiring the information. However, the main purpose of the examinations should be raising awareness of the students on obtaining information, skills and assets to apply them to the daily life, establishing relations between concepts and phenomenon, and developing mental abilities such as analysis, synthesis and evaluation rather than directing them to memorise the names and the dates of the concepts and events and phenomenon. Accordingly, rote-learning exams must be replaced by the multidimensional tests that require critical thinking skills of the students and redirect them to improve their creativity. Also, the evaluation process of the learning outcomes of the students must include not only the test results but also the overall evaluation of a whole period of the learning experience by means of assessments considering the performances of the students in portfolio projects and teamwork throughout the term (Carter, Creedy, & Sidebotham, (2017). In order to achieve this goal, the teachers should be educated on this matter. During these processes, the teacher also should be a motivator and the facilitator at the same time. He/she should be focused on forcing the students to do mind exercise and shouldn't intimidate them while asking questions because it is impossible for someone to be able to manage critical thinking skills when he/she is under pressure and cannot explain his/her thoughts freely. A good educator should adopt critical thinking skills in his/her own life and should be humble, courageous, risk-taker and democratic in both communication and administration. The class setting should be free of tension and open to debates and questions (Yue, Zhang, Zhang, et al. 2017). The developing technology and knowledge have made it difficult for nurses to be equipped with the necessary skills to provide a safe care (Lee, Abdullah, Subramanian, et al. 2017). In order fornurses to respond to the needs of the community regarding the health, they are expected to search for information, interrogate, think critically, solve the problems and have a social sensitivity. Critical thinking emerges as an important concept in nursing education and practice by making a nursing diagnosis or determining solutions (Brunt, 2005; Polat, et al., 2018).

Even though the academicians have built a consensus on the necessity of developing critical thinking skills in education system, they do not have a common view about how to teach it to the students. Two approaches have been mentioned in teaching of critical thinking skills. Some academicians claim that critical thinking skills are field based but according to some these are general skills that can be learned and transferred

to the other fields. In order to determine how critical thinking skills can be developed, it is a must to identify if these skills are general or field-based (Seferoğlu & Akbıyık 2006). The critical thinking is desirable for nurses working in intensive care units, remote treatment units, institutions where they are educated and all the units they work. Nurses can personalize the care for each patient or case with their broad knowledge. Critical thinking is a desired skill that is required for a safe nursing care (Toofany, 2008). Inclinical applications, nursing educators should develop strategies to help students in their success and improvement in their critical thinking ability (Polat, et al., 2018). They are taught how to maintain their critical thinking skills and how to enhance their competences (Allen, Rubenfeld, & Scheffer, 2004; Brunt, 2005). The inadequacy of critical thinking in nursing negatively affects the quality, efficiency, and competence in service, occupational professionalism, autonomy and competency in the occupation. Therefore, having high critical thinking skills is important to protect, improve and increase the quality of life of a community (Allen, Rubenfeld, & Scheffer, 2004).

Objective: The study was planned to determine the level of critical thinking of the nursing students who continued their education in the Department of Nursing of Gümüşhane University and the factors affecting their level of critical thinking.

Methods

Type of the Study: The universe of this descriptive type study consisted of 330 nursing students who were continuing their undergraduate education during 2017/2018 academic year in the Faculty of Health Sciences of Gümüşhane University and the sample of the study included 242 students who agreed to participate voluntarily. For the implementation of the research, the permission was obtained from Gümüşhane Unıversıty Scıentıfıc Research and Publıshıng Commıttee (Approval Number= 95674917-604.01.02-E.834).

Data Collection Tools: The California Critical Thinking Tendency Scale (CCTTS) and an introductory information form were used in the data collection.

Survey Form: The form consisted of 23 questions that assess the socio-demographic characteristics of the students. The scale was a 6-point Likert-type scale including the following sub-dimension: seeking the truth, open-mindedness, analytical thinking, systematicity, self-confidence and curiosity. The California Critical Thinking Tendency Scale was developed as a result of the Delphi Project which was organized by the American Philosophy Association in 1990.

Tendencies defined within this scale are:

-*Seeking the truth:* Assessing the options or different thoughts. The individuals with this tendency show the behaviors such as seeking the truth, asking questions, approaching objectively even against the data that is contrary to their own opinions.

-*Open-mindedness:* Personal tolerance against different approaches and sensitivity to the own mistakes. It is stated that the individuals with this tendency considersothers' opinions while making any decision.

-*Analytical thinking:* Being careful about the situations that may cause some problems and reasoning and using objective evidences.

- *Systematicity:* Conducting an organized, planned a study carefully. It is stated that the individuals with this tendency tend to make a decision based on the knowledge and a specific process.

-*Self-confidence:* The confidence of the person for own reasoning processes.

