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Determining the relation between critical thinking tendencies and clinical decision- making skills of nursing students

Hemşirelik öğrencilerinin eleştirel düşünme eğilimleri ve klinik karar verme becerileri arasındaki ilişkinin belirlenmesi

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Abstract

Aim: The purpose of the present study was to determine the relation between critical thinking tendencies and clinical decision-making skills of nursing students.

Materials and Methods: The study was conducted between 01 and 31 May, 2018 in the nursing department of a university. The sample of the study was 329 students. The Determining Descriptive Characteristics Form, which was intended to question the socio-demographic characteristics of students, California Critical Thinking Tendencies Scale and Clinical Decision-Making Scale in Nursing were used in collecting the study data.

Results: General critical thinking level of student nurses was determined to be low (208.23±23.76), and clinical decision-making skill was at a moderate level (135.87±17.17).

Conclusion: In the light of these findings, it was determined that nursing students had low critical thinking levels and moderate clinical decision-making skills.

Keywords: Clinical Decision-Making; Critical Thinking; Nursing.

Öz

Amaç: Bu araştırmanın amacı, hemşirelik öğrencilerinin eleştirel düşünme eğilimleri ve klinik karar verme becerisi arasındaki ilişkiyi belirlemekti.

Gereç ve Yöntem: Araştırma 01-31 Mayıs 2018 tarihleri arasında bir üniversitenin hemşirelik bölümünde yürütüldü. Araştırmanın örneklemini 329 öğrenci oluşturdu. Verilerin toplanmasında Tanıtıcı Özellikleri Belirleme Formu, Kaliforniya Eleştirel Düşünme Eğilimleri Ölçeği ve Hemşirelikte Klinik Karar Verme Ölçeği kullanıldı.

Bulgular: Öğrenci hemşirelerin genel eleştirel düşünme düzeyleri (208,23±23,76) düşük düzey olarak belirlenirken, klinik karar verme becerileri orta düzey (135,87±17,17) olarak saptandı.

Sonuç: Bu bulgular doğrultusunda hemşirelik öğrencilerinin düşük eleştirel düşünme ve orta düzeyde klinik karar verme beceri düzeyine sahip olduğu tespit edildi.

Anahtar Kelimeler: Eleştirel Düşünme; Hemşirelik; Klinik Karar Verme.

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intihal incelemesinden geçirilmiştir.

Introduction

Critical thinking is the process of reviewing, interpreting, judging and evaluating situations, facts or events in terms of accuracy, consistency, validity and reliability by an individual.[1] Critical thinking, which constitutes the building block of effective problem-solving and decision-making, is the process of thinking with a scientific basis, and is a method of problem analysis.[2] Critical thinking is a mental activity, which can be used by nurses in problem-solving stages, in nursing and in decision-making processes.[1] Nurses identify health problems that occur or that might occur in patients' conditions with a professional approach in a quick and accurate manner, make plans and implement caregiving in line with the needs of patients. They use critical thinking skills when they conduct this professional approach.[3]

Nursing education has an important place for nurses to provide safe and qualified nursing caretaking, combat the difficulties faced and adapt to new conditions.[4] Today, the ever-increasing complexity of healthcare problems make it compulsory for student nurses to graduate with sufficient skill levels and be prepared for their future professional roles. In addition, they are also expected to graduate with characteristics like self-confidence and effective and accurate decision-making for changes in healthcare requirements.[4,5]

For these reasons, the ability to make right decisions in critical thinking and clinical practice should be developed in nursing education. Clinical decision-making is a process involving critical thinking, evaluation of evidence, problem-solving, application of information and clinical judgment to determine the best action process for optimizing health and minimizing potential harms.[5]

Previous studies show that critical thinking skill improves academic success,[6,7] develops problem-solving skills,[8,9] has effects on clinical decision-making process;[10-12] and students with high critical thinking scores are more successful in professional applications.[11,12]

Critical thinking has an important function in the creation of a democratic society in terms of personal and professional lives of individuals. However, it is seen that university education, which constitutes the first step in individuals' career ladder, does not improve critical thinking skills adequately. Previous studies show that university students have low[8,13-16] or moderate critical thinking skill levels.[9,10,17-20]

When the problems experienced in the application of the nursing profession in our country are considered, it is clear that graduates who can make right decisions in clinical applications are needed.[3,4]

It is necessary that these skills are developed because the decision-making skills in critical thinking and clinical practice are indispensable elements in student years and in professional lives of nurses. When the literature on critical thinking skills[15-20] was examined, it was considered that studies were conducted in this field; however, these studies were not adequate in terms of relations with decision-making in clinical applications. The present study was planned and conducted to determine the relations between critical thinking tendencies and clinical decision-making skills of nursing students.

