THE EFFECT OF THE CRITICAL THINKING DISPOSITION OF CRITICAL THINKING EDUCATION IN MIDWIFERY STUDENTS

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Abstract:

Aim: The aim of this "non-matched control group, time-serial designed" research is to implement an education program for defining and advancing the ability for disposition based critical thinking of midwifery students.

Method: The population of the study consisted of 64 4th class midwifery students studying at a university in Turkey. The sample size was 46 students who volunteered to participate in the study. An education program was conducted in 15 weeks with 11 units, every unit consisting of theoretical knowledge, scenario studies, exercises, and homework in the content of the clinical course. For data collection, the Socio-demographic Features Data Form and the California Critical Thinking Disposition Inventory (CCTDI) were used. The midwifery students kept reflective critical thinking course notes for each clinical day throughout the semester.

Results: The mean scores for the midwifery students were 202.60±14.23 on the pre-test and 233.86±19.84 on the post-test. The pre-test critical thinking dispositions of the students in the pre-test and post-test were significantly different ($p<0.05$).

Conclusion: It is concluded that to improve students' critical thinking disposition, the course was helpful. To improve students' critical thinking disposition regarding theoretical knowledge, scenario studies, exercises, and homework is suggested.

Key-words: *Critical thinking, critical thinking education, midwifery students*

Introduction

Critical thinking is a contemporary concept with an ancient history. Socrates facilitated his students' learning by directing their thinking through a series of questions and dialogues. This process, called Socratic Reasoning, was recognized by some intellectuals such as St. Augustine, Kant, Voltaire, John Stuart Mill, William Graham Summer, John Dewey, and Bloom as a superior method of learning. Many educators today, however, have continued to use primarily the lecture method of teaching [2, 19, 20, 21, 22].

Midwifery education have put down accent on thinking and critical thinking as an answer to the need for leisure problem solving and decision-making in the clinical setting.

As midwifery education has emphasized critical thinking, newer teaching methods have evolved to promote critical thinking about midwifery concepts and content. Examples include nursing textbooks with critical thinking questions and activities, as well as computer-assisted instruction, which allows students to practice their thinking and decision making skills within a clinical scenario [30, 31]. The emphasis on critical thinking, thinking in midwifery education is based on the assumption that nurses use critical thinking when solving problems, priorities making decisions and making decisions. In thinking and critical thinking, there are plural established definition of critical thinking and thinking; several authors, theorists have stated their own or quoted another's definition of critical thinking in their work. Dewey (1933) described critical thinking [7] Facione and Facione (1996) described [12] Alfaro-LeFevre (2004) defined the wider range [1].

One goal of midwifery education is to advance the development and enhancement of critical thinking disposition, skills. Faculty evaluates the curriculum content and includes strategies that facilitate cognitive development and an attitude of inquiry while developing a broad knowledge base. Therefore, midwifery educators need to develop and implement a curriculum that promotes meaningful learning instead of rote learning of facts.

Methods

Study Design: The aim of this „non-matched control group, time-serial designed" research is to implement an education program for defining and advancing ability in the skill-based critical thinking of midwifery students.

Question: Does the use of the clinical course in midwifery education improve the critical thinking of students?

Population and Sample: The number of students in the universe was 64. The sample of the study consisted of 46 volunteered students. Disposition and skill-based critical thinking education was conducted in 15 weeks with 11 units. Each unit included theoretical knowledge, exercises, case studies, assignments given in the content of the clinical course.

Data Collection: Sociodemographic characteristics will include data history, number of siblings, income status and history of parent education (Table 1).

Inventory: CCTDI original scale contains 75 items loaded on seven structures. Kökdemir (2003) carried out an adaptation study to transform this inventory into a Turkish version because of cultural concerns. Finally, 51 items with six constructs were kept in the scale. The reliability of the whole scale was .75 in the pre-test and .87 in the post-test [15].

Sociodemographic data and academic achievement scores of the students were calculated. Students were determined to have a significant difference between the CCTDI scale and subscale scores. Data were analyzed using numbers, percentages, arithmetic averages, and t-tests. The research was approved by the school administration. The aim of the research was explained to the students comprising the sample. Verbal consent was obtained from the students. The principles of volunteering related to participation in research were emphasized.

Results

Table 1 gives socio-demographic characteristics. These; age mean, number of siblings, education level of parents, and perceived income level.

Characteristics	**Number**	**%***
Age Mean	**21.78±1.05**	
Number of Siblings		
A Sibling	18	39.1
Two Siblings	11	23.9
Three Siblings	12	26.1
Four and more siblings	5	10.9
Mother Education Level		
Illiterate	17	36,9
Primary Education	23	50.0
High School	6	13.1
Father Education Level		
Illiterate	7	15.2
Primary Education	20	43.5
High School	10	21.7
University	9	19.6
Perceived Income		
Low	12	26.1
Medium	34	73.9
Total	46	100.0

**Column Percentage*

Table 1. Distribution of socio-demographic characteristics of students (n=46)

As a result of the study, pre-test avarage 202.60 ± 14.23 post-test average 233.86 ± 19.84. There is a difference between the average scores of the students before and after the training ($p<0.05$) (Table 2). Tests scores of the students are low (239 points and below). The pre-test score of the systematicity subscale was 20.36 ± 4.77 and the post-test score was 21.71 ± 2.13. The pre-test score of the analytical subscale was 51.50 ± 5.73 and the post-test score was 57.86 ± 5.53 (Table 2).

Scale	**Pretest**		**Posttest**		**t***	**P**
	$\overline{X}$	± SD	$\overline{X}$	± SD		
Truth-seeking	26.04	3.86	30.39	3.86	-5.38	p<0.05
Open mindedness	43.02	4.60	48.78	6.29	-4.39	p<0.05
Analyticity	51.50	5.73	57.86	5.53	-5.26	p<0.05
Systematicity	20.36	4.77	21.71	2.13	-2.38	p<0.05
Self-confidence	27.65	4.77	33.63	4.61	-5.49	p<0.05
İnquisitiveness,	33.47	6.02	40.52	5.51	-7.57	p<0.05
Total	202.60	14.23	233.86	19.84	-10.22	p<0.05

*Parried samples t test

Table 2. Students' distribution of pretest posttest CCTDI scores

There was an important difference in these subscales before and after the training ($p<0.05$). There was no statistically significant difference between clinical course scores and achievement scores of the students ($p>0.05$). The demographic characteristics of the students did not change the mean scores of the scale and the mean of the subscale scores ($p>0.05$).

Discussion

The research, tests scores of the students are low (Table 2). The outcome of the researches canalize in Turkey and abroad related to critical thinking revealed that the critical thinking levels of university students were at low and medium levels, whereas there occurred a significant increase in the critical thinking levels of students who had a course and some training to develop their critical thinking [4, 5, 6, 8, 9, 10, 11, 14, 15, 16, 17, 30, 32].

The "truth-seeking" subscale score of the students was 26.04±3.86 (low level) in the pre-test and 30.39±3.86 (low level) in the post-test. In descriptive studies conducted on nursing and midwifery students in Turkey, it was determined that the lowest score was 26.11±5.2 and the highest score was 44.0±7.0 could not provide experimental data for they did not evaluate the subscales. Descriptive studies conducted on students abroad observed that they had 30.12±4.06, at the lowest, and 37.60±6.90, at the highest, at low levels in this subscale [16, 17, 26, 32]. There was a statistically significant difference in the mean scores between pre- and post-education in this subscale ($p <0.05$). In experimental studies conducted abroad, students' pre-intervention scores were found to be low. Post-intervention scores were moderate [9, 23]. The fact that the students had scores at a low level in the pre-test of studies conducted abroad and that the scores increased in the post-test, resulting in a statistically significant difference, is compatible with the results of this study. Although the students had low-level scores in this subscale and the students had low-level scores in the post-test in the findings of this study, an increase in their scores and the presence of a statistically significant difference were the contributions of the clinical course to this subscale. "Truth-seeking" projects the disposition of evaluating different ideas or alternatives. In line with this result in the study, it may be suggested to arrange the re-contents of clinical applications and courses.