-*Merrification:* A desire to learn new knowledge and new things without any benefit or expectation.

Analysis of the Data: The tendency to think critically increases as the score obtained from the scale increases. According to the CCTTS, a score below 240 points is defined as low critical thinking tendency, a score between 240 and 300 points is defined as medium tendency while a score above 300 points is defined as high tendency. Frequency analysis, Mann Whitney U test, Kruskal Wallis test and t-tests were used in the analysis of the results.

Results

Of the students, 65.8% were female, 85.7% were single, 33.1% were first grade students. 41.6% of the participants expressed their family structure as democratic.It was found that 56.7% of the students preferred to participate in social activities, that 43.3% preferred to participate in scientific activities, that 62.8% did not participate in social activities, that 52.2% followed Facebook and 55.5% followed the programs that are similar or opposite to their ideas (Table 1)The

mean score of the students on critical thinking scale was 229.269±25.912. According to the grade of the students, the mean scores of the CCTTS are shown in Table 2.According to the grades of the students and the advanced analysis of CCTTS, it was determined that the evaluation on seeking the truth and open-mindedness was significant. According to the Mann Whitney U advanced analysis test performed among the groups, the significant inter-group differences are shown in Table 2. The differences between seeking the truth and open-mindedness sub-dimensions were found to increase as the school grade increased. There was no significant difference found between the grades in terms of the total scale score (*KW:*4.312, *p:*0.23). In the variance analysis of the students' critical thinking tendencies according to the grades of the students, male students had a higher level of seeking the truth and open-mindedness compared to female students, and a significant difference was found in the meantime.

Systematicity sub-dimension was also found to be higher in male students than that in female students and it was found that there was a statistical difference.A significant difference was found in the analysis results in which the gender and total scale score were evaluated and the mean score of male students was higher (*t:*-3.36, *p:*0.01) (Table 3).According to the comparison results, the preference statuses of the students for the programs which were the same with their tendencies, views, and ideas, the evaluation on seeking the truth and open-mindedness were found significant. According to the Mann Whitney U advanced analysis test, the significant differences between the groups are shown in Table 4. The mean score of the individuals who followed the same programs with the students' opinions was 235.58±2.28, the mean score of the individuals who followed the different programs from the students' opinions was 216.58±6.05 and the mean score of the individuals who followed the same and different programs was 226.39±2.18. It was determined that it is especially effective on seeking the truth and open-mindedness (Table 4).Students' willingness to participate in scientific activities and the score of scale were evaluated, there was no statistically significant difference found between them. There was no significant relationship found between the socio-economic status of the students and their total scale scores (*KW:*5.082, *p:*0.79).A highly significant difference was found between the scale scores of the students and their participation statuses in social activities. Male students had higher CCTTS scale scores compared to female students (Table 5).

Table 1: The Socio-demographic Characteristics of the Students

	n	*%*		*n*	*%*
Age			**Grade**		
Between 17-19	76	28.0	1.grade	90	33.1
Between 20-22	154	56.8	2.grade	87	32.0
Between 23-25	30	11.1	3.grade	58	21.3
Between 26-28	11	4.1	4.grade	37	13.6
Gender			**Family Structure**		
Female	179	65.8	Authoritative	57	21.2
Male	93	34.2	Democratic	112	41.6
			Protective	79	29.4
			Other	21	7.8
Marital Status			**Living Together**		
Single	233	85.7	With a family	49	18.1
Married	14	5.1	With relatives	9	3.3
Divorced	14	5.1	With friends in a home	81	30.0
Other	11	4.0	In a dormitory	124	45.9
			In a lodgment	3	1.1
			Other	4	1.5

Table 2. Results of Variance Analysis of Students' Critical Thinking Trends by Their Grades

CCSST subdimensions	1.Grade	2.Grade	3.Grade	4.Grade	*KW*	*p*
	Mean±SD	*Mean±SD*	*Mean±SD*	*Mean±SD*		
Analytical thinking	46.76±0.91	30.63±0.89	34.94±1.19	28.64±1.57	1.834	0.608
Open-mindedness	32.22±1.09	30.63±0.89^{+}	34.94±1.19$^{+,}$	28.64±1.57’	14.945	0.002
Inquisitiveness	44.44±0.98	43.28±0.71	43.43±1.15	46.24±1.20	5.920	0.116
Self-confidence	39.73±1.18	38.50±0.82	40.84±1.11	38.81±1.67	3.229	0.358
Search of the truth	32.64±0.77*	31.97±0.76$^{\&}$	35.01±0.96*	32.37±1.20	8.336	0.040
Systematicity	33.96±0.60	34.67±0.66	36.26±1.00	33.81±1.14	2.942	0.401

$^{\&+}$’ symbols show statistically significant differences according to Mann Whitney U test

