

# Determination of Individual Innovation Profiles of Midwifery Students and Factors Affecting

Yasemin Aydın Kartal<sup>1</sup>, Azime Özsoy<sup>2</sup>, Kadriye Üner<sup>2</sup>

<sup>1</sup>Assistant Professor (PhD), Department of Midwifery, Faculty of Health Sciences, University of Health Sciences, Istanbul, Turkey

<sup>2</sup>Sakarya University, Faculty of Health Sciences, Department of Midwifery, Sakarya, Turkey

Corresponding Author: Yasemin Aydın Kartal

## ABSTRACT

s

**Objective:** This study was conducted to determine the individual innovation profiles of midwifery students and factors affecting.

**Methodology:** A total of 135 students who were studying in the first and fourth grades of Midwifery Department of a public university between November 20th and December 31st, 2016 constituted the population of the research which was planned descriptive and in analytical pattern. It was aimed to reach the entire population, however the sample consisted of 112 students who could be reached and accepted to participate in the research. The data was collected by "Individual Form" and "Individual Innovativeness Scale (IIS)".

**Results:** The average age of the students was found to be  $20.49 \pm 2.07$  years, 47.3% of students were in the first grade and 52.7% were in the fourth grade. The average IIS score of the first grade students was determined as  $65.69 \pm 10.19$  and the fourth grade students' score was  $65.13 \pm 8.80$ . When the average IIS score of the students was evaluated within the scope of innovation, it was determined that 53.6% of the students were questioner and 3.6% were innovative. When the innovation levels of the students were examined it was varying according to the variable of the smartphone use and grade.

**Conclusion:** As a result, it has been determined that the individual innovation characteristics of midwifery students were in the "questioner" category and smartphone user students were more innovative and the level of taking risk increases as the grades getting higher.

**Keywords:** Individual Innovation, Midwifery, Midwifery Students.

## INTRODUCTION

Developments in information and communication technologies lead to the self-renewal and development of individuals and society. In a rapidly changing world, in order to be able to adapt to change, to maintain individual, organizational and professional life, individuals need to constantly renew themselves and make innovation a behavior.

Innovation is to embody new and valuable knowledge, or idea, product, process or service, at the right time and turn it into a social benefit. [1-3] Innovation is the

whole creative process that turns good into usable. In health care services, the concept of innovation can be defined as a process in which new approaches, technologies and working styles are developed, and new ideas (methods, service types, etc.) are transformed into outputs that create value. Innovation, which has vital importance for the health sector, is becoming one of the main determinants of social prosperity and quality of life with its innovations and progresses. [4]

Innovation has become an important concept in the field of midwifery in recent

years. There is a rapid innovation process in the midwifery profession due to technological and scientific developments in the health care system, which is constantly changing and developing. In order to meet the right “to be healthy”, which is one of the fundamental human rights, midwives have to renew themselves in parallel with the scientific, technological, economic, social changes and developments at all levels (protection, development, treatment and care of health).

Midwives are also responsible for researching how to provide services in a way that is more effective, quality and cost effective, while giving a very important and complicated service such as birth and care within the health system, questioning whether they are appropriate and effective by constantly monitoring the service they provide. Midwives must innovate, initiate and maintain innovation in order to fulfill this responsibility. It is also important to consider motivating, providing opportunities, providing adequate time and resources for midwives to think innovative and do research on innovation. For this reason, it is important to evaluate the innovation perceptions of midwife candidates. Therefore, this study was conducted to determine the individual innovation profiles and influencing factors of midwifery students.

## METHOD

A total of 135 students who were studying in the first and fourth grades of Midwifery Department of a public university between November 20th and December 31st, 2016 constituted the population of the research which was planned descriptive and in analytical pattern. It was aimed to reach the entire population, however the sample consisted of 112 students who could be reached and accepted to participate in the research (*Response rate: %83*).

**Data Collection Tools:** The data were collected using the “Personal Information Form” and the “Individual Innovativeness

Scale” which were prepared by the researchers. The personal information form consists of a total of 18 questions including demographic and obstetric characteristics of students.

