



## Original Article

# Investigation of Nursing Students' Perception of Caring Behaviors

Tuğba Gözütok Konuk<sup>1\*</sup>, Deniz Tanyer<sup>1</sup><sup>1</sup>Department of Nursing, Faculty of Health Sciences, Konya, Turkey

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\*Corresponding Author:

MSc in nursing. Email: gozutok.konuktugba@gmail.com

## ABSTRACT

**Introduction:** Nursing is a caring profession. Developing nursing student's perception of the care remains one of the most important goals of the education process.**Methods:** A descriptive-correlational study was carried out in order to identify the caring behaviors, perceptions and associated factors of the nursing students. The target group of the study consisted of 530 nursing students. The data were collected by using the "demographic characteristics form" and "Caring Assessment Questionnaire" (Care-Q). T-test and ANOVA were used in the statistical analysis of the data. Multiple Regression Analysis - Hierarchical Model was used for the analysis of determination.**Results:** Mean (SD) of total Care-Q points of the students was 5.0 (0.9), the highest average score of the sub-groups was 5.5 (1.1) in the trusting relationship sub-group; and the lowest average points was 4.5 (1.2) points in the Anticipates sub-group. It was concluded that the perceptions of the students about the caring behaviors is at a good level, and the perceptions of the students about the caring behaviors was affected by the attitudes, plans and experiences of the students about the profession.**Conclusion:** Developing the confidence of the students during the nursing education, ensuring the opportunities for empathy and developing the course contents on the bases of the concept of care are the applicable results of this study.**Citation:** Tanyer D, Gözütok Konuk T. Investigation of nursing students' perception of caring behaviors. J Caring Sci 2019; 8 (4): 191-7. doi:10.15171/jcs.2019.027

## Introduction

Nursing, defined as 'the response of an individual against the existing or potential health problems and caring for them' by the American Nurses Association (ANA), has many roles such as caregiving, decision-making, advocating, managing, rehabilitating, providing comfort and ease, communicating and coordinating, relaxing, educating, treating and career developing, researching, advising.<sup>1</sup> Though being the oldest of these roles, caregiving has always been at the core of nursing.<sup>2</sup>

Since Florence Nightingale, nurses have studied the concept of care from the philosophical and moral point of view and have developed theories such as Leininger's theory of culture care, Watson's theory of human caring, Boykine and Schoenhofer's theory of nursing as caring, and Roach's theory on caring.<sup>3</sup>

Leininger states that caring behaviors include concepts such as comfort, compassion, interest, coping, empathy, facilitation, helping behaviors, love, nutrition, strengthening, protective and inspiring behaviors, sharing, help, supportive, sensitivity, touch and trust.<sup>4-6</sup> The caring behaviors defined by Watson are careful listening, eye contact, relieving the individual, taking responsibility of the individual, honesty, touch, sensitivity, respectfulness, giving information, being emotionally open and accessible, being individual-centered.<sup>7</sup> Swanson has highlighted five key points in her care theory: recognizing an individual, being together, doing something for the individual, enabling and providing faith.<sup>8</sup> The concept of care, which is identified with nursing, is actually a term used frequently in different areas, and although the term was

Reviewed through various studies, it is thought not to be sufficiently understood yet today.<sup>1,9-11</sup>

The studies, discussing the term of care giving, are criticized for the contents covering solely the assessments from the perspective of the nurse or from the perspective of the patient separately.<sup>12</sup> Whereas in the studies, that discussed both the perspective of nurse and perspective of the patient, it has been stated that nursing has different reflections on the patients and nurses.<sup>13,14</sup> For example, in a study, it has been found out that the perception of the nurses about the care giving was satisfactory but the patients assessed the nurses as insufficient especially in terms of psychological nursing, communication and creating a reliable environment.<sup>13</sup> A meta-analysis study<sup>14</sup> pointed out this finding to be a common result achieved in many studies. The criticisms on nursing care may be summed up that the term of care-giving was uncertain,<sup>15</sup> it was not assessed comprehensively<sup>12</sup> and reflection of the results of the patients and the effects of them in the cost of care-giving have not been analyzed.<sup>14</sup> Some researchers suggested solutions such as studying the term of care-giving in different cultures,<sup>16-18</sup> analyzing the term based on the theory of nursing<sup>15,19</sup> and associating with the results of the patient.<sup>14</sup> It has been particularly emphasized that the theory based studies would facilitate the formation of research questions, testing the theories scientifically and support increasing patient demands with the nursing resources.<sup>15</sup>