Materials and Methods

Research design

This descriptive study was planned and conducted for "Determining the Relation between Critical Thinking Tendencies and Clinical Decision-Making Skills of Nursing Students" with the students of Nursing Department of Nigde Ömer Halisdemir University, Nigde Zübeyde Hanım Health High School.

Population and sample

The study commenced after the approval of the ethics committee was obtained, and the necessary permissions were received from Nigde Ömer Halisdemir University, Nigde Zübeyde Hanım Health High School. The entire universe was targeted in the study

(N=462), and sampling selection was not made. A total of 329 voluntary students, who were registered students in the Nursing Department of Nigde Ömer Halisdemir University, Nigde Zübeyde Hanım Health School, participated in the study between May 01 and 31, 2018.

Data collection tools

The Determining Descriptive Characteristics Form, which was intended to question the socio-demographic characteristics of students, California Critical Thinking Tendencies Scale, and Clinical Decision-Making Scale in Nursing were used in collecting the study data.

Determining descriptive characteristics form

This form, which was prepared by the researcher in line with the literature, contained questions to determine sociodemographic data of participants like gender, age, and educational status.[15-20]

California critical thinking tendencies scale (CCTTS)

California Critical Thinking Tendencies Scale, which was developed by Facionel[21] in 1990, is used to evaluate critical thinking level of a person, not to measure a skill. The validity and reliability study of the scale was conducted by Kökdemir in Turkey.[22] The scores received from sub-dimensions are calculated by multiplying the sum of the scores of each of the sub-dimensions by 10 and dividing by the number of items in the relevant sub-dimension. The total score of the scale is calculated by adding the scores of sub-dimensions. In the evaluation, it is possible to say that people receiving less than 240 (40x6) have low overall critical thinking tendencies, and those receiving more than 300 (50x6) have high tendencies. If the total score of the sub-dimensions is below 40, critical thinking tendency is low, and if it is higher than 50 points, critical thinking tendency is high.[21,22] The sub-dimensions of the scale, which consists of a total of 6 dimensions and 51 items, are Being Analytical, Open-Mindedness, Curiosity, Self-Confidence, Seeking Truth, and Being Systematic. In this study, Cronbach Alpha reliability coefficient was found to be 0.82.

Clinical decision-making scale in nursing (CDMSN)

The Clinical Decision-Making Scale in Nursing, which was developed by Jenkins in 1983, evaluates the clinical decision-making perceptions of nursing students.[23] The Turkish validity and reliability studies of the scale were conducted by Durmaz.[24]

The lowest score that can be received from the scale is 40, and the highest score is 200; and there is no cut-off point in the scale. High scale scores show that perception of clinical decision-making is also high, and low score shows low clinical decision-making levels.[23] The lowest score that can be received from each sub-dimension is 10, and the highest score is 50.

The sub-dimensions of the scale, which consisted of a total of 4 dimensions and 40 items, were Examining Options and Ideas, Investigating Objectives and Values, Evaluating Results, Investigating Knowledge, and Adopting New Knowledge without Bias.[23] In this study, Cronbach Alpha reliability coefficient was found to be 0.83.

Data collection

The data collection tools were applied by the researcher by going to each class at different times, explaining the study and the scale to the students, underlining that participation in the study was voluntary.

A total of 41 students who refused to participate in the study, and 47 students who did not fill in the scales completely, and 45 students who were registered in the nursing department but did not attend classes could not be included in the study. The study was conducted with a total of 329 students.