**Individual Innovation Scale (IIS):** The five-point likert-type IIS was developed by Hurt et al., and by adapting to Turkish language the reliability-validity test of the scale was conducted by Kılıçer and Odabaş.<sup>[5,6]</sup> The scale consists of 20 items. In factor analysis done by Kılıçer, it was determined that there were four sub-dimensions of scale, and these sub-dimensions were determined as Resistance to Change, Idea Leadership, Being Open to Experience, Taking Risk.<sup>[7]</sup> All the articles forming the sub-dimension of “Resistance to Change” are composed of negative materials, the other articles that forming other dimensions are positive. The scale score is calculated by adding 42 points to the total points which obtained by subtracting the points of negative articles from points of positive articles. The total score of the scale ranges from 14 to 94. According to the scores calculated on the scale, the individuals are classified according to their innovation status. According to the scores obtained from the scale; If the calculated score is over 80 points, it is interpreted as “Innovative”, between 69 and 80 points as “Leader”, between 57 and 68 points as “Questioner”, between 46 and 56 points as “Skeptic” and below 46 points as “Traditionalist”. In addition, those whose scale score is above 68 according to innovation score are called “highly innovative”, those between 68-64 are called “moderately innovative” and those below 64 are called “low level innovative”.

The data of the study were collected by the researchers conducting the study by applying face-to-face interview technique with the midwifery students who agreed to participate in the study. Forms took about 30 minutes to implement.

**Evaluation of the Data:** The data were calculated with the descriptive statistical analyses of number, percentage, mean and

standard deviation by using the SPSS 17.0 (Software Statistical Package for the Social Science). The distribution of the data was evaluated by the Kolmogorov Smirnov test. Comparisons between groups were evaluated using the Mann Whitney U test and Kruskal Wallis test. The “p” values below 0.05 were considered as statistically significant.

**Ethical Aspect of the Research:** Written permission was obtained from the public university where the study was conducted. After informing the midwifery students about the study, verbal consent of the students was taken. The students who was going to participate in the study were informed about the individual information will keep confidential and “privacy principle” was protected.

**Limitations of the Research:** The study conducted with midwifery students in only one public university. Therefore, findings of the research cannot be generalized to all midwifery students in Turkey.

**RESULTS**

It was determined that the average age of the students participating in the study was 20.49±2.07years, 47.3% in the first grade and 52.7% in the 4<sup>th</sup> grade students. It was determined that 83% of the students voluntarily preferred the department, 91.3% loved the midwifery profession and felt fit for the profession. It was determined that the education level of the parents of the students was mainly primary and secondary education. It was determined that 84.8% of the students included in the study assessed their achievement level as moderate, 48.8% were using computers adequately, 47.3% were using the internet and 26.8% were using smartphones fully enough.

**Table 1. Individual Innovation Scale Sub-Group and Total Score Averages**

Ölçek Boyutları	Mean± SD	Min-Max
Resistance to Change	21.24±4.65	10-37
Idea Leadership	16.72±3.83	5-25
Being Open to Experience	17.19±3.83	5-25
Taking Risk	7.27±1.69	2-10
Total Score	65.40±9.44	41-89

Table 1 shows all students’ total individual innovation scores and scores according to sub-dimensions. It was determined that the mean IIS score of the first graders was 65.13 ± 8.80 and final graders was 65.69 ± 10.19. When the mean IIS scores of the students were evaluated within the scope of innovation, 53.6% were determined as questioner, 24.1% were leader, 14.3% were skeptical, 4.5% were traditionalists and 3.6% were innovative. When the mean score of the students from the IIS was examined in terms of innovation level, the students were evaluated as “moderately innovative”.

**Table 2. The Situations which is Perceived as Barriers to Innovation**

	n *	%
Being not encouraged	76	67.9
Risk avoidance	70	62.5
Lack of information on innovation	68	60.7
Unable teaching process to develop innovative thinking skills	66	58.9
Indifference	63	56.2
Foreign language inadequacy	61	54.5
Family structure does not support innovation	54	48.2
No different lessons to support creativity	48	42.9
High costs of innovations	44	39.3
Fear of not being accepted by society	40	35.7
Course contents do not have up-to-date topics	30	26.8

\* Multiple answers were given

When the situations which were perceived as obstacles to innovation by the students participated in the study, being not encouraged (67.9%), risk avoidance (62.5%), lack of information on innovation (60.7%), unable teaching process to develop innovative thinking skills (58.9%), indifference (56.2%) and foreign language inadequacy (54.5%) were found to be in the first places (Table 2.)

When the relationship between IIS and subscales and some variables of the students participating in the study were examined, there was no statistically significant difference between the variables of parental education status, achievement level and internet use status and scores obtained from IIS. It was determined that there was a statistically significant difference between the “Resistance to Change”, “Being Open to Experience” and “Taking Risk” sub-dimensions and the total

score of IIS, according to the variable of using smart phones fully enough. In addition, it was concluded that IIS taking

risk sub-dimension score differed according to the grades of the students.

Table 3. Comparison of IIS Total Score and Sub-Scale Score Averages According to Characteristics of Students

		Resistance to Change	Idea Leