

ARAŞTIRMA/RESEARCH

AN INVESTIGATION OF THE CRITICAL THINKING ABILITIES OF NURSES IN GENERATION-X AND -Y: THE EXAMPLE OF ELAZIĞ¹

Fatoş UNCU² 

Hasan EVCİMEN³ 

Ufuk DOĞAN⁴ 

Alınış Tarihi/Received	Kabul Tarihi/Accepted	Yayın Tarihi/Published
11.08.2020	16.11.2021	15.12.2021

Bu makaleye atıfta bulunmak için/To cite this article:
Uncu F, Evcimen H, Dogan U. An Investigation of the Critical Thinking Abilities of nurses In Generation-X and -Y: the Example of Elazığ. Journal of Anatolia Nursing and Health Sciences, 2021; 24(4): 548-554. DOI: 10.17049/ataunihem.779100

ABSTRACT

Aim: The aim of this study was to examine the critical thinking skills of working nurses in generation-X and -Y.

Method: This descriptive cross-sectional study was conducted between 10.01.2019-01.03.2019 in a hospital in Elazığ province, and 107 nurses from different generations participated in the study. Generation-X was selected from nurses born between 1965 and 1979 and Generation-Y was selected from nurses born between 1980 and 1999. "Personal Data Form" and "California Critical Thinking Disposition Inventory" were used in the collection of data. Number, percentage, average, and t-test were employed to evaluate the data.

Results: The average age of the nurses participating in the study was 33.42±7.45 and the average of their professional working duration was 10.86±7.65 years. Also, 58.9% of nurses were female, 74.8% were married, 68.2% had undergraduate and graduate degrees. Forty-three percent of the nurses in the study stated that they knew the concept of critical thinking also 57% of the nurses in the study were in generation-Y. The mean California Critical Thinking Disposition Inventory scores of the nurses were 224.64±20.83 and their critical thinking skills were found to be low. Nurses received the highest score from the sub-dimension of analyticity (45.75±5.64) and the lowest score from the sub-dimension of open-mindedness (29.41±6.41) among the sub-dimension of the California Critical Thinking Disposition Inventory scale. The critical thinking tendencies of Generation-Y nurses were higher than those of generation-X and a significant difference was found ($p < 0.05$).

Conclusion: Critical thinking ability, which is considered to be effective in clinical decision making, was found to be low in the nurses participating in the study. It is necessary to remove the obstacles to critical thinking of nurses in nursing programs and to develop a curriculum on critical thinking. It is proposed to provide in-service training to improve the critical thinking skills of working nurses.

Keywords: Critical Thinking; generation difference; nursing.

ÖZ

X ve Y Kuşağı Hemşirelerin Eleştirel Düşünme Yeteneklerinin İncelenmesi: Elazığ Örneği

Amaç: Bu çalışmanın amacı, X ve Y Kuşağı'nda çalışan hemşirelerin eleştirel düşünme becerilerini incelemektir.

Yöntem: Tanımlayıcı kesitsel tipteki bu çalışma 10.01.2019-01.03.2019 tarihleri arasında Elazığ ilinde bir hastanede gerçekleştirilmiş olup, çalışmaya farklı nesillerden 107 hemşire katılmıştır. X kuşağı 1965-1979 doğumlu hemşirelerden, Y kuşağı ise 1980-1999 doğumlu hemşirelerden seçilmiştir. Verilerin toplanmasında "Kişisel Bilgi Formu" ve "California Eleştirel Düşünme Eğilimi Ölçeği" kullanılmıştır. Verilerin değerlendirilmesinde sayı, yüzde, ortalama ve t-testi kullanılmıştır.