Data analysis

The data were analyzed by using the Statistical Package for Social Sciences (SPSS) 24 Package Program in computer by the researcher. The suitability of data to normal distribution was evaluated with Shapiro-Wilk Test. ANOVA and Kruskal Wallis Tests were used in comparing groups, and LSD Posthoc

Test was used in further analyses. Pearson Correlation Analysis was made to determine the relations among the scales. Significance level was taken as $p<0.05$.

Ethical dimension

Official permission to undertake the study was obtained from Nigde Ömer Halisdemir University, Nigde Zübeyde Hanım Health High School. Besides, the ethical suitability of the research was approved by Ethical Committee of University with the decision (29.01.2018/02-01).

Results

The mean age of 329 nursing students, who made up the sampling of the study, was 20.90±1.60. A total of 78.7% of students were between the ages of 20 and 24, 72.9% were female, 27.7% were 1st graders, 65.3% were Foreign Language-Intensive High School graduates, and 98.8% did not work in any healthcare organization. When students were evaluated in terms of descriptive characteristics, no statistically significant differences were detected between critical thinking and clinical decision-making skill levels ($p>0.05$) (Table 1)

Table 1. Distribution of nursing students by descriptive characteristics.

Descriptive Characteristics	n= 329	%
Age ($\overline{X}$ ±SD: 20.90±1.60)		
Below 20	66	20.1
Between 20-24	259	78.7
25 and over	4	1.2
Gender		
Female	240	72.9
Male	89	27.1
Grade		
1	91	27.7
2	84	25.5
3	72	21.9
4	82	24.9
High School Education		
Vocational Health High School	38	11.6
State High School	69	21.0
Foreign Language-Intensive High School	215	65.3
Other	7	2.1
Working at a Healthcare Institutions		
Working	4	1.2
Not Working	325	98.8

The total scores and sub-dimension scores of the students received from CCTTS are given in Table 2.

Table 2. Distribution of mean scores received from CCTTS by nursing students and their mean scores received from sub-dimensions (n= 329).

CCTTS and sub-dimensions	$\overline{X}$ ±SD
Being Analytical	45.35±7.04
Open-mindedness	46.70±10.48
Curiosity	38.82±7.24
Self-confidence	28.40±6.13
Seeking truth	24.20±6.10
Being Systematic	24.76±4.62
Total	**208.23±23.76**

Statistically significant differences were detected among the classes when analytical and curiosity subdimensions were analyzed ($p<0.05$). In the Posthoc Test, which was conducted to determine from which class this difference stemmed, it was determined that the difference stemmed from 2nd Grades. No significant differences were detected among Being Analytical and Curiosity, which are among critical thinking sub-dimensions, in 1st, 3rd and 4th Grades ($p>0.05$); and it was found that there were high mean scores in these sub-

dimensions in 2nd Grades, and this difference was statistically significant (p<0.05) (Table 3).

Table 3. Distribution of mean scores of nursing students received from CCTTS sub-dimensions by grades.

Sub-Dimensions	1st Grade (n=91)	2nd Grade (n=84)	3rd Grade (n=72)	4th Grade (n=82)	F	*p*
	$\overline{X}$ ±SD					
Being Analytical	43.62±8.26	46.86±5.64	44.59±7.73	46.41±5.69	3.792	**0.01**
Open-mindedness	45.66±9.91	48.59±10.53	46.58±11.11	45.98±10.39	1.353	0.26
Curiosity	37.00±7.46	40.85±6.71	38.67±7.65	38.91±6.70	4.248	**0.01**
Self-confidence	27.85±6.64	29.01±5.68	28.00±6.33	28.76±5.82	0.726	0.54
Seeking truth	24.85±6.05	24.36±5.54	23.81±6.13	23.66±6.69	0.672	0.57
Being systematical	24.86±3.56	25.31±4.96	24.29±5.16	24.50±4.84	0.739	0.53
Total	**203.82±23.58**	**214.98±21.99**	**205.94±25.47**	**208.23±23.01**	**3.608**	**0.01**

The total and sub-dimension scores of the students received from CDMSN are given in Table 4.

Table 4. Distribution of mean CDMSN and sub-dimension scores of nursing students (n=329).