In the "open-mindedness" subscale, the pre-test score of the students was 43.02±4.60 (medium level), and the score was 48.78±6.29 (close to high level) in the post-test. In Turkey, where students work on points in mid-level, and have been shown in studies abroad, they receive points for low and medium level [3, 8, 27, 29]. In the experimental studies conducted abroad, the students had scores at a low level in the pre-intervention and at a medium level in the post-intervention, and as a result, the critical thinking

trainings were determined to have contributed to this subscale [9, 23, 24]. In the experimental studies conducted abroad, the students had scores at a medium level in the pre-intervention and at a high level in the post-intervention, and as a result, the critical thinking trainings were determined to have contributed to this subscale [30]. There was a statistically significant difference in this subscale before and after the training ($p<0.05$) (Table 2). The fact that the students had scores at a medium level in the pre-test in this study suggested the contribution of the education system, whereas the fact that the students had scores close to a high level in the post-test suggested the contribution of the "clinical course" to this subscale. The "open-mindedness" subscale expresses a person's tolerance towards different opinions and his sensitivity to his own mistakes. The basic logic in open-mindedness is a person's taking not only his own ideas but also others' views and ideas into consideration while making a decision. We are advised on the development of the features of this subscale in the scenario and the exercises, taking into account the course, clinical course and course of critical thinking.

In the „analyticity" subscale, the score of the students was 51.50±5.73 (high level) in the pre-test and 57.86±5.53 (high level) in the post-test. Turkey has been seen in studies of students in middle and high scores they receive from these subscales. In the studies conducted abroad, it was found that they received low and intermediate scores [3, 8, 13, 16, 17, 18, 24, 25, 26, 27, 28, 32]. In experimental studies conducted abroad on nursing students for developing critical thinking disposition and skill, Yıldırım & Özsoy 2011 noted that the experimental group students had a pre-test score of 52.05±6.05 and a 61.33±1.97 post-test score [30]. A statistically significant difference was determined between the experimental and control groups in the score means of this subscale in the post-test ($p<0.001$). Evancho (2000) found no statistically significant difference between the those who had a score of 43.91±40.60 at the beginning of the term and a score of 44.46±17.30 at the end of the term at the medium level; Duphorne (2000) found they had a score of 37.37±4.97 at the low level before the conference and a score of 43.51±6.16 at the medium level after the conference; and Pıtts (2001) found that they scored 40.65±5.88 at a medium level in the pre-intervention and scored 46.78±6.58 at a medium level in the post-intervention and determined a statistically significant difference between them [9, 10, 23]. The above-mentioned international experimental studies demonstrated an increase in the scores of students in the pre-intervention and post-intervention and a statistically significant difference between them. Moreover, the "analyticity" subscale expresses the disposition of paying attention to the situations that can potentially create problems and reasoning and using objective evidence even against difficult problems. The reason why the students in the study had scores at the high level in this subscale was that the subjects discussed in the education system were supported by applications and laboratories, the subjects were presented to the students from a healthy individual to an unhealthy individual in a logical chain, and sample cases were given in the subjects, which the students were asked to solve. An increase in the scores of the students in the post-test resulted from works, exercises and homework, which were given depending on the theoretical information in the clinical course and further developed this subscale.

