Original Article

Evaluation of Entrepreneurship, Individual Innovation and Obstacles to Innovation in Nursing Students

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Abstract

Objective: This study was conducted to determine the entrepreneurship and individual innovativeness profiles of nursing students and to evaluate the obstacles in front of them.
Methods: The study is a descriptive study and was conducted with 240 undergraduate nursing students who agreed to participate in the study. In the study, data were collected using the "Socio-demographic Data Collection Form", "University Students Entrepreneurship Scale", "Individual Innovation Scale" and "Barriers to Innovation Questionnaire". in the evaluation of the data; percentage distribution, mean, Kruskal Wallis test, Mann - Whitney U test, and correlation test were used. The $p<0.05$ level was considered statistically significant in the study.
Results: The entrepreneurship scale mean score of our students was found to be 138.61±20.07 and their entrepreneurship levels were determined as high. The innovativeness mean score was 64.45±7.73, and when the sub-dimensions of the scale were evaluated, it was determined that the students were in the "skeptical" sub-dimension. The barriers to innovation were stated by the students as institutional (80.98±20.64), individual (35.95±8.79), and social (24.55±6.23), respectively.
Conclusions: As a result, in the nursing profession, where innovation and entrepreneurship are very important, the entrepreneurship levels of the students were found to be high, and the innovativeness sub-dimension was found to be skeptical. The innovativeness scores of the students were not at the desired level. For this reason, it should be explained to the students that the institutional barriers that the student's state as the first obstacle can be changed and the concept of innovation in nursing should be included in the education programs.

Keywords: Entrepreneurship, Innovation, Obstacles, Nursing

Introduction

Today, as a result of advances in science and technology, it is seen that changes are experienced rapidly in many fields. Healthcare is one of these areas. In the Declaration of Human Rights, “the right to receive health care” is defined as a fundamental human right. Nurses are health professionals who are involved in the protection, development, treatment, care, and rehabilitation processes of health. They have responsibilities to follow and adapt to changes, developments, and innovations in the field of health. They can only fulfill these responsibilities by having an innovative mindset. Innovative thinking brings entrepreneurship, and entrepreneurship brings innovation. Entrepreneurship is the creative process that enables the establishment and operation of any organization by people. It means developing an innovative understanding of society and transferring it to practice. (Yilmaz, 2009; Soyler, 2018; Cakir, 2016). It takes place within the framework of an innovative approach. For this reason, the importance given to entrepreneurship has increased the importance and awareness of innovation (Hurt, b1977). This situation has allowed an increase in innovative developments. The theme of the International Council of Nurses (ICN) in 2009 is “For Quality Care, To Provide Quality Service to Communities: Innovation in Nursing Care” (ICN, 2009).

Nurses are health team members who take active responsibility for the implementation of entrepreneurship in health service delivery. In recent years, innovative applications such as the use of simulation models that support entrepreneurship in the field of nursing, the spread of evidence-based practices, standardization in care services have increased, and the critical thinking and effective decision-making skills of nurses have developed. This is a multidisciplinary study, critical thinking is an indispensable element in terms of the quality of health service delivery, which requires efforts to develop appropriate problem-solving methods. For this reason, it can be stated that entrepreneurship is a learnable discipline and contributes to the development of skills, qualities, and behaviors. It can be considered a necessity to include an understanding of innovation that brings entrepreneurship with it in nursing education (Sarioglu, 2017; Ertug, 2017; Kilicer, 2013). For this purpose, t is aimed to evaluate the obstacles in front of innovation by determining the entrepreneurship and individual innovativeness profiles of nursing students

Methods

Design and Participants: This study is descriptive research. The universe of the research consisted of students studying at the Faculty of Health Sciences, Gülhane Nursing Faculty in the Fall Term of the 2018-2019 Academic Year. The universe also constitutes the sample.