It has been found that the rise in the care-giving quality would help in taking the disease under control.<sup>20,21</sup> Raising the quality of life,<sup>20,22</sup> and preventing the complications.<sup>22,23</sup>

The results of the studies also indicate that various health problems would occur when cases are not effectively managed and insufficient care is provided.<sup>24-29</sup> It has been reported in the literature that the care-giving activities of the nurses are affected by gender. To exemplify, male nurses were described more negatively especially in terms of accessibility, communication and relaxing treatments<sup>30</sup> other factors that affect the care-giving behaviors can be summed up as the level of nursing education, some personal characteristics, and the units in which they are engaged.<sup>31-33</sup> It can be seen that the perception of care-giving, which is so crucial for nursing should actually develop during the process of nursing education and it is the most important goal of such educations. However, when the studies are reviewed, while it was found that this perception was negatively affected by educational level in a study by Murphy et al.,<sup>31</sup> it was found just the contrary in another study by Khademian and Vizesfar and shown that a positive progress was achieved as the educational level is increased.<sup>17</sup> In the study of Murphy et al., third year nursing students had lower caring behaviors than first year students. In a study by Khademian and Vizesfar, it has been found that the nursing students would perceive the care-giving rather in terms of monitoring the patient; they were insufficient to create a reliable environment and would perform the care-giving practices such as explaining and facilitating more as class-level increased and it has been found also that this was independent of gender during the years of education.

Though the way of nursing services changed due to the developing technology over the years, the focus remained unchanged, as human beings. Therefore, developing nursing student's perception of the care remains one of the most important goal of the education process.

This perception should be analyzed in different culture and connected with student's empathy experiences by researchers. It is necessary to fill this gap. The study has been performed in order to identify the perception of caring behaviors by the nursing students and the associated factors. The main aim of this research is to understand the level of perception of caring behaviors of the nursing students. The research also would like to reveal the nursing student's perception of caring behaviors change, according to their socio-demographic characteristics, characteristics of the profession, their experience in care-giving/taking and the determinants of the nursing student's level of perception of caring behaviors.

## Materials and methods

A descriptive correlational study was carried out in order to identify the perception of caring behaviors and associated factors of the first, second, third and fourth year undergraduate nursing students. About 679 students, who take the bachelorship education on nursing constituted the population of this research. No sampling was used in the research. All students who were present at school on the day when the data was collected participated in this study

(n=530).

Socio-demographic characteristics of the students and their care giving-taking experiences /professional attitude and the Caring Assessment Questionnaire (Care-Q) for identifying their perception of caring behaviours were used. The Identifying Information Form, prepared in line with the literature<sup>17,34-36</sup> consists of 13 questions, five of which are about the socio-demographic characteristics of students. The remaining eight questions were about the care-giving/taking experiences (included empathy) and professional attitudes of the students.

Caring assessment questionnaire (Care-Q), developed by Patricia Jean Larson<sup>37</sup> in 1981, is a quantitative scale which can be used for the nursing students and the assessment of care. The Form is a scale, containing 50 items and consisting of 6 categories that measures the frequency of the caring behaviours and shows the importance given to the perceptions about caring behaviours. The validity-reliability of the scale in Turkish was prepared by Eskimez and has 7 digit Likert-type scoring (1=Never, 2=Almost never, 3=Rarely, 4=Sometimes, 5=Usually, 6=Almost always, 7=Always). The sub-categories of the scale are; accessibility (Items 1-6), explanations and facilities (Items 7-12), comfort (Items 13-21), anticipates (Items 22-26), trusting relationship (Items 27-42), monitors and follows through (Items 43-50).