In the "systematicity" subscale, the score of the students was 20.36±4.77 (low level) in the pre-test and 21.71±2.13 (low level) in the post-test. It was observed in studies conducted in Turkey and abroad that the students had scores at low and medium levels in this subscale [35, 36, 45, 48]. While Yıldırım and Özsoy 2011 determined that the students had scores at a low level at the beginning and end of the term and that there was a statistically significant difference between the groups ($p<0.05$), Duphorne (2000) found that they had scores at a low level before the conference and at a medium level after the conference [9, 30]. The "systematicity" subscale is the disposition of using a decision-making strategy that is based on information and that follows a certain procedure instead of both an organized, planned and careful investigation and considering different views and using complex reasoning. In the clinical course, it may be suggested that students should be rearranged in order to

improve their critical thinking by considering these sub-dimension characteristics.

In the "self-confidence" subscale, the score of the students was 27.65±4.77 (low level) in the pre-test and 33.63±4.61 (low level) in the post-test. In our country studies, the lowest is 27.49 ± 5.36 and the highest is 43.4 ± 6.10 [27, 29]. The score obtained from this subscale; It is similar to the work done on this issue in Turkey. There was a statistically significant difference in the mean scores between pre- and post-education in this subscale ($p < 0.05$). Yıldırım and Özsoy 2011 determined that the students had scores at a low level before and after the intervention; Pıtts (2001) determined that the students had scores at the medium level before and after the intervention [23, 30]. They also determined that there was a statistically significant difference between them. Although the students' scores were at the same level in the pre-intervention and post-intervention in the experimental studies conducted abroad, it was observed that there was an increase in the students' scores. Even though the CCTDI pre-test and post-test scores were at a low level in the findings of this study and proves that they have to be developed, a 6 point increase for the students showed the contribution of the clinical course to this subscale. Students' self-confidence features were developed. Considering the characteristics of this subscale, the curriculum may be reviewed again.

In the "inquisitiveness" subscale, the score of the students was 33.47±6.02 (low level) in the pre-test and 40.52±5.51 (medium level) in the post-test. Students' scores; Şenturan (2008) reported a low level of 39.31 ± 6.81; Topçu and Beşer (2005) found an average of 48.65 ± 5.8 [27, 29]. Yıldırım and Özsoy 2011 determined that the students had scores at a low level in the pre-test and a medium level in the post-test; Pıtts (2001) determined that they had scores at a medium level in the pre-intervention and at a high level in the post-intervention [23, 30]. They also found that there was a statistical difference. The result shows the contribution of the clinical course. The "inquisitiveness" subscale shows the disposition of a person in obtaining information and learning new things without any expectations of gain. Development in the students' inquisitiveness characteristics is an indicator of the study's success. The students' grade point averages did not affect the total scores and sub scores averages of the students ($p > 0.05$). Academic achievement grade does not affect the scale score in domestic and foreign research [9, 10, 15, 23, 30].

Socio-demographic characteristics of the students in studies in Turkey have been not found affect total score mean and the subscale score means [5, 30, 32]. Working our result was found to be in parallel with the results of research conducted in Turkey.

Conclusion and Recommendations

However, the final test score of the students was higher than the first test score. Therefore; it is thought that the education contributed to the students' critical thinking. The clinical course did not affect the students' academic achievement. The socio-demographic characteristics of the students did not change the mean scores of the scale and the mean of the subscale scores. It was observed that the education made by the research contributed to the study. It can be said that students' critical thinking skills can be improved by new regulations.

Limitations of the study

The results obtained in this study can be generalised only to its sample and are limited by the scope of the scales used.

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Conflicts of interest

The authors have no conflicts of interest relevant to this article.

Authors' contributions

Concept: Belgin Yıldırım, Design: Belgin Yıldırım, Şükran Özkahraman-Koç, Data Collection or Processing: Belgin Yıldırım, Analysis or Interpretation: Belgin Yıldırım, Şükran Özkahraman-Koç, Literature Search: Belgin Yıldırım, Şükran Özkahraman-Koç, Writing: Belgin Yıldırım, Şükran Özkahraman-Koç.

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