Inclusion criteria for the research; to accept to participate in the study and to be a student of the Faculty of Nursing at the University of Health Sciences in the Fall Term of the 2018-2019 Academic Year. Exclusion criteria are incompletely filled forms.

Research Questions:

1. What are the entrepreneurship and individual innovativeness levels of nursing students?
2. What are the barriers to innovation in nursing students?
3. What are the factors affecting the entrepreneurship and individual innovativeness levels of nursing students?

Data Collection Tools: The data in the study were “Socio-demographic Data Collection Form”, “University Students Entrepreneurship Scale” (Yilmaz & Sunbul), “Individual Innovation Scale” (Sarıoglu Kemer & Altuntas), and “ Barriers to Innovation Questionnaire” (Kılıcer & Odabası) were collected using The socio-demographic data collection form consists of a total of 15 questions, including the socio-demographic characteristics of the students and their educational characteristics. The “University Students Entrepreneurship Scale” developed by Yilmaz and Sunbul is a 5-point Likert-type scale, consisting of 36 items in total, evaluated as Never (1), Rarely (2), Sometimes (3), Often (4) and Very often (5). is a scale. Those with a total scale score between 36-64 points are "Very low entrepreneurship", those with 65-92 points are "Low entrepreneurship", those between 93-123 points are "Intermediate entrepreneurship", and those between 124-151 points are "High entrepreneurship" and 152 Those with a score of -180 are considered to have a "Very high entrepreneurship" level. An increase in the total score of the scale indicates that the level of entrepreneurship is high. Developed by Hurt et al., and adapted to Turkish by Sarıoglu Kemer and Altuntas for Nursing Students, the validity and reliability of the "Individual Innovation Scale" consists of 18 items in total; Strongly Disagree(1), Disagree(2), Undecided(3), Agree(4), Strongly I agree (5) as evaluated ıt is a 5-point Likert type scale. The total score that can be obtained from the scale varies between 14 and 94. According to the total score, the Individual Innovation Scale categories of the students are as follows: those who score 82 and above are “innovative”, those who score between 75-82 are “pioneers”, and those who score between 66-74 are “inquisitive”, those who score between 58-65 are “skeptical”, and those who score 57 and below are “traditionalists”. The "Barriers to Innovation Questionnaire", developed by Kilicer and Odabaşı and whose validity-reliability study was conducted, is a five-point Likert-type scale consisting of 40 items, consisting three sub-dimensions: individual (10 items), institutional (23 items), and social (7 items).

Data Collection: Data were collected by the researchers in the form of face-to-face surveys. Filling the data collection form took approximately 12 minutes.

Data Analysis: The data obtained in the study were evaluated using the SPSS 21.0 statistical package program. In the evaluation of the data; percentage distribution, mean, Kruskall Wallis test, Mann-Whitney U test, and correlation test were used. The relationship between the two scales was evaluated by correlation analysis

(bivariate). P<0.05 level was considered statistically significant.

Ethics Committee Approval: Written permission was obtained from the XXX Ethics Committee (IRB No: XXXX) for the study. Necessary explanations were given to the nursing students who agreed to participate in the study in the collection of data and their consent was obtained from the nursing students who agreed to participate in the study.

Results

240 nursing students studying at the faculty of nursing and agreeing to participate in the study were included in the study. 80% of the students are female and 53.8% are second-year students. The place where students live for a long time is 50% of the province. 57.9% of the students are Anatolian high school graduates, and their high school graduation averages are between 2.20 and 2.99 at a rate of 33.2%. The rate of students who plan to have an academic career is 79.2%. 9.6% of the students work in any job besides their studentship. The rate of students who are members of any club is 38.3%. The rate of students taking courses/training/seminars on entrepreneurship and innovation is 13.8% and 9.2%, respectively (Table 1).

When the entrepreneurship levels of the nursing students were evaluated, it was determined that they were in the entrepreneurial sub-dimension at a higher level than the scale sub-dimensions, with a rate of 52.1% and an average score of 138.61±20.07 (min:52-max:180). The individual innovativeness levels of nursing students were found to be skeptical with 37.5% and interrogator with 33.3%. When the scale sub-dimensions of the students were evaluated with the mean score of 64.45±7.73 (min:39-max:85), it was determined that they were in the "skeptical" sub-dimension. The barriers to innovation were stated by nursing students as institutional (80.98±20.64), individual (35.95±8.79), and social (24.55±6.23), respectively (Table 2).

A moderate positive correlation was found between the innovativeness levels of nursing students and their entrepreneurship levels (Table 3).

A statistically significant difference was found between the genders in nursing students in terms of individual innovativeness scale mean score (z=-3.284; p=0.001) (p<0.05). A statistically significant difference was found between the classes in terms of entrepreneurship scale mean score (z=-2.320; p=0.020) and individual innovativeness scale mean score (z=-2.622; p=0.009) (p<0.05). A statistically significant difference was found between the graduation general point averages of the students in terms of the individual innovativeness scale mean score (X^2 =9.474; p=0.024) (p<0.05). The difference is due to the comparison between 2.20-2.99 and 3.00-4.00 and the comparison between 2.20-2.99 and those who did not report. In addition to being a student, a statistically significant difference was found between the students working and non-working students in terms of entrepreneurship scale mean score (z=-2.333; p=0.020) (p<0.05). No statistically significant difference was found between the students who are members of any club or not, who have or do not have an academic career plan, and who took and did not take courses/training/seminars related to entrepreneurship (p>0.05). A statistically significant difference was found between the students who took and did not take courses/training/seminars related to innovation in terms of entrepreneurship scale mean score (z=-2.175; p=0.030) (p<0.05) (Table 4).

Table 1: Socio-demographic Characteristics (n=240)

		n	%
Gender	Female	192	80.0
	Male	48	20.0
Class	One-year	111	46.2
	Second-year	129	53.8
Family type	Nuclear family	194	80.8
	Extended family	36	15.0
	Broken family	10	4.2
Income status	Income more than expenses	27	11.3
	Income equals expense	163	67.9

	Income less than expenses	50	20.8
Mother's education status	Illiterate	23	9.6
	Primary school	144	60.0
	High school	59	24.6
	Undergraduate	13	5.4
	Postgraduate	one	0.4
Father's education status	Illiterate	3	1.3
	Primary school	95	39.6
	High school	91	37.9
	Undergraduate	48	20.0
	Postgraduate	3	1,2
Long-lived place	Village-town	27	11.2
	County	93	38.8
	Province	120	50.0
Graduated high school	Anatolian High School	139	57.9
	Basic High School	27	11.2
	science high school	5	2.1
	Vocational High School	45	18.8
	Other*	24	10.0
Graduation general point average	0.00-2.19	3	1.3
	2.20-2.99	80	33.2
	3.00-4.00	64	26.7
	Not reporting	93	38.8
Plan of having an academic career	Yes	190	79.2
	No	50	20.8
Employment status in addition to being a student	Yes	23	9.6
	No	217	90.4
Membership status of any club (fitness, equestrian, tennis, basketball, etc.)	Yes	92	38.3
	No	148	61.7
Status of taking any course/training/seminar related to entrepreneurship	Yes	33	13.8
	No	207	86.2
Status of taking any course/training/seminar related to innovation	Yes	22	9.2
	No	218	90.8

*Not Reporting, College Graduate and Anatolian Imam Hatip High School Graduate

Table 2: Entrepreneurship, Individual Innovation Levels of Nursing Students and Barriers to Innovation (n=240)

		n	**%**
Entrepreneurship levels	Very low level of entrepreneurship	1	0.4
	Low level of entrepreneurship	2	0.8
	Intermediate entrepreneurship	51	21.3
	High level of entrepreneurship	125	52.1
	Very high level of entrepreneurship	61	25.4
Entrepreneurship mean score±sd		138.61±20.07(min:52-max:180)	
		n	%
Individual innovation levels	Traditionalist	46	19.2
	Skeptical	90	37.5
	Interrogator	80	33.3
	Pioneer	18	7.5
	Innovator	6	2,5