Bulgular: Araştırmaya katılan hemşirelerin yaş ortalaması 33.42±7.45, mesleki çalışma sürelerinin ortalaması 10.86±7.65 yıldır. Ayrıca hemşirelerin %58.9'u kadın, %74.8'i evli, %68.2'si lisans ve yüksek lisans derecesine sahipti. Araştırmaya katılan hemşirelerin yüzde 43'ü eleştirel düşünme kavramını bildiklerini, ayrıca araştırmaya katılan hemşirelerin %57'si Y kuşağında olduğunu belirtti. Hemşirelerin California Eleştirel Düşünme Eğilimi Ölçeği puanları ortalama 224.64±20.83 ve eleştirel düşünme becerileri düşük bulundu. Hemşireler California Eleştirel Düşünme Eğilimi Ölçeği alt boyutlarından analitik alt boyutundan (45.75±5.64) en yüksek puanı, açık fikirlilik alt boyutundan (29.41±6.41) en düşük puanı almıştır. Y Kuşağı hemşirelerinin eleştirel düşünme eğilimleri X kuşağına göre daha yüksek olup anlamlı bir farklılık olduğu bulundu ($p < 0.05$).

Sonuç: Klinik karar vermede etkili olduğu düşünülen eleştirel düşünme yeteneği araştırmaya katılan hemşirelerde düşük bulunmuştur. Hemşirelik programlarında hemşirelerin eleştirel düşünmesinin önündeki engellerin kaldırılması ve eleştirel düşünme üzerine müfredat geliştirilmesi gerekmektedir. Çalışan hemşirelerin eleştirel düşünme becerilerini geliştirmek için hizmet içi eğitim verilmesi önerilmektedir.

Anahtar kelimeler: Eleştirel düşünme; kuşak farkı; hemşirelik.

¹ This study was presented as a summary verbal presentation at the Palandoken 2nd International Nursing Education Congress held in Erzurum between 24-26 October 2019.

² Fırat University, Faculty of Health Sciences, Department of Nursing (Assistant Professor), ORCID: 0000-0001-8077-4652, e-posta: funcu@firat.edu.tr

³ **Correspondence author:** Mus Alparslan University (Lecturer), ORCID: 0000-0003-4352-101X, e-posta: hsn_evcimen@hotmail.com

⁴ Mus Alparslan University (Lecturer), ORCID: 0000-0002-1345-5261, e-posta: ufukdgn.82@gmail.com



INTRODUCTION

The concept of generation means a group of individuals born in almost the same years, who have gone through the same political and social process, whose attitudes and behaviors are similar. Differences between generations have been studied in many fields such as political science, health, education, sociology and psychology. There are differences in intergenerational core values, and it is thought that these differences may affect professional values (1). The generations are divided into clusters spanning an average of 20-25 years, called Silent Generation, Baby Boomers, X, Y and Z.

The generations that are mostly actively involved in business life are the Baby Boomers, generation X, and generation Y. For this reason, the research has often examined these generations. In recent years, however, generation Z has also begun to take its place in research (2,3). Critical thinking is a cognitive process that represents the ability to reflect one's own reasoning to maximize positive outcomes and minimize errors in decision making. Today's people are expected to be individuals who are open to change, who question their work, who seek practical solutions, who can express themselves well, who care about individual and social development, and who have the ability to think critically (4). Critical thinking in the context of nursing practices has been expressed as a process based on evidence and thinking, which was carried out for the purpose of examining the ideas, hypotheses, principles, beliefs, and actions of caregivers and health personnel (5).

The trend of critical thinking, which occupies an important place in the nursing profession, has been the subject of research for over 30 years and has taken its place in the literature. Many researchers have talked about the importance of critical thinking in managing the clinical environment, in the quality of care provided to patients, in the accuracy of the methods used during and after the patients' recovery process (6). Nurses contribute to the development of teaching and learning strategies for professionalization in nursing by increasing their critical thinking abilities (7). Nurses are health professionals who directly encounter patients' symptoms. The disorders that occur in the clinical picture of patients can sometimes be very serious or even fatal. For this reason, it is important that nurses develop their ability to

observe problems that may arise before and during treatment, organize quickly during clinical decision-making and solve problems (5).

There are many studies in the literature that measure the critical thinking tendencies of nurses and nursing students (8,9). However, there is no study that examines generational differences, which is a current concept, with the dimension of critical thinking concept in nursing.

AIM

The purpose of this study is to examine the critical thinking skills of the X and Y generations of nurses.