The lingual validity and confirmatory factor analysis of the scale has been performed in the validity study of the scale in Turkish. According to the confirmatory factor analysis, Root Mean Square Error of Approximation (RMSEA), Confirmatory Fit Index (CFI) and Goodness of Fit Index (GFI) have been calculated as 0.80, 0.98, 0.67 respectively. Therefore, the structure of the scale in six sub-categories is found to be valid in Turkish. The reliability of the test-retest, the Cronbach alpha level, and the cross-correlation of the items have been checked. There was no difference between the test- retest measurements; Cronbach alpha was found to be 0.97 for the total scale, cross-correlation of the items varied between 0.62-0.85 and the scale has been found to be reliable. The lowest score in the scale is 50 and the highest one is 350. The scores are divided by the number of the items and the total score between 1-7 is obtained. As the score from the scale increases, the frequency and perception performing the caring behaviours of students increase positively.<sup>34,35</sup>

The data of the research was summarized as number, percentage, mean and standard deviation. IBM SPSS 20 was used for statistical analyses. The differences between groups were evaluated with t-test in independent groups and one-way ANOVA analyses. The research determinants of the caring assessment questionnaire were evaluated via hierarchic regression analysis. Socio-demographic variables were used in the first model and student's experiences of education and profession were included in the second model. Therefore, all categorical data were converted into two groups. After then, categorical variables were turned into dummy variables in this analysis. For significance,  $P < 0.05$  was accepted.

Before the research, written approvals were obtained from the dean of department of nursing and non-interventional clinical research ethics board decision no: 2015/38. The volunteer informing form was signed students who participated in the study.

## Results

The mean (SD) age of the students participating in the study was 20.6 (3.3) and 82, 8% of them were females. It was found out that 55.7% of them were graduates of Anatolian High School/Science High School; 31.1% were in the first grade, 45.8% lived mostly in the city; 40.4% were among the elder 3 children of their families. When the professional features of the students participating in the study were reviewed it was found out that 50.6% have chosen nursing profession willingly, 68,3% has intention to take postgraduate education, 55.8% has interested to work as a nurse in the health providing organization after graduation, 58.7% found that the courses provided a lot of benefits for caregiving. When the care-giving/taking experiences of the students involved in the study were examined it was found out that 62.6% did not have an experience of caregiving to a relative before the nursing education, 64.3% did not have an experience of caretaking as a patient, 52.8% thought the caregiving by nurses was moderate; 44.5% assessed the caregiving provided by themselves to the patients in a clinic was moderate, 88,9% could empathize with the patients in the clinic, 79.2% did not have any negative experiences with a patient, a relative of a patient, a nurse during the caregiving/taking process.

When the sub-categories of the caring assessment questionnaire of the students were reviewed, it was found that the scores were 5.1 (1.1) in the sub-category of 'accessibility', 4.7 (1.1) in the sub-category of 'comfort', 5.2 (1.0) in the sub-category of 'explanations and facilities', 4.5 (1.2) in the sub-category of 'anticipates', 5.5 (1.1) in the sub-category of 'trusting relationship', 5.2 (1.1) in the sub-category of 'monitors and follows through', 5.0 (0.9) in the average of the total scale (Table 1).

**Table 1.** The subscales of the caring assessment questionnaire and the total score of the scale

Caring assessment questionnaire	Mean(SD)	Medin	Minimum Value <sup>f</sup>
Accessibility	5.1(1.1)	5.3	1(7)
Explanations and facilities	4.7(1.1)	4.8	1(7)
Comfort	5.2(1.0)	5.3	1(7)
Anticipates	4.5(1.2)	4.8	1(7)
Trusting relationship	5.5(1.1)	5.6	1(7)
Monitors and follows through	5.2(1.1)	5.2	1(7)
Total score	5.0(0.9)	5.1	1(7)

<sup>f</sup>Max -Value

The analyses showed that the average scores in the caring assessment questionnaire according to the variables such as graduated school, the place lived the longest, place of current residence, the rank among the children of the family were similar ( $P > 0.05$ ). However, the average score changed according to the variables such as gender and

attended year of education. The average scores of the female students were significantly higher than the male students, and the fourth-grade students have been found to have lower average scores than other years according to the Tukey test ( $P < 0.05$ ) (Table 2).

The average score in the variables such as choosing the profession of nursing willingly, planning post graduate education, experience of caregiving to a relative before starting the profession, experience of caretaking as a patient and the level of performing the work of caregiving

**Table 2.** Distribution of the average score of the caring assessment questionnaire according to the socio-demographic characteristics

