

The Relation Between Individual Innovativeness Levels and Caring Behaviours of Nursing Students: Descriptive and Relationship Seeking Study

Hemşirelik Öğrencilerinin Bireysel Yenilikçilik Düzeyleri ile Bakım Davranışları Arasındaki İlişki: Tanımlayıcı ve İlişki Arayıcı Çalışma

^{ib} Serap TEKBAŞ^a, ^{ib} Ayşegül SAVAŞAN^b

^aDepartment of Midwifery, İzmir Tınaztepe University Faculty of Health Science, İzmir, Türkiye

^bDepartment of Mental Health and Diseases Nursing, Near East University Faculty of Nursing, Nicosia, TRNC

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ABSTRACT Objective: The aim of the study is to investigate the correlation between individual innovativeness levels and caring behaviors of nursing students. **Material and Methods:** The universe of the descriptive and relation-seeking study consists of 619 students working in the faculty of nursing of a university. The sample group consisted of 353 students who accepted to participate in the research among the students invited to the study. Data were collected using personal information form, Caring Behaviors Inventory (CBI) and Individual Innovativeness Scale (IIS). **Results:** The mean age of the students was 20.89±2.56 years; 61.8% were female, 38.2% were male and the most (41.9%) of them were first-year students. The CBI and IIS total scores of the students were 5.62 and 63, respectively. There were significant differences between students' IIS scores by their grades and social security. There were significant differences between students' CBI, assurance (AS), respectful (RE) and connectedness (CO) scores by their grades. It was found that the students' IIS score had a low, positive and statistically significant correlation with total CBI score ($r=0.40$, $p<0.001$) and AS ($r=0.369$, $p<0.001$), knowledge-skill ($r=0.359$, $p<0.001$), RE ($r=0.353$, $p<0.001$), and CO ($r=0.332$, $p<0.001$) scores. In the study, it was determined that the students' caring behavior perception were high, their innovativeness levels were low and they were in the "early majority" category in terms of innovativeness. **Conclusion:** It was found that the students had high caring behavior perception, low levels of innovativeness and early majority characteristics toward innovations. It can be asserted that as students' innovativeness levels increase, their caring behaviors will increase positively.

ÖZET Amaç: Bu çalışmanın amacı, hemşirelik öğrencilerinin bireysel yenilikçilik düzeyleri ile bakım davranışları arasındaki ilişkiyi incelemektir. **Gereç ve Yöntemler:** Tanımlayıcı ve ilişki arayıcı nitelikteki çalışmanın evrenini bir üniversitenin hemşirelik fakültesinde öğrenim gören 619 öğrenci oluşturmaktadır. Çalışmaya davet edilen öğrencilerden araştırmaya katılmayı kabul eden 353 öğrenci örneklem grubunu oluşturmuştur. Veriler kişisel bilgi formu, Bakım Davranışları Ölçeği ve Bireysel Yenilikçilik Ölçeği kullanılarak toplanmıştır. **Bulgular:** Öğrencilerin yaş ortalaması 20,89±2,56; %61,8'i kadın, %38,2'si erkek olup, çoğunluğu (%41,9) 1. sınıf öğrencisidir. Öğrencilerin Bakım Davranışları Ölçeği ve Bireysel Yenilikçilik Ölçeği toplam puanları sırasıyla 5,62 ve 63'tür. Öğrencilerin Bireysel Yenilikçilik Ölçeği puanları arasında sınıf ve sosyal güvenlik durumlarına göre anlamlı farklılıklar bulunmuştur. Öğrencilerin Bakım Davranışları Ölçeği, güvence, saygılı olma ve bağlılık puanları arasında sınıflarına göre anlamlı farklılıklar bulunmuştur. Öğrencilerin Bireysel Yenilikçilik Ölçeği puanı ile toplam Bakım Davranışları Ölçeği puanı ($r=0,40$, $p<0,001$), güvence ($r=0,369$, $p<0,001$), bilgi-beceri ($r=0,359$, $p<0,001$), saygılı olma ($r=0,353$, $p<0,001$) ve bağlılık ($r=0,332$, $p<0,001$) puanları arasında zayıf, pozitif yönde ve istatistiksel olarak anlamlı bir ilişki olduğu bulunmuştur. Araştırmada öğrencilerin bakım davranışları algılarının yüksek, bireysel yenilikçilik düzeylerinin düşük ve yenilikçiliğe karşı erken çoğunluk özelliklerine sahip oldukları bulunmuştur. Araştırmada öğrencilerin önemseyen davranış algılarının yüksek, yenilikçilik düzeylerinin düşük olduğu ve yenilikçilik açısından "sorgulayıcı" kategorisinde yer aldıkları belirlenmiştir. **Sonuç:** Öğrencilerin bakım davranışları algılarının yüksek, yenilikçilik düzeylerinin ise düşük olduğu ve yeniliklere karşı sorgulayıcı özelliklere sahip oldukları bulunmuştur. Öğrencilerin yenilikçilik düzeyleri arttıkça bakım davranışlarının olumlu yönde artacağı söylenebilir.