Table 3. Analysis of the Students' Total Scale Score and Their Status of Participation in Social Activities

The Status of Participation in Social Activities		*CCSST*	*p Value*	
	n	***Mean±SD***	***U***	***p***
Yes		236.84±2.67	6178.500	0.00
No		224.49±1.88		

Table 4. Comparison of the Students' Critical Thinking Tendencies and Their Opinions and Ideas with Their Preference State

CCSST Subdimensions	Yes	No	Similar-Nonsimilar	*KW*	*p*
	Mean±SD	*Mean±SD*	*Mean±SD*		
Analytical thinking	47.24±0.72	28.76±0.87	33.62±0.61	1.646	0.43
Open-mindedness	33.72±0.96*$^{+}$	27.11±1.82*	31.00±0.75^{+}	11.02	0.00
Inquisitiveness	45.10±0.68^{+}	44.17±2.31	43.41±0.71^{+}	4.055	0.13
Self-confidence	39.55±0.80*	34.94±1.97 *$^{\&}$	39.88±0.84$^{\&}$	5.613	0.06
Search of the truth	32.49±0.70*$^{\&}$	28.76±0.87*	33.62±0.61$^{\&}$	10.47	0.00
Systematicity	35.82±0.74	32.41±1.06	34.11±0.47	5.87	0.05

$^{\&+}$’ symbols show statistically significant differences according to Mann Whitney U test

Table 5. Analysis of the Students' Total Scale Score and Their Status of Participation in Social Activities.

The Status of Participation in Social Activities	CCSST		p Value	
	n	***Mean±SD***	***U***	***p***
Yes		236.84±2.67	6178.500	0.00
No		224.49±1.88		

Discussion

The study showed that the level of critical thinking in nursing is lower in Turkey compared to other countries. It was emphasized that nurses should take responsibility through husing critical thinking and have decision making skills instead of just doing what they were said to them (Dikmen, & Usta, 2013). In the study, the mean score of the nursing students was 229.269±25.912. According to the normal scale scoring, the mean score of the students was low. This result is similar to the results of many studies conducted on critical thinking with nursing students. The low results also suggest that nursing education is an important issue that needs to be emphasized (Eren, et al., 2012; Topoğlu, & Ünal, 2013).

According to the grades of the students and advanced analyses of CCTTS, it was found that the evaluation on seeking the truth and open-mindedness was significant. The increased knowledge on the nursing profession, the internships from the second year, the increase in the number of cases, experiences and education from year to year may be effective. In the study conducted by Ozturk and Ulusoy (2008), the undergraduate and master students were evaluated and the mean score was found higher in master students. The education was parallel to the students' critical thinking levels (Ozturk & Ulusoy 2008). However, there are some controversial studies showing that students' scale scores decreased with the increasing grades (Zhang, & Lambert, 2008).

The students' preferences for programs which were same with their opinions and views were assessed by the mean scale score. Same programs were preferred by the highest mean score (235.58±2.28). In the analyses, it was determined that the values on seeking the truth and open-mindedness were significant. The individuals who defend the same opinions with their own ideas come to the forefront by their good command of subject and open-mindedness. The level of seeking the truth on a subject and declaration of ideas positively correlate with the level of knowledge of students in this subject. Open-mindedness also enables one to tolerate different approaches and be sensitive to their own mistakes. A highly significant difference was found between the scale scores of the students and their level of participation in social activities.

In the variance analysis of the students' critical thinking tendencies according to their grades, it was found that the sub-dimensions of seeking the truth and open-mindedness were higher in male than those in women, the difference between them was found to be highly statistically significant. The mean CCTTS score was also higher in males than that in females. There was no significant difference in the study conducted with male and female students studying in the department of fine arts in the faculty of the education faculty (Topoglu, & Unal, 2013). Critical thinking is an indispensable part in nursing and ensures us to be able to provide desired and reliable care.

Conclusion

Students' scores regarding the level of critical thinking were found to be low. It is recommended that a training to increase the skills of critical thinking should be provided, that the activities such as group training, case study, seminars, etc. should be organized, and that, if necessary, the curriculum should be corrected in this direction during the education of the students.

The participation of students in social activities should be ensured and supported. Events, conferences, where the ideas are shared, and a discussion environment should be organized.

It was found that students' approach to the profession and the increase in the number of years of education they receive increase their open-mindedness. Increased awareness on occupation with increasing year enables them to better express themselves and find the truth more easily. Turkish community is a paternalistic society and this may cause male students to have a higher level of seeking the truth, open-mindedness and critical thinking. In general, 229 CCTS score of nursing candidates demonstrates a low critical thinking tendency. Therefore, it is important to develop programs for this status.

It may be useful to develop institutional policies that will allow nurses to think critically, to support their participation in vocational training events and scientific activities and to gain their critical point of view and autonomy.

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