Research question: Is there a difference between the critical thinking scores of the nurses in the X and Y generations?

METHODS

Design: This research was conducted in descriptive type. The research was carried out between 10 January 2019 and 1 March 2019 at a public hospital in the city center of Elazığ.

Population: The population of the research consists of 164 nurses in generation X and Y who working in the hospital. The hospital has a bed capacity of 254. Nurses at the hospital work in two shifts. No sampling method was used total 107 nurses were included in the study. Response rate 65.2%. The nurses gave informed voluntary consent and thus were included in the study.

Data Collection Tools: The data was collected through the questionnaire and the face-to-face interview technique was used. It took 20 minutes for the nurses to complete each questionnaire. The Personal Data Form and California Critical Thinking Disposition Inventory (CCTDI) were used to collect the data.

Personal Data Form: Personal data for included questions about nurses' age, gender, marital status, the professional working year, education level, the status of following scientific publications, participation in scientific activities, and knowing the concept of critical thinking are included.

California Critical Thinking Disposition Inventory: It was developed by Facione et al (10). Turkish validity and reliability study of the scale was conducted by Kökdemir (11). The original scale consists of 75 items and 7 sub-dimensions, while the scale adapted to Turkish has a total of 51 items and 6 sub-dimensions. These sub-dimensions are, in turn, truth-seeking, open-mindedness, analyticity, systematicity, self-confidence, and inquisitiveness. The cronbach

alpha reliability coefficient of the scale was 0.88 and it was found as 0.82 in this study. The scale was prepared in Likert-6 types, and the scoring of items are as follows; 1: “disagree at all”, 2: “disagree”, 3: “partially disagree”, 4: “partially agree”, 5: “agree” and 6: “totally agree”. The highest score of 306 and the lowest score of 51 can be taken from the scale. As the score increases, the level of critical thinking skills also increases. If the total score obtained from the scale is less than 240, it is accepted that they have a low level of critical thinking skill if it is between 240-300, they have a medium level, and if more than 300, they have a high level of critical thinking. There are 22 negative items in the scale (05, 06, 09, 11, 15, 18, 19, 20, 21, 22, 23, 25, 27, 28, 33, 36, 41, 43, 45, 47, 49, 50), these items were scored by reverse coding (11).

Variables of study: Dependent variables; CCTDI and its sub-dimensions. Independent variables; Gender, educational status, participation in scientific events and generation status.

Statistical Analysis: SPSS 23.0 statistical package software was used to evaluate the data. Number, percentile, and t-test were used in the analysis of the data. The data is in the 95% confidence range and is expressed as $p < 0.05$.

Ethical Consideration: Prior to the study, necessary permissions were obtained from the Social and Humanities Ethics Committee of Firat University with the number 2019/16-10, and all written permission was obtained from the hospital where the study was conducted. The study was carried out in accordance with the principles of the Helsinki Declaration.

RESULTS AND DISCUSSION

Of the study participants, 58.9% were female, 80% were married and 68.2% had undergraduate and graduate degrees. Also, 70.1% of the nurses stated that they followed scientific publications, while 61.7% stated that they participated in scientific activities; 43% of the nurses said that they knew the concept of critical thinking; and 57% of the nurses involved in the study are in generation-Y (Table 1).

The average age of the nurses participating in the study was 33.42 ± 7.45 and the average of their professional working duration was 10.86 ± 7.65 years.

The total CCTDI score of the nurses involved in the study was 224.64 ± 20.83 ,

indicating low levels of critical thinking skills. The nurses received the highest score from the analyticity sub-dimension (45.75 ± 5.64) among the CCTDI sub-dimensions. The average score and minimum-maximum values that the nurses received from CCTDI total scale and sub-dimensions are given below (Table 2).