Individual innovativeness mean score ± sd					64.45±7.73(min:39-max:85)
Barriers to Innovation	n	Mean	SD	Min	Max
Individual	240	35.95	8.79	10.00	50.00
Individual item	240	3.59	.88	1.00	5.00
Institutional	240	80.98	20.64	25.00	115.00
Institutional item	240	3,52	.90	1.09	5.00
Social	240	24.55	6.23	7.00	35.00
Social item	240	3,51	.89	1.00	5.00
Barriers to innovation mean score±sd					141.48±34.42(min:42-max:200)
Barriers to innovation item mean score±sd					3.53±0.86(min:1-max:5)

Table 3: Correlation Analysis Between Innovation and Entrepreneurship Levels of Nursing Students

	n	r	p
Entrepreneurship level Innovation level	240	0.466	0.000

r=correlation coefficient

Table 4: Comparison of Scale Scores by Socio-Demographic Characteristics (n=240)

Features	**n**	**Entrepreneurship Scale**		**Individual Innovation Scale**	
		Mean	**SD**	**Mean**	**SD**
Gender					
Female	192	139.12	19.20	65.17	7.53
Male	48	138.25	24.71	61.60	7.94
		z=-0.466; p=0.641		z=-3.284; **p=0.001**	
Class					
One-year	111	136.38	19.94	65.72	7.16
Second-year	129	141.15	20.54	63.36	8.06
		z=-2.320; **p=0.020**		z=-2.622; **p=0.009**	
Graduation general point average					
0.00-2.19	3	141.00	10.81	64.33	6.11
2.20-2.99	80	139.41	23.07	62.73	8.10
3.00-4.00	64	141.71	15.66	64.95	7.67
Not reporting	93	136.58	20.95	65.60	7.33
		X^2=3.809; p=0.283		X^2=9.474; **p=0.024** [a,b]	
Employment status in addition to being a student					
Yes	23	147.00	17.53	66.43	8.36
No	217	138.09	20.49	64.24	7.65
		z=-2.333; **p=0.020**		z=-1.200; p=0.230	
Membership status of any club (fitness, equestrian, tennis, basketball, etc.)					
Yes	92	139.41	20.97	64.46	7.93
No	148	138.66	20.04	64.45	7.63
		z=-0.550; p=0.582		z=-0.066; p=0.947	
Plan of having an academic career plan					
Yes	190	139.97	19.72	64.66	7.70
No	50	135.04	22.42	63.68	7.86
		z=-1.638; p=0.101		z=-0.908; p=0.364	
Status of taking any course/training/seminar related to entrepreneurship					
Yes	33	144.42	20.40	65.66	7.39
No	207	138.07	20.27	64.26	7.78
		z=-1.515; p=0.130		z=-0.977; p=0.329	
Status of taking any courses/training/seminars related to innovation					
Yes	22	147.72	20.61	65.59	7.58
No	218	138.06	20.18	64.34	7.75
		z=-2.175; **p=0.030**		z=-0.640; p=0.522	

z= Mann-Whitney U test, X^2 = Kruskall Wallis test [a] 2.20-2.99 vs. 3.00-4.00; [b] Comparison of 2.20-2.99 with non-reporting

Discussion

This study was conducted to determine the entrepreneurship and individual innovativeness profiles of nursing students and to evaluate the barriers to innovation. The entrepreneurship scale means a score of the students was found to be 138.61±20.07 and their entrepreneurship levels were determined as high. Cakir Dolu et al. (2016) similarly, the entrepreneurship score average of the students is 139.75 ± 18.33, and their entrepreneurship level is high. In the study, when the entrepreneurship status of the students was compared according to their gender, no statistically significant difference was found between male and female students ($p>0.05$). Similarly, Cakir Dolu et al. (2016) also found no statistically significant difference in terms of entrepreneurship status according to the gender of the students.