CDMSN and sub-dimensions	$\overline{X}$ ±SS
Investigating options and ideas	35.39± 5.42
Investigating aims and values	33.08± 4.13
Evaluating results	34.11± 5.98
Investigating knowledge, and adopting new ideas without bias	33.28± 4.81
Total Scale Score	**135.87± 17.17**

When the sub-dimensions of CDMSN were evaluated, it was determined that there were statistically significant differences between the grades (p<0.05). In the Posthoc Test, which was done to determine from which grade this difference stemmed, it was determined that the difference stemmed from 2nd Grades. It was found that the mean scores of these sub-dimensions were high in 2nd Grade, and that this difference was statistically significant (p<0.05) (Table 5).

Table 5. Distribution of clinical decision-making scale in nursing by grade levels of nursing students (CDMSN) and mean sub-dimension scores (n= 329).

CDMSN and Sub-Dimension	1st Grade (n=91)	2nd Grade (n=84)	3rd Grade (n=72)	4th Grade (n=82)	F	*p*
	$\overline{X}$ ±SD					
Examining options and ideas	34.00±4.95	37.70±5.31	35.01±5.66	34.91±5.14	7.890	**0.01**
Investigating purposes and values	31.97±4.02	34.60±3.95	32.79±4.14	33.01±4.06	6.443	**0.01**
Evaluating results	33.24±6.12	35.86±6.75	33.58±5.32	33.76±5.26	3.373	**0.02**
Investigating knowledge and adopting new knowledge without bias	31.91±4.09	34.58±5.02	34.28±5.45	32.59±4.23	6.394	**0.01**
Total Scale Score	**131.12±15.02**	**142.75±18.86**	**135.67±16.95**	**134.28±15.79**	**7.471**	**0.01**

It was determined that there were statistically significant, moderate and positive relations between clinical decision-making skills and critical thinking tendency in the study (Table 6).

It was also determined that there were statistically significant relations between the mean sub-dimension scores of CDMSN with CCTTS sub-dimensions, except for the sub-dimensions of Curiosity and Open-Mindedness, Being Systematical and Self-Confidence, Investigating Purposes and Values and Seeking Truth, Evaluating Results and Self-Confidence (Table 6).

Discussion

Nursing is a profession that requires making professional decisions by solving problems in patient care aiming protecting public healthcare and improving quality of life. Critical thinking is accepted as a cognitive process used to improve professional knowledge and investigation processes.[25]

Table 6. Distribution of relations between CCTTS sub-dimension scores and CDMSN sub-dimension scores of nursing students (n=329).

		Being analytical	Open-mindedness	Curiosity	Self-confidence	Seeking truth	Being systematical	Critical Thinking Level	Investigating Options and Ideas	Investigating Objectives and Values	Evaluating results	Investigating Knowledge and Adopting new Knowledge without Bias	Clinical Decision-Making Skill
Being analytical	r	1											
Open-mindedness	r	.569**	1										
Curiosity	r	.653**	-.036	1									
Self-confidence	r	.421**	-.294**	.564**	1								
Seeking truth	r	.399**	.459**	-.116*	-.226**	1							
Being systematical	r	.664**	.460**	.221**	.074	.381**	1						
Critical Thinking Level	r	.991**	.591**	.641**	.413**	.404**	.660**	1					
Investigating Options and Ideas	r	.569**	.461**	.344**	.111*	.203**	.336**	.562**	1				
Investigating purposes and values	r	.466**	.304**	.340**	.179**	.067	.252**	.461**	.678**	1			
Evaluating results	r	.502**	.444**	.217**	.097	.163**	.357**	.498**	.678**	.534**	1		
Investigating knowledge and adopting new knowledge without bias	r	.449**	.419**	.229**	.115*	.176**	.313**	.491**	.605**	.554**	.606**	1	
Clinical Decision-Making Skill	r	.593**	.491**	.331**	.144**	.186**	.379**	.599**	.885**	.796**	.861**	.816**	1

*: $p<0.05$, **: $p<0.001$

Meanwhile, critical thinking is a skill that must be used to make professional decisions in the clinical decision-making processes in nursing. Nursing profession and critical thinking must be considered as an integrated whole. Because critical thinking allows the nurse to reach facts based on observations by passing experiences and education through logical filtering, make critical decisions, provide autonomy and continue professionalism.[25,26] In this respect, it is a necessity to make nurses acquire critical thinking skills throughout their education.[26]

In this study, which targeted to determine the relations between critical thinking tendencies and clinical decision-making skills, when students were evaluated in terms of descriptive characteristics, no statistically significant differences were detected between critical thinking and clinical decision-making skill levels (Table 1).