Variables	Mean(SD)	Statistical indicator
<b>Gender</b>		
Male	4.8(0.9)	t=2.35
Female	5.1(1.0)	P=0.03
<b>Graduate School</b>		
Normal or vocational high school	4.9(1.1)	t=-1.86
Anatolia or science high school	5.1(0.8)	P=0.06
<b>Grade</b>		
First year	5.2(0.7)	F=13.31
2nd year	5.2(0.7)	P<0.001
3rd year	5.0(0.8)	
4th year	4.5(1.4)	
<b>The place lived the longest</b>		
Village	5.0(1.0)	F=0.77
Town	5.1(1.0)	P=0.51
City	5.1(1.0)	
Metropolis	4.9(1.0)	
<b>Place of current residence</b>		
With family/relatives	5.0(0.9)	F=1.08
Home with friends	4.9(1.0)	P=0.33
Dormitory	5.1(1.0)	
<b>The rank among the children of the family</b>		
1	5.1(0.8)	F=0.99
2	5.0(1.1)	P=0.37
3 and over	5.0(0.9)	

of the nurses has been found to be similar ( $P > 0.05$ ). The average scores of students who believe that the contribution of the courses to care-giving was a lot was higher than those thinking that it is less. There also was a difference between all groups when assessing the level of caregiving to the patients in the clinic; those, assessing the level of caregiving as bad had the lowest score, whereas those assessing it as good/very good was the highest have been shown by Tukey test. The average scores of students in the lower categories, saying not to emphasize the patients at the clinic or not know were similar but those saying to empathize were similar and those saying to empathize were higher than those two groups (Table 3).

The determinants of the caring assessment questionnaire were reviewed through multiple regression analysis-hierarchical model.

The determination of the socio-demographic variables in Model-1 were reviewed and being male ( $\beta = 0.092$ ) and being a senior student ( $\beta = 0.253$ ) were found to

affect caring assessment questionnaire.

The socio-demographic variables explained the care-giving assessment scale at a rate of 0.69%. Whereas, according to Model 2, where the attitudes, plans and experiences of the students about the profession; being a senior student ( $\beta = 0.261$ ), defining the contribution of the courses to care-giving more or less ( $\beta = 0.077$ ), perceiving the level of care-giving to the patients in the clinic as bad ( $\beta = 0.192$ ) and thinking not to empathize ( $\beta=0.091$ ) were found to be decisive for the caring assessment questionnaire and such variables decrease the scale score by affecting adversely. In the model, in which the features related with the profession were included, the ratio of predictiveness jumped from 0.69% to 13% (Table 4).

**Table 3.** Distribution of the average score of the caring assessment questionnaire according to the some experiences and perceptions of the students

Variables	Mean(SD)	Statistical indicator
Choosing the profession of nursing willingly		
Yes	5.1(0.9)	t=0.58
No	5.0(0.9)	P=0.55
Planning post graduate education		
Yes	5.0(0.9)	t=0.09
No	5.0(1.0)	P=0.92
Contribution of the courses to care-giving		
Too low/Low	4.8(1.0)	t=-3.76
Quite/Too much	5.1(0.9)	P<0.001
Caregiving experience to a relative before nursing education		
Yes	5.1(0.8)	t=1.21
No	5.0(1.0)	P=0.22
Experience of caretaking as a patient		
Yes	5.0(0.9)	t=0.01
No	5.0(0.9)	P=0,226
The level of performing the work of caregiving of the nurses		
Very bad/ Bad	5.0(0.8)	F=1,60
Moderate	5.2(0.9)	P=0.20
Well/Very well/Excellent	5.0(0.9)	
Assessed the caregiving provided by themselves to the patients in a clinic		
Very bad/ Bad	4.2(0.9)	F=23.18
Moderate	4.9(0.8)	P<0.001
Well/Very well/Excellent	5.3(0.9)	
Empathize with the patients in the clinic		
Yes	5.1(1.2)	F=6.24
No	4.5(1.1)	P<0.001
Don't know	4.6(0.9)	

## Discussion

The average scores of the nursing students in the total caring assessment questionnaire was found to be 5.0 (0.9) (Table 1). Considering that the maximum score in the scale was 7, we can say that the scores of the students are quite high although not so enough. Similarly, the study of Birimoğlu and Ayaz, performed in the Turkish culture, the score of the students in the scale was found