In the literature, entrepreneurship tendencies of working students in any period of the education process were found to be higher than those who did not work (Akcakanat et al., 2014; Turkmen & Isbilir, 2014; Yildiz & Kapu 2007; Cakir Dolu et al. 2016). Similarly, in the study, a statistically significant difference was found between the students working and not working in a job in addition to being a student in terms of entrepreneurship scale mean score ($p<0.05$). However, no statistically significant difference was found between the students who were members of any group and those who did not, in terms of scale scores ($p>0.05$). Cakir Dolu et al. (2016), on the other hand, it was found that students with any club membership were higher than those without entrepreneurial tendencies.

In the literature, having an academic career plan after graduation is a factor affecting the entrepreneurship level of students (Akcakanat et al., 2014; Turkmen & Isbilir, 2014; Cakir Dolu et al. 2016). However, no statistically significant difference was found between the students with and without an academic career plan in terms of entrepreneurship and innovation scale mean scores ($p>0.05$). Considering that the academic career plan becomes more prominent towards the senior years, it is thought that this difference may have been seen because our student group was first and second-year students. The majority of the students in the study did not take any course related to entrepreneurship. In addition, there was no statistically significant difference in entrepreneurship scale scores between students who took and did not take entrepreneurship courses/training/seminars ($p>0.05$). However, despite this, the level of entrepreneurship is high. Cakir Dolu et al. (2016) also found similar results in their study.

The students' innovativeness score averages were 64.45±7.73, and when the sub-dimensions of the scale were evaluated, it was determined that the students were in the "skeptical" sub-dimension. However, it is stated in the literature that students are in the "interrogator" sub-dimension (Koruyucu & Olpak, 2015; Cuhadar et al., 2013; Demiralay et al., 2016; Ertug & Kaya, 2017). In the study, a statistically significant difference was found between male and female students when the innovativeness of the students according to their gender was compared ($p<0.05$). The score of female students is higher than that of male students. While there are studies in the literature that support the findings of our study (Gur Erdogan & Zafer Gunes, 2013; Ertug & Kaya, 2017), there is also a study in which male students have high innovativeness scores (Yuksel, 2015). It is thought that these differences may be due to individual characteristics.

In the study, a statistically significant difference was found in terms of individual innovativeness according to the class and grade point averages of the students ($p<0.05$). In the studies of Ertug and Kaya (2017), it is stated that there is no difference in terms of students' class level and grade point averages. Similar to our study, it is stated in the literature that there are differences in terms of grade point averages (Gur Erdogan & Zafer Gunes, 2013; Adiguzel et al. 2014) and grade levels (Korucu & Olpak, 2015; Ozgur, 2013; Adiguzel, 2012). It is thought that this situation may be due to the different characteristics of the students. In the study, the barriers to innovation were stated by the students as institutional, individual, and social, respectively. Similarly, in the studies of Kilicer and Odabasi (2013), it is stated that institutional barriers are the biggest obstacle to innovation.

Conclusion: Continuation of today's health care by technological developments is possible with innovation. For this reason, the understanding of entrepreneurship and innovation that brings innovation with them is important in the nursing profession. As stated by the students in the research, the understanding of innovation can

sometimes encounter obstacles. The important thing is that these obstacles can be changed and this situation is explained to the student. For this reason, nursing education should be developed within the framework of innovativeness and the concept of innovation should be included in education programs. In this context, innovative and creative nurse entrepreneurs will be trained, health problems will be recognized at an early stage, and effective care approaches will be implemented.

Limitations: The participation of only first and second-year students in the research constitutes the limitation of the research. Third and fourth-year students were not included in the study because they were in practice internships at the hospital.

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