Keywords: Individual innovativeness; caring behavior; nursing care

Anahtar Kelimeler: Bireysel yenilikçilik; bakım davranışı; hemşirelik bakımı

Correspondence: Serap TEKBAŞ

Department of Nursing, Division of Obstetrics and Gynecology Nursing, İzmir Tınaztepe University Faculty of Health Science, İzmir, Türkiye

E-mail: seraptekbas@gmail.com



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Changing world, technological advancements and changes in care needs bring about changes and innovations in the health system. Along with high-quality nursing care, innovative approaches to changing needs have gained importance in nursing practices.¹ Innovativeness refers to the comprehension, early adoption and implementation of new services, ideas or ways of doing works.² It enhances the quality of care, increases work efficiency and effectiveness of treatment, reduces care costs, and facilitates access to health services.³ There is an expectation for nurses to enhance quality of care, provide patient safety, and enable patients to be satisfied with the hospital experience through their clinics.⁴ Caring behaviors, which are crucial in understanding the principles and essence specific to the profession, should be developed in nurses, who are future health-care professionals, during their education.⁵ Students' perception of care changes throughout their nursing education. First-year students perceive care as more technical and recognize its psychosocial aspects after their third year.⁶ It has been stated that factors such as choosing the profession willingly, gender and clinical experiences affect students' caring behavior perception.^{7,8}

The development of caring behaviors is regarded as the fundamental element of nursing education and creativity and innovativeness are also seen as important basic competences in education.^{5,9} The notion of innovativeness covers the characteristics of creativity, risk taking, openness to experience, and opinion leadership concepts. There are 5 categories as innovators, early adopters, early majority, late majority and laggards established based on innovativeness characteristics.¹⁰ The studies have shown that nursing students have low or moderate levels of innovativeness and have more early majority and late majority characteristics.¹¹⁻¹⁴

The aim of nursing science is to develop information that can be used in nursing practices.¹⁵ It is important to investigate the innovativeness and caring behaviors of nursing students who will contribute to accurate, appropriate and reliable knowledge that will guide nursing practices in the future. There are numerous studies evaluating students' perceptions of individual innovativeness and caring behaviors in the

literature.⁵⁻⁹ However, only one study examining the correlation between students' innovativeness and caring behaviors was found. But, this study was conducted with only final-year nursing students.¹⁰ This study aims to examine the correlation between individual innovativeness levels and caring behaviors of nursing students.

MATERIAL AND METHODS

DESIGN

The data of our descriptive and relation-seeking study were collected between November 8, 2021-January 14, 2022. Data were collected online. The link of the data collection form was shared online on social media platforms that included the nursing students who formed the universe, and the students were invited to work. The population included 619 students receiving education at the faculty of nursing of a university. Sample selection was not made in the study, it was aimed to reach all students who met the inclusion criteria, and the study was completed with 353 (57%) nursing students.

Sampling inclusion criteria; being a nursing student at the university where the study was conducted and volunteering to participate in the research.

Exclusion criteria; students who did not volunteer to participate in the study and did not fully respond to the questionnaires included in the study were not included in the study.

DATA COLLECTION TOOL

Data collection instruments were a personal information form, the 24-item Caring Behaviors Inventory (CBI), and the 20-item Individual Innovativeness Scale (IIS).

Personal information form: This form, prepared by the researcher, has 11 questions about the students' socio-demographic characteristics.^{5,7,9,10}

IIS: The scale was developed by Hurt et al., in 1977 to evaluate the individual innovativeness status on teachers and university students.¹⁶ Kılıçer and Odabaşı conducted Turkish adaptation of this 20-item scale in 2010.¹⁷ The minimum and maximum scores of the scale are 14 and 94 points, respectively. Ac-

Accordingly, if the respondents get a score above 80 points, they are considered as “innovators”, between 69 and 80 points as “early adopters”, between 57 and 68 points as “early majority”, between 46 and 56 points as “late majority”, and below 46 points as “laggards”. Furthermore, the score of the scale is used to evaluate the innovativeness levels of individuals in general. Accordingly, individuals getting a score above 68 are considered highly innovators; whereas, those getting a score below 64 are interpreted as less innovators.

As a result of the factor analysis conducted by Kılınçer and Odabaşı, it was seen that innovation was summarized under 4 headings. These factors were given the names of “resistance to change”, “opinion leadership”, “openness to experience” and “risk taking”, respectively, in the context of the literature and resistance to change of eight items (4, 6, 7, 10, 13, 15, 17, and 20), “opinion leadership” dimension consists of five items (1, 8, 9, 11 and 12), “openness to experience” dimension consists of five items (2, 3, 5, 14 and 18) and the “Risk-taking” dimension consisted of two items (16 and 19). Cronbach’s alpha coefficient for the whole scale was found as $\alpha=0.82$. In our study, the Cronbach’s alpha coefficient was found to be 0.82.

CBI-24: The inventory with 75 items, which was originally developed by Wolf in 1981 to evaluate the nursing care process, was revised in 1994 and the number of items was reduced to 42.¹⁸ In 2006 Wu et al., revised this 42-item scale suitable for bilateral diagnosis by patients and nurses as 24 items and 4 subscales [assurance (AS), knowledge-skill (KS), respectful (RE), and connectedness (CO)].¹⁹ Its Turkish validity and reliability study was conducted by Kurşun and Kanan in 2012.²⁰ The items are rated in a 6-point Likert type scale ranging between 1-6 points. As the score increases, the level of caring behavior perception increases. While the Cronbach’s alpha coefficient was 0.97 in the original study, this value was calculated as 0.96 for this study.

ETHICAL ISSUES

Approval (date: October 28, 2021; no: YDU/2021/96-1429) was conducted from the Scientific Research Evaluation Ethics Committee of Near

East University. Permission was obtained from the dean of the faculty where the research was conducted. Before starting the survey, the written consent of all participants was obtained, the study was conducted in accordance with the ethical principles of the Declaration of Helsinki, and the confidentiality of personal information was ensured.

DATA ANALYSIS

Data were analyzed through percentage, mean, median, Mann-Whitney U, Kruskal-Wallis test and Spearman’s correlation test. The Kolmogorov-Smirnov test was used to test for normality of the data. As the data was not normally distributed, non-parametric tests were employed. Correlation coefficients describe the strength and direction of an association between variables. A coefficient of <0.1 indicates negligible correlation. Correlation coefficients ranges from 0.10 to 0.39, 0.40 to 0.69, 0.70 to 0.89 and 0.90 to 1.00 represent weak, moderate, strong and very strong correlation respectively.²¹ Significance levels were accepted as $p<0.01$ and $p<0.05$ at confidence interval of 95%.

RESULTS

The participants had a mean age of 20.89 ± 2.56 . 61.8% were female and 38.2% were male. 41.9% of the students were first-year students, 20.4% were second-year students, 19.8% were third-year students, and 17.8% were fourth-year students. The majority of them were single (98%), did not work in any job (84.4%), their income was lower than their expenses (49.3%), they stayed at home with their friends (38.5%) and they lived in the district for the longest time (44.5%) (Table 1).

The students’ total CBI score was 5.62 (minimum-maximum: 1-6). Their subscale scores were 5.75 for AS subscale, 5.6 for KS subscale, 5.66 for RE, and 5.6 for CO. The total IIS score of the students was 63 (minimum-maximum: 47-90). Because the students got a score between 57 and 68 points, they were considered as “early majority”. The students’ perception of caring behavior was high, their level of innovativeness was low, and they had early majority characteristics against innovativeness (Table 2).

TABLE 1: Distribution of socio-demographic characteristics of the students (n=353).

Descriptive characteristics		n	%
Gender	Female	218	61.8
	Male	135	38.2
Grade	1.	148	41.9
	2.	72	20.4
	3.	70	19.8
	4.	63	17.8
Marital status	Single	346	98.0
	Married	7	2.0
Social security	Yes	157	44.5
	No	196	55.5
Working status	Yes	55	15.6
	No	298	84.4
Income status	Income equal to expenses	156	44.2
	Income less than expenses	174	49.3
	Income more than expenses	23	6.5
Mother's education level	Primary school	197	55.8
	Secondary school	66	18.7
	High school	62	17.6
	Higher education	28	7.9
Residence place	Alone at home	11	3.1
	With friends at home	136	38.5
	At dormitory	107	30.3
	With family	83	23.5
	With relatives	16	4.5
The longest lived place of residence so far	Province	113	32.0
	District	157	44.5
	Village- town	83	23.5
Age	X±SD	Minimum	Maximum
	20.89±2.56	18	41

SD: Standard deviation.

There were significant differences between students' IIS scores by their grades and social security. Students with social security had higher scores. Further post hoc tests indicated that there was difference between first-year and second year students for the

IIS scores. There were significant differences between students' CBI, AS, RE and CO scores by their grades. Further post hoc tests indicated that there were differences between first-year and fourth year students for the CBI, RE, CO scores and first-year and third year students for the AS scores (Table 3).

There was a low, positive and statistically significant correlation between the students' IIS score and CBI total score ($r=0.40$, $p<0.001$) and AS ($r=0.369$, $p<0.001$), KS ($r=0.359$, $p<0.001$), RE ($r=0.353$, $p<0.001$), and CO ($r=0.332$, $p<0.001$) scores (Table 4).

DISCUSSION

In our study, where 353 nursing students were included and the individual innovation levels and care behaviors were evaluated, the total IIS score of the students was 63. Students' innovativeness levels were found to be low and in the "early majority" category. In another study, the individual innovativeness level and category of nursing students were found to be similar to this study.²² The results of the study in Türkiye have revealed that nursing students are in early majority or late majority category.^{12,13} When the international literature is examined, the innovativeness scores of nursing students were found to be moderately high in a study conducted in Taiwan.²³ Similarly, a study examining the correlation between information seeking behavior and innovative behaviors of Chinese nursing students reported that the students had a high level of innovativeness behaviors.²⁴ The reason why nursing students are at a early majority category, not early adopters, may be the situation of innovative practices in nursing education (theoretical and practical).

TABLE 2: IIS and CBI scores of the students (n=353).

Scales	\bar{X}	SD	Median	Minimum-maximum
Individual innovativeness	64.83	8.72	63	47-90
Caring behaviors (total)	5.4	0.60	5.62	1-6
Assurance	5.47	0.75	5.75	1-6
Knowledge-skill	5.25	0.83	5.6	1-6
Respectful	5.45	0.71	5.66	1-6
Connectedness	5.38	0.74	5.6	1-6

IIS: Individual Innovativeness Scale; CBI: Caring Behaviors Inventory; SD: Standard deviation.

TABLE 3: Comparison of students' IIS and CBI scores by socio-demographics (n=353).

Descriptive characteristics	n	%	IIS		Total CBI		AS		KS		RE		CO	
			M (Minimum-maximum)	M (Minimum-maximum)	M (Minimum-maximum)	M (Minimum-maximum)	M (Minimum-maximum)	M (Minimum-maximum)	M (Minimum-maximum)	M (Minimum-maximum)	M (Minimum-maximum)	M (Minimum-maximum)		
Gender														
Female	218	61.8	64 (47-90)	5.66 (1-6)	5.75 (1-6)	5.4 (1-6)	5.66 (1-6)	5.6 (1-6)	5.4 (1-6)	5.66 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)
Male	135	38.2	62 (47-89)	5.62 (3.5-6)	5.75 (3.25-6)	5.6 (3.6-6)	5.66 (2.33-6)	5.6 (3.6-6)	5.6 (3.6-6)	5.66 (2.33-6)	5.6 (3.6-6)	5.6 (3.6-6)	5.6 (3.6-6)	5.6 (3.6-6)
Ulp*			14690.50.979	15225/0.583	14905/0.834	16129/0.123	14501.0/0.814							14929/0.762
Grade														
1.	148	41.9	65 (49-90)	5.75 (1-6)	5.87 (1-6)	5.6 (1-6)	5.83 (1-6)	5.83 (1-6)	5.6 (1-6)	5.83 (1-6)	5.8 (1-6)	5.8 (1-6)	5.8 (1-6)	5.8 (1-6)
2.	72	20.4	61 (47-89)	5.68 (3-6)	5.75 (3-6)	5.6 (3-6)	5.66 (3-6)	5.66 (3-6)	5.6 (3-6)	5.66 (3-6)	5.7 (3-6)	5.7 (3-6)	5.7 (3-6)	5.7 (3-6)
3.	70	19.8	62 (47-89)	5.52 (3.8-6)	5.62 (4-6)	5.2 (3.4-6)	5.58 (3.6-6)	5.58 (3.6-6)	5.2 (3.4-6)	5.58 (3.6-6)	5.6 (3.4-6)	5.6 (3.4-6)	5.6 (3.4-6)	5.6 (3.4-6)
4.	63	17.8	64 (48-84)	5.45 (3.5-6)	5.5 (3.6-6)	5.4 (3.6-6)	5.5 (3.6-6)	5.5 (3.6-6)	5.4 (3.6-6)	5.5 (3.6-6)	5.2 (3.6-6)	5.2 (3.6-6)	5.2 (3.6-6)	5.2 (3.6-6)
χ ² /p**			9.418/0.024	9.540/0.023	13.254/0.004	3.689/0.297	10.345/0.016	8.360/0.039		10.345/0.016	8.360/0.039		8.360/0.039	
			Post hoc: 1-2	Post hoc: 1-4	Post hoc: 1-3		Post hoc: 1-4	Post hoc: 1-4		Post hoc: 1-4		Post hoc: 1-4		Post hoc: 1-4
Marital status														
Single	346	98.0	63.5 (47-90)	5.64 (1-6)	5.75 (1-6)	5.5 (1-6)	5.66 (1-6)	5.66 (1-6)	5.5 (1-6)	5.66 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)
Married	7	2.0	62 (51-73)	5.25 (4.1-6)	5.5 (3.8-6)	5.6 (4-6)	5 (4.3-6)	5 (4.3-6)	5.6 (4-6)	5 (4.3-6)	5.2 (4.4-6)	5.2 (4.4-6)	5.2 (4.4-6)	5.2 (4.4-6)
Ulp*			1053.5/0.555	1088/0.645	1012.5/0.445	1103.0/0.681	845.0/0.160			845.0/0.160	1160/0.847		1160/0.847	
Social security														
Yes	157	44.5	65 (48-89)	5.7 (1-6)	5.75 (1-6)	5.4 (1-6)	5.83 (1-6)	5.83 (1-6)	5.4 (1-6)	5.83 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)
No	196	55.5	62 (47-90)	5.58 (1-6)	5.75 (1-6)	5.6 (1-6)	5.66 (1-6)	5.66 (1-6)	5.6 (1-6)	5.66 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)
Ulp*			13323.5/0.030	14943/0.641	14942/0.632	15237/0.874	14848.5/0.563			14848.5/0.563	15144.5/0.795		15144.5/0.795	
Working status														
Yes	55	15.6	62 (48-88)	5.62 (3.7-6)	5.62 (3.25-6)	5.6 (3.6-6)	5.66 (3.6-6)	5.66 (3.6-6)	5.6 (3.6-6)	5.66 (3.6-6)	5.6 (4.2-6)	5.6 (4.2-6)	5.6 (4.2-6)	5.6 (4.2-6)
No	298	84.4	64 (47-90)	5.66 (1-6)	5.75 (1-6)	5.4 (1-6)	5.66 (1-6)	5.66 (1-6)	5.4 (1-6)	5.66 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)
Ulp*			7760.5/0.532	8375.5/0.795	8774/0.392	7640.0/0.417	8110.0/0.900			8110.0/0.900	8268.5/0.914		8268.5/0.914	
Income status														
Equal to expenses	156	44.2	64 (47-90)	5.54 (1-6)	5.75 (1-6)	5.4 (1-6)	5.66 (1-6)	5.66 (1-6)	5.4 (1-6)	5.66 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)
Less than expenses	174	49.3	63 (47-89)	5.7 (1-6)	5.87 (1-6)	5.6 (1-6)	5.83 (1-6)	5.83 (1-6)	5.6 (1-6)	5.83 (1-6)	5.8 (1-6)	5.8 (1-6)	5.8 (1-6)	5.8 (1-6)
More than expenses	23	6.5	60 (48-79)	5.58 (4.4-6)	5.75 (4.3-6)	5.6 (4.2-6)	5.66 (4.3-6)	5.66 (4.3-6)	5.6 (4.2-6)	5.66 (4.3-6)	5.6 (4.2-6)	5.6 (4.2-6)	5.6 (4.2-6)	5.6 (4.2-6)
χ ² /p**			1.324/0.516	4.185/0.123	4.136/0.126	3.819/0.148	2.975/0.226			3.819/0.148	4.062/0.131		4.062/0.131	
Mother's education level														
Primary school	197	55.8	64 (47-89)	5.7 (1-6)	5.75 (1-6)	5.6 (1-6)	5.86 (1-6)	5.86 (1-6)	5.6 (1-6)	5.86 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)
Secondary school	66	18.7	62 (47-84)	5.62 (1-6)	5.75 (1-6)	5.3 (1-6)	5.83 (1-6)	5.83 (1-6)	5.3 (1-6)	5.83 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)
High school	62	17.6	63 (51-87)	5.45 (3.7-6)	5.87 (3.7-6)	5.2 (3.6-6)	5.83 (3.6-6)	5.83 (3.6-6)	5.2 (3.6-6)	5.83 (3.6-6)	5.5 (3.6-6)	5.5 (3.6-6)	5.5 (3.6-6)	5.5 (3.6-6)
Higher education	28	7.9	65.5 (52-90)	5.58 (3.5-6)	5.75 (3.2-6)	5.4 (3.6-6)	5.66 (2.3-6)	5.66 (2.3-6)	5.4 (3.6-6)	5.66 (2.3-6)	5.7 (4-6)	5.7 (4-6)	5.7 (4-6)	5.7 (4-6)
χ ² /p**			7.498/0.058	2.560/0.465	1.493/0.684	5.928/0.115	3.325/0.344			5.928/0.115	2.659/0.447		2.659/0.447	
Residence place														
Alone at home	11	3.1	67 (50-89)	5.75 (3.5-6)	5.87 (3.6-6)	6 (4-6)	5.66 (2.3-6)	5.66 (2.3-6)	6 (4-6)	5.66 (2.3-6)	5.8 (4.2-6)	5.8 (4.2-6)	5.8 (4.2-6)	5.8 (4.2-6)
With friends at home	136	38.5	62 (47-89)	5.56 (2.5-6)	5.75 (1-6)	5.4 (1.8-6)	5.66 (3.6-6)	5.66 (3.6-6)	5.4 (1.8-6)	5.66 (3.6-6)	5.6 (3.6-6)	5.6 (3.6-6)	5.6 (3.6-6)	5.6 (3.6-6)
At dormitory	107	30.3	65 (51-90)	5.7 (3-6)	5.87 (3-6)	5.4 (3-6)	5.83 (3-6)	5.83 (3-6)	5.4 (3-6)	5.83 (3-6)	5.6 (3-6)	5.6 (3-6)	5.6 (3-6)	5.6 (3-6)
With family	83	23.5	64 (47-84)	5.7 (1-6)	5.75 (1-6)	5.6 (1-6)	5.66 (1-6)	5.66 (1-6)	5.6 (1-6)	5.66 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)
With relatives	16	4.5	65 (51-88)	5.58 (3.7-6)	5.68 (3.6-6)	5.2 (3.8-6)	5.66 (3.5-6)	5.66 (3.5-6)	5.2 (3.8-6)	5.66 (3.5-6)	5.6 (3.6-6)	5.6 (3.6-6)	5.6 (3.6-6)	5.6 (3.6-6)
χ ² /p**			2.204/0.698	2.213/0.697	1.788/0.775	4.987/0.289	3.511/0.476			4.987/0.289	1.507/0.825		1.507/0.825	
The longest lived place of residence so far														
Province	113	32.0	65 (48-90)	5.58 (4-6)	5.62 (4-6)	5.4 (3.6-6)	5.66 (3.8-6)	5.66 (3.8-6)	5.4 (3.6-6)	5.66 (3.8-6)	5.6 (3.8-6)	5.6 (3.8-6)	5.6 (3.8-6)	5.6 (3.8-6)
District	157	44.5	63 (47-89)	5.7 (1-6)	5.87 (1-6)	5.6 (1-6)	5.66 (1-6)	5.66 (1-6)	5.6 (1-6)	5.66 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)
Village-town	83	23.5	63 (50-88)	5.66 (1-6)	5.87 (1-6)	5.83 (1-6)	5.83 (1-6)	5.83 (1-6)	5.83 (1-6)	5.83 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)	5.6 (1-6)
χ ² /p**			4.110/0.128	1.219/0.544	2.473/0.290	0.364/0.834	1.521/0.468			0.364/0.834	0.744/0.690		0.744/0.690	