**Table 4.** Determinants of the caring assessment questionnaire (Multiply regression analysis -hierarchical model)

Variable	$\beta$	t	P
Model 1 (Socio-demographic Variables)			
Gender (Male=1)	-0.09	-2.07	0.03
Grade (4th class =1)	-0.25	-5.78	<0.001
Graduate School (Vocational=1)	<0.001	-0.02	0.98
The rank among the children of the family (First=1)	0.04	1.04	0.29
The place lived the longest (Metropolis=1)	-0.04	-1.10	0.26
Place of current residence (Home with friends =1)	0.01	0.36	0.71
Model 2 (Socio-demographic Variables, Student's Experiences of Education and Profession)			
Gender (Male =1)	-0.07	-1.81	0.07
Grade (4th class=1)	-0.26	-5.98	<0.001
Graduate School (Vocational=1)	<0.001	0.05	0.95
The rank among the children of the family (First=1)	0.03	0.94	0.34
The place lived the longest (Metropolis=1)	-0.05	-1.26	0.20
Place of current residence (Home with friends=1)	0.02	0.54	0.58
Choosing the profession of nursing willingly (N=1)	-0.03	-0.94	0.34
Planning post graduate education (No=1)	<0.001	0.03	0.97
Contribution of the courses to care-giving (Too low/Low =1)	-0.07	-1.77	0.07
Caregiving experience to a relative before nursing education (No=1)	-0.07	-1.79	0.07
Experience of caretaking as a patient (No =1)	<0.001	-0.12	0.90
The level of performing the work of caregiving of the nurses (Very bad/ Bad =1)	-0.01	-0.44	0.65
Assessed the caregiving provided by themselves to the patients in a clinic (Very bad/ Bad =1)	-0.19	-4.53	<0.001
Empathize with the patients in the clinic (No=1)	-0.09	-2.18	0.02
Regenerative (Yes =1)	-0.06	-1.65	0.09
Model 1	F =7.48	R=0.28	R <sup>2</sup> =0.07
Model 2	F=6.46	R=0.39	R <sup>2</sup> =0.16

as 5,23 (0.98), whereas in the study of Eskimez, the score was 5.26 (0.79). Also in the studies, performed in different cultures, the student's perception of the caring behaviors is high.<sup>17,37</sup>

When the scores of the students in the sub-categories of the scale; the highest scores achieved by the students was in the sub-category of 'trusting relationship', whereas the lowest score was received in the sub-category of 'anticipates'. In this context, it is possible to say that the students consider the caring behaviors in the 'trusting relationship' sub-category the most, and the caring behaviors in the 'anticipates' sub-category at least and frequency of the care-giving activities in these sub-categories are in line with this result. Also in the literature in line with our study, the lowest score in many studies were obtained in the 'anticipates' sub-category, whereas unlike, the highest scores were obtained in the 'monitors and follows through' sub-category.<sup>17-38</sup> The main reason for the distribution of the scores received by the students in the scale in this way, is that meeting the expectations of the patients can only be developed through experience in care-giving to the patients over the time, whereas they have the opportunities to learn about the skills such as communication, technical care-giving, meeting the daily requirements of the patients within the educational

environment. So, whether in Turkey or abroad, the care-giving skill to be developed by the nursing students at the latest is meeting the expectations. In addition, as identified in the study, the students do not have sufficient care-giving/taking experiences to meet the expectations, which is a behavior of empathy.

When we look at the expressions in the sub-category of 'trusting relationship' where the students received the highest scores, it is pleasing to see that the students do not regard nursing to consist only of cognitive and psychomotor fields but also the importance they place on care-giving addressing the affective field. When the expressions in the sub-category of 'monitors and follows through' where the students received the second highest scores are reviewed, we find that the students place importance to the cognitive and psychomotor field and perform such practices frequently. Also, the curriculum of the nursing education has numerous objectives in terms of providing behavioral changes in the individuals through health education by the students. Therefore, the high scores of the students in this field must be acknowledged as one of the important outputs of education. These findings important as guidance, when planning the educational curriculum. For the total score in the scale, the average score of the female students have been found significantly higher than Male students, similarly, the studies of Eskimez and Greenhalgh et al., reported that gender was determinative in the total scores of caring behavior in a similar manner in determining gender care behavior. In the literature,<sup>17-40</sup> it may be concluded that the effect of gender on the caring behaviors differ, the culture is the biggest factor in this differentiation, and thus the yield may not be generalized. It must be taken into consideration that the male students are the risk group in terms of developing caring behaviors during their education and training strategies need to be developed for male students.