Table 1. Descriptive Characteristics of Nurses

Variables	N	%
Gender		
Female	63	58.9
Male	44	41.1
Marital status		
Married	80	74.8
Single	27	25.2
Education status		
High school and associate's degree	34	31.8
Undergraduate and graduate degree	73	68.2
Scientific publication following		
Yes	75	70.1
No	32	29.9
Participation in scientific events		
Yes	66	61.7
No	41	38.3
Knowing the concept of critical thinking		
Yes	46	43.0
No	18	16.8
Partially	43	40.2
Generation		
Generation-X	46	43.0
Generation-Y	61	57.0
Total	107	100

The total CCTDI score of the female nurses participating in the study was 227.46 ± 24.86 while the total score was 222.68 ± 17.42 for the males. The score of truth-seeking sub-dimension is higher in males than females and constitutes a significant difference ($p < 0.05$). There was no statistically significant difference in the sub-dimensions of systematicity, analyticity, open-mindedness, and self-confidence ($p > 0.05$). The total CCTDI score of nurses in generation-Y participating in the study was 231.76 ± 15.93 and the total CCTDI score of nurses in Generation-X was 215.21 ± 22.90 . The total score of Generation-Y nurses was higher and a statistically significant difference was found ($p < 0.05$). The analyticity

sub-dimension, self-confidence sub-dimension, and inquisitiveness sub-dimension scores of the Generation-Y were higher than those of the Generation-X nurses and showed a significant difference ($p < 0.05$). The CCTDI score of the nurses with undergraduate and graduate degrees was 226.41 ± 20.06 and the CCTDI score of the nurses with high school and the associate degree was 220.86 ± 22.22 . Critical thinking skills of the nurses with undergraduate and graduate degrees were higher but no statistically significant difference was found ($p > 0.05$). There was also no significant difference in the sub-dimensions of the scale according to the educational situation ($p > 0.05$). According to the comparison of the total

scores of nurses from CCTDI and sub-dimensions based on their participation in scientific activities, it was determined that the total scores of nurses participating in scientific activities were higher than those who did not participate, and there was a statistically significant difference ($p: 0.001$). The sub-dimension scores of the nurses who participated in scientific activities were higher than those who did not participate in scientific activities, and the sub-dimension of truth-seeking ($p: 0.02$), the sub-dimension of analyticity ($p: 0.01$), the sub-dimension of systematicity ($p: 0.04$) and the sub-dimension of inquisitiveness ($p: 0.04$) were found to be significant (Table 3).

Table 2. Average Scores of Nurses on CCTDI Total Scale and Sub-dimensions

CCTDI total scale and sub-dimensions	Mean	Min-max
Seeking-truth	31.66 ± 6.29	14.17-36.58
Open-mindedness	29.41 ± 6.41	10-44.25
Analyticity	45.75 ± 5.64	10-52.39
Systematicity	32.89 ± 4.88	14-36
Self-Confidence	40.64 ± 6.48	12.35-42
Inquisitiveness	44.26 ± 7.04	10.84-48.85
CCTDI	224.64 ± 20.83	24-275

The total CCTDI score of the nurses involved in the study was 224.64 ± 20.83 indicating low levels of critical thinking skills. The critical thinking tendencies of Generation-X and -Y nurses were examined separately. As a result, the tendency to think critically by the generations examined within themselves was found to be low. Öztürk and Ulusoy (12) studied on undergraduate and graduate students of nursing and found that the total CCTDI score of the students was low. Considering that the sample of the same study covers generation-Y, they found similar results to our study on the total mean scores for critical thinking of generation Y (231.76 ± 15.93) (12). In the study conducted by Mahmoud and Mohamed (13) it is seen that the total CCTDI score of nurses is higher than the score obtained by nurses in our study (13). Elsayed et al. (14) found that nurses got a CCTDI score of 305.8 ± 29.5 in a study conducted with nurses in Egypt, and a CCTDI score of 306.1 by Fesler Birch and Diane (15) in the USA. Zori et al. (16) in the study with nurses in the USA, it is seen that the mean CCTDI score is 320.41 ± 23.70 . In our study, nurses' CCTDI scores were low; It is thought that critical thinking-oriented education understanding is limited, nurses cannot get out of their traditional roles, and nurses do not

develop their intellectual skills.

Gürol Arslan et al. (17) studied on active working nurses and stated that the critical thinking tendencies of nurses are low. Considering that participants are in both generation-X and -Y and the study does not establish a relationship between age and critical thinking, it can be stated that the tendency to critical thinking for both generations is low in this study (17). A study on undergraduate nurses found that first-grade students' critical thinking tendencies were high and third-grade students' tendencies were low (18).

Kanbay et al. (19) researched on the nursing undergraduates (Generation-Y), CCTDI total average scores were found to be 257.417 ± 1.52 and their tendency to think critically was found to be moderate (19). In another study conducted in Turkey, taking into account the average age and the year in which the study was conducted, the total CCTDI scores of the nurses in Generation-Y and the students were found to be 261.1 ± 23.4 and 277.0 ± 19.7 respectively (20).

Considering these studies, it was found that nurses have low overall critical thinking tendencies, and while they have a higher critical thinking tendency during their education years, this decreases in professional life. For this reason,

Table 3. Comparison of Total Scores of CCTDI and Sub-dimensions According to Some Variables

Variable/ Scale	Seeking-truth $\bar{X} \pm S.D$	Open-mindedness $\bar{X} \pm S.D$	Analyticity $\bar{X} \pm S.D$	Systematicity $\bar{X} \pm S.D$	Self-Confidence $\bar{X} \pm S.D$	Inquisitiveness $\bar{X} \pm S.D$	CCTDI $\bar{X} \pm S.D$
Gender							
Female	33.14±5.30	30.41±6.44	46.25±5.52	32.19±4.76	41.00±7.22	44.44±8.31	227.46±24.86
Male	30.63±6.74	28.71±6.34	45.41±5.74	33.38±4.94	40.38±5.95	44.14±6.07	222.68±17.42
Statistical testing and significance	t: -2.066 p: 0.041	t: -1.354 p: 0.179	t: -.754 p: 0.453	t: 1.242 p: 0.217	t: -.486 p: 0.628	t: -.216 p: 0.820	t: -1.171 p: 0.244
Education status							
High school and associate's degree	30.33±5.49	29.14±7.10	45.41±5.51	33.18±5.70	39.74±6.43	43.03±6.72	220.86±22.22
Undergraduate and graduate degree	32.28±6.57	29.54±6.11	45.91±5.73	32.76±4.48	41.05±6.51	44.84±7.16	226.41±20.06
Statistical testing and significance	t: -1.505 P: 0.135	t: -.300 p: 0.765	t: -.430 p: 0.668	t: 0.416 p: 0.678	t: 0.405 p: 0.333	t: -1.234 P: 0.220	t: -1.286 P: 0.201
Participation in scientific events							
Yes	32.36±5.19	28.14±7.08	53.41±5.51	34.18±5.70	39.54±5.23	47.03±6.72	234.66±35.45
No	27.38±6.57	30.54±6.09	46.11±5.73	33.86±4.38	41.15±6.41	44.14±7.16	223.18±36.36
Statistical testing and significance	t: -3.965 p: 0.02	t: -.410 p: 0.720	t: 4.130 p: 0.01	t: 2.416 p: 0.04	t: 0.510 p: 0.397	t: -2.234 p: 0.04	t: -4.316 p: 0.001
Generation							
Generation-X	30.77±5.36	28.13±5.95	44.17±6.23	32.71±5.42	38.32±6.33	41.08±6.32	215.21±22.90
Generation-Y	32.34±6.87	30.38±6.62	46.95±4.87	33.03±4.47	42.38±6.08	46.66±6.64	231.76±15.93
Statistical testing and significance	t: -1.278 p: 0.204	t: -1.814 p: 0.072	t: -3.587 p: 0.011	t: -.329 p: 0.743	t: -3.963 p: 0.001	t: -4.190 p: 0.001	t: -4.408 p: 0.001

the complexity and intensity of work in professional life can be considered as not providing opportunities for research and development.