*Mann-Whitney U; **Kruskal-Wallis test; IIS: Individual Innovativeness Scale; CBI: Caring Behaviors Inventory; AS: Assurance; KS: Knowledge-skill; RE: Respectful; CO: Connectedness.

TABLE 4: The correlation between IIS and CBI scores of the students (n=353).

Scales	Total CBI	Assurance	Knowledge-skill	Respectful	Connectedness
IIS					
r value	0.400	0.369	0.359	0.353	0.332
*p	0.000	0.000	0.000	0.000	0.000
n	353	353	353	353	353

*p<0.05; IIS: Individual Innovativeness Scale; CBI: Caring Behaviors Inventory.

The results of the present study revealed that the student nurses had high caring behavior perception. Likewise, in their study, Dığın and Özkan found that nursing caring behavior perception behavior were high.²⁵ Similar to results of the present study, CBI scores were found to be high in different studies evaluating nursing students' caring behaviors.²⁶⁻²⁸ In their study, Türk et al., evaluated the caring behaviors of the students as good.²⁹ When the subscales of CBI were examined, it was found in the present study that while the highest score was detected in the AS, the students had lower perceptions of KSs. In the study of Dığın and Özkan, the highest score was detected in the KS subscale, and the lowest score was determined in the CO subscale.²⁵ A study examining how nurses' emotional intelligence levels affected their caring behaviors reported that while the highest score was obtained from the KS subscale, the lowest was obtained from the CO subscale.³⁰ It is thought that the reason for the lower KSs subscale score in the current study is that the students felt inadequate as a result of receiving online education due to the coronavirus disease-2019 pandemic process and being away from the clinics.

In our study, when the nursing students' caring behavior scores were evaluated according to year of study they studied, it was found that the 4th grade students' total scale score and RE, CO subscale scores were at the lowest level, while the 3rd grade students' AS subscale scores were at the lowest level.^{31,32} It is thought that the reason for the difference in our study is that the students adopted the care behavior at the level of knowledge before the practice, but when the practice started, they followed the routine practices instead of being care-oriented.

In the present study, there is a low positive correlation was found between students' IIS score and total CBI score and all subscale scores. Baltacı and

Metin evaluated the relationship between students' individual innovation level and evidence-based nursing attitudes, and determined that as the individual innovativeness level increased, their attitudes towards evidence-based nursing improved.¹³ A study conducted with senior nursing students revealed a positive correlation between individualized care and individual innovativeness scores, and it was revealed that innovator students who produced, developed and implemented individualized nursing programs or projects had high perceptions of care.¹⁰

LIMITATIONS

This study was carried out in the nursing faculty of a university. Therefore, it cannot be generalized to the whole population. The study was based on self-reported data, which has been linked to social desirability. Since the data was collected online, not face to face, it was not possible to answer the questions that the students might ask while filling out the form.

CONCLUSION

Nursing students' innovativeness level was found to be low, and their care behavior score was found to be high and the students had lower perceptions of KSs. In addition, as the year of study rises, the students' caring behavior scores decrease. Detection of this important finding in the education process may provide an opportunity for the development of a pre-graduate care-oriented approach by ensuring that nursing care is included more in the vocational courses in the curriculum.

In order for nurses to respond to the needs of the individual in patient care, they need to be innovative, transfer innovations to patient care and fulfill their contemporary nursing roles with an innovative perspective. Therefore, it is important to organize all

course contents in a way that supports the innovative perspective and eliminates the prejudices of the students against innovations. Students should be informed about how innovative approaches can be used in care, and the positive effects of following the recent researches in care. In addition, supportive environments and opportunities should be provided for students to follow new information and take innovative initiatives. Supportive practices to increase the individual innovativeness profile of nursing students will increase the caring behavior perception, which is the most important role of the nursing profession, with all its dimensions.

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vides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Serap Tekbaş; **Design:** Serap Tekbaş, Ayşegül Sacaşan; **Control/Supervision:** Serap Tekbaş, Ayşegül Sacaşan; **Data Collection and/or Processing:** Serap Tekbaş, Ayşegül Sacaşan; **Analysis and/or Interpretation:** Serap Tekbaş, Ayşegül Sacaşan; **Literature Review:** Serap Tekbaş, Ayşegül Sacaşan; **Writing the Article:** Serap Tekbaş, Ayşegül Sacaşan; **Critical Review:** Serap Tekbaş, Ayşegül Sacaşan; **References and Findings:** Serap Tekbaş, Ayşegül Sacaşan; **Materials:** Serap Tekbaş, Ayşegül Sacaşan.

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