In the total score received from the scale, the class level of the students demonstrated significant differences. It has been seen that the fourth-grade students have lower average scores than the other grades. Surprisingly, the scores of the first and second grade students were the same, and higher than the third and fourth grades. The data of the study has been collected from the first grade students at the end of the semester, when they practiced the course of Fundamental of Nursing, which was their first clinical experiences. The high rate of their perception of caring behaviors can be attributed to the excitement of the first clinical experience. As the class-level increases, we see that the perception of students about care-giving decreased. In this case, it may be said that the education given reduces the idealism of the students about the profession. However, it is expected that the perception of the students would increase through the development of the knowledge, attitudes, and behaviors in combination with the education. In addition, as the class-level increases, depending on the time the students spend at the clinic, their experience also increases and

consequently it can be concluded that their excitement of the profession decreases. Studies of Mackintosh and Murphy et al.,<sup>31,41</sup> which are studied in United Kingdom can be seen with similar findings in the literature. On the contrary of these findings, in the studies of Khademian Vizesfar which has been conducted in Iran, Eskimez, Kursun and Arslan, Birimoglu and Ayaz which have been conducted in Turkey, it has been reported that perception of caring behaviours of the students increased as the class-level increases. Moreover, the low scores of the fourth-year students with a significant difference may be interpreted by the fact that the students were out for the internship of the Public Health Course during the period when the data was collected and the internship did not involve the patients in the hospital. Nevertheless, since the perceptions of the students about caring at the time when the students started the school is unknown, it may be faulty to make the comment that the perception about care-giving was adversely affected as the class-level increases. Although the current perceptions of the fourth-grade students seem to be more negative, they may be increased when compared to their perceptions in their first-class level.

Nursing is a practiced discipline, the practices and achievements in the clinic have an important place in nursing education.<sup>42</sup> In nursing education, the student practices the theoretical knowledge learned in the class in the clinical environment.<sup>43</sup> In the nursing care the ability of the student to convert the theoretical knowledge into practice, is as much important. In this study, it can be seen that the total score of the scale changes according to the perception about the contribution of the courses to care-giving. The average scale scores of the students, thinking that the contribution of the courses to the care-giving has been found higher than those thinking the contribution is less (Table 3). For increasing the perception of care-giving in a positive direction as a result of this finding, the evaluation of and improving the course content on trusting relationship effective. When this effect of the courses on the perception of care-giving is concerned, nurses and nurse educators have a big responsibility.

Particularly the nurses with their educational roles in the clinical settings, should be role models for student nurses in cooperation with the academic nurses.

When the student perceives his/her own care-giving ability positively, the score care-giving score will change positively as well. Similarly, the ability to empathize has also a positive contribution to the perception of care-giving. Besides showing that the students assess their own level of care-giving, these findings also illustrate the crucial contribution of supporting the students in developing empathy to the professional practices.

In this study, as the gender and the student's year of education in the sub-category of socio-demographic characteristics affected the caring assessment questionnaire in a rate of 0.69%; identifying the contribution of the courses in care-giving more or less, perceiving the level of care-giving to the patients in the

clinic as bad and thinking not to empathize under the sub-category of the student's attitude, plan and experience about the profession affect the care-giving rating scale in a rate of 13%. As seen in our study, the student's attitude, plan and experience about the profession affect the caring assessment questionnaire at the most. Because of the impact of the student's experience on the profession, it is crucial to improving the content and quality of the education at the nursing schools continuously. Another noteworthy point is the gender variable being a meaningless variable in Model 2 where the professional experience was added. This result indicates that the negative attitude of the male students could be avoided if good learning conditions are provided to the students.

### Conclusion

It was found that the perception of students about the care-giving behaviors is good; the highest score was achieved in the sub-category of Trusting Relationship according to the scale of perception of caring behaviors.

The lowest score was received in the Anticipates sub-category. In the study, it was found that the perception of the students about care-giving was affected by the student's attitude, plan and experience about the profession at the most.

In line with the resulting findings;

- Arrangement of nursing education curriculum on the base of care-giving which is the essence and the oldest role of nursing,
- Coordination of the nurses and nurse educators in a harmony in order to make the student to adopt the care-giving both in the clinical practices and in theory,
- Supporting the care-giving experiences of students in the clinic should be supported and increasing the self-confidence of the students through motivating feedback,
- Interactively teaching the students how the courses they take in the classroom setting will contribute to the care-giving activities in clinical environment,
- Performing the study by working with different student groups and comparing the results may be recommended.

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### Ethical issues

None to be declared.

### Conflict of interest

The authors declare no conflict of interest in this study.

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