In our study, the critical thinking skills of those who have undergraduate and graduate degrees were higher, but no statistically significant difference was found. The study of Işık et al. (21) included generation Y nurses in general based-on the average age of the participants and the year of the study, and critical thinking tendencies of nurses with high school and equivalent degree were found to be lower than nurses with undergraduate and graduate degree, but no significant difference was observed. Erkuş and Bahçecik (22) studied on Generation-X and -Y nurses, the critical thinking tendencies were found to be higher in nurses who had graduate and underground degrees than those with high school and equivalent degrees, but no significant relationship was found.

In our study, the score averages of analyticity (45.75 ± 5.64), inquisitiveness (44.26 ± 7.04), self-confidence (40.64 ± 6.48) were found to be moderate, and the truth-seeking, the open-mindedness the systematicity sub-dimension were found to be low. In the İskender and Karadağ (23) study, the analyticity sub-dimension was moderate (45.03 ± 7.105) and the score averages of the other sub-dimensions were low. A study on nurses working in a government hospital in Egypt found that the levels of curiosity and self-confidence were moderate, and the levels of other dimensions were low (13).

The CCTDI total score averages ($p:0.001$) and truth-seeking ($p:0.02$), analyticity ($p:0.01$), systematicity ($p:0.04$), curiosity ($p:0.04$) of the nurses participating in scientific activities were found to be higher and significantly different than those who did not participate in scientific activities. Iskender and Karadağ (23) found that nurses who participated in scientific activities had a higher tendency to think critically than those

who did not participate in scientific activities, but there was no significant difference between them. It is thought that taking part in scientific activities related to their fields will increase the scientific depth of nurses.

The total CCTDI scores of male nurses participating in our study were 227.46 ± 24.86 and the total CCTDI scores of female nurses were 222.68 ± 17.42 . The Trust-seeking score of male nurses was significantly higher than female nurses. Aein and Aliakbari (24) could not establish any relationship between the gender variable in palliative nurses with a graduate degree. Oktay et al. (25) studied on the students of the School of Health and found that gender factor did not show a significant difference in the critical thinking level.

Limitations of Research: This study was conducted with nurses working in a hospital. The results of the study cannot be generalized.

CONCLUSION

It was found that the critical thinking disposition of the nurses participating in the study was low. The critical thinking disposition of the nurses in the Y generation was found to be higher than the nurses in the X generation. It was found that the critical thinking dispositions of nurses participating in scientific activities were higher.

Strategies can be developed with inter-institutional cooperation to improve nurses' critical thinking skills. It is recommended to support nurses' participation in scientific activities.

Acknowledgments: No financial support was received from any institution/organization for this study.

Conflict of Interests: There is no conflict of interest between the authors in this study.

Contribution of Author: Study design: FU, UD, HE Data collection: UD Data analysis: FU, HE Manuscript writing and editing: HE, FU, UD

REFERENCES

1. Çetin C, Karalar S. A Research on the Versatile and Unlimited Career Perceptions of X, Y and Z Generation Students. *Journal of Management Sciences* 2016;14(28):157-97.
2. Öztürk D, Onurlubaş E. A Research on Purchasing Preferences of X-Y-Z Generations in New Product Development Process. *Isas Winter* 2019;4(8):159-66.
3. Arslan A, Staub SA Research on Generation Theory and Internal Entrepreneurship. *Kafkas University Journal of Economics and Administrative Sciences* 2015;6(11):1-24.
4. Certel Z, Çatıkkaş F, Yalçinkaya M. Analysis of The Emotional Intelligence Levels and Critical Thinking Dispositions of Physical Education Teacher Candidates. *Selcuk University Journal of Physical Education and Sport Science* 2011;13(1):74-81.
5. Lee DS, Abdullah KL, Subramanian P, Bachmann RT. An Integrated Review of The