In this study, the general critical thinking level of student nurses was determined to be low (208.23±23.76) (Table 2). Although Being Analytical and Open-Mindedness, which were among sub-dimensions, were at moderate levels, the scores of Curiosity, Self-Confidence, Seeking Truth and Being Systematical sub-dimensions were found to be low.

Similar results were reported in our country in studies targeting to determine the critical thinking tendencies of nursing students.[26,27] In the study conducted by Durmus and Karadag, it was found that critical thinking levels were low; however, Dirimese[27] found these to be at moderate levels. In the study conducted by Wangensteen et al.,[28] it was found that newly-graduated nurses had high scores in critical thinking tendencies in Norway. In studies conducted in our country, it was reported that critical thinking tendencies of nurses was at low and moderate levels; and it was observed that the critical thinking tendencies of nurses were at moderate and high levels in studies conducted abroad. It is considered that this is because of different educational curricula, cultural differences, and different career development opportunities among countries.

When critical thinking levels were evaluated according to the grade variable, a statistically significant difference was detected between groups (p<0.05). It was determined that this difference stemmed from 2nd Grades. However, it was also determined that there were no differences between the levels of critical thinking levels of 1st, 3rd and 4th grades (Table 3).

Senturan and Alpar[16] examined the critical thinking skill levels of nursing students in 1st and 4th Grades, and their results supported these findings; they showed that there were no differences between critical thinking levels of students in 1st and 4th Grades.

Although it is expected that nurses have high critical thinking skill levels, it is reported in studies examining critical thinking skills of nursing students that the critical thinking skills of nursing students are generally at low levels[8,13,15] or at medium levels.[9,10,18,19] For this reason, investigating methods that will increase this skill is important for educators and researchers.

Clinical decision-making process, which is defined as the application of the most appropriate, beneficial and acceptable professional nursing care for the effect of a disease on individuals and family, is among the basic skills that must be developed in nursing students in undergraduate education.[24,29,30]

Clinical decision-making skill level of student nurses was determined to be moderate in this study (135.87± 17.17) (Table 4). It was also determined that the Investigating Options and Ideas, Investigating Purposes and Values, Evaluating Results, Investigating Knowledge and Adopting New Knowledge without Bias levels, which were among the sub-dimensions, were at moderate levels (Table 5).

Durmaz et al.[24] conducted a study on nursing students and found that the clinical decision-making skills of control group students were at moderate levels. Woda et al.[31] conducted a study on nursing students and found that the scores were at low levels.

It was found in the present study that there was a statistically significant and positive relation between clinical decision-making skill and critical thinking tendency (Table 6).

It was determined that students who had high critical thinking skills also had high clinical decision-making skills.

Limitations

The limitations of this study are that it is performed in a single center, it can only be generalized to this sample

Conclusions

In the light of these findings, it was determined that nursing students had low critical thinking skill levels. It is expected that nurses, who will provide quality patient care in today's conditions, are not only individuals carrying out dependent functions, but also individuals who have gained their professional autonomy and have a high tendency to think critically, and bring solutions to problems. Effective policies must be developed across the country to increase critical thinking tendencies of nurses. It is recommended in the present study that further studies analyzing the reasons why nurses have low critical thinking trends are conducted.

Ethics Committee Approval

Ethics committee approval was received for this study from Ethical Committee of University (29.01.2018/02-01).

Informed Consent

All students who participated in to this study were informed verbally.

Author Contributions

Study design: KKS, NK; Data collection: KKS; Data analysis: KKS; Manuscript writing: KKS, NK.

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Conflict of Interest

There are no conflicts of interest.

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Peer-review

Externally peer-reviewed.

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