- Correlation Between Critical Thinking Ability and Clinical Decision-Making in Nursing. *Journal of Clinical Nursing* 2017;2 (23-24):4065-79.
6. Raymond C, Profetto-Mcgrath J, Myrick F, Streat WB. Nurse Educators' Critical Thinking: A Mixed Method Sex Ploration. *Nurse Education Today*. 2018; 66:117-22.
 7. Zuriguel Pérez E, LluchCanut MT, Agustino Rodríguez S, Gomez Martin MDC, Roldan-Merino J, Falco-Pegueroles A. Critical Thinking: A Comparative Analysis Between Nurse Managers and Registered Nurses. *Journal of Nursing Management* 2018;26(8):1083-90.
 8. Noohi E, Karimi-Noghondar M, Haghdoost A. (2012). Survey of critical thinking and clinical decision making in nursing student of Kerman University. *Iranian Journal of Nursing and Midwifery Research* 2012;17(6):440-44.
 9. Chan ZC. A systematic review of critical thinking in nursing education. *Nurse Education Today* 2013;33(3):236-40.
 10. Facione NC, Facione PA, Sanchez CC. Critical Thinking Disposition as a Measure of Competent Clinical Judgment: The Development of the California Critical Thinking Disposition Inventory. *Journal of Nursing Education* 1994; 33(8): 345-49.
 11. Kökdemir, D. Decision Making and Problem Solving in Uncertainty Situations. Unpublished Doctorate Thesis, Ankara University, Ankara, 2003.
 12. Öztürk N, Ulusoy H. Critical Thinking Levels of Undergraduate and Graduate Nursing Students and Factors Affecting Critical Thinking. *Maltepe University Journal of Nursing Science and Art* 2018;1(1):15-25.
 13. Mahmoud AS, Mohamed HA. Critical Thinking Disposition Among Nurses Working in Public Hospitals at Port-Said Governorate. *International Journal of Nursing Sciences*. 2017;4(2):128-34.
 14. Elsayed RS, Sleem WF, Elsayed NM. Disposition of Staff Nurses' Critical Thinking and its Relation to Quality of their Performance at Mansoura University Hospital. *Journal of American Science* 2011;7(4):388-95.
 15. Fesler-Birch DM. Perioperative Nurses' Ability to Think Critically. *Quality Management in Healthcare* 2010;19(2):137-146.
 16. Zori S, Nosek LJ, Musil CM. Critical thinking of nurse managers related to staff RNs' perceptions of the practice environment. *Journal of Nursing Scholarship* 2010;42(3):305-13.
 17. Arslan GG, Demir Y, Eşer İ, Khorsid L. Investigation of the Factors Affecting the Critical Thinking Tendency of Nurses. *Anatolian Journal of Nursing and Health Sciences* 2009;12(1):72-80.
 18. Noone T, Seery A. Critical Thinking Dispositions in Undergraduate Nursing Students: A Case Study Approach. *Nurse Education Today* 2018;68:203-7.
 19. Kanbay Y, Aslan Ö, Işık E, Kılıç N. Problem Solving and Critical Thinking Skills of Nursing Undergraduate Students. *Journal of Higher Education and Science* 2013;3(3):244-51.
 20. Dirimeşe E, Dicle A. Evaluating the Critical Thinking Tendencies of Nurses and Nursing Students. *Anatolian Journal of Nursing and Health Sciences* 2018;15(2):89-98.
 21. Işık E, Karabulutlu Ö, Kanbay Y, Aslan Ö. Determining Critical Thinking Tendencies in Nurses: A Comparative Study. *Dokuz Eylül University School of Nursing Electronic Journal* 2012;5(3):96-100.
 22. Erkuş B, Bahçecik N. Critical Thinking Level and Problem Solving Skills of Executive Nurses and Nurses Working in Private Hospitals. *Marmara University Institute of Health Sciences Journal* 2015;5(1):1-9.
 23. İskender MD, Karadağ A. Determining the Critical Thinking Levels of Senior Nursing Students. *Dokuz Eylül University Faculty of Nursing Electronic Journal* 2015;8(1):3-11.
 24. Aein F, Aliakbari F. Effectiveness of Concept Mapping and Traditional Linear Nursing Care Plans on Critical Thinking Skills in Clinical Pediatric Nursing Course. *Journal of Education and Health Promotion* 2017;6(13):1-6.
 25. Oktay AA, Taş F, Doğaner A, Gülpak M, Avnioğlu S. Critical Thinking Tendencies of Health School Students. *Cukurova Medical Journal*. 2019;44 (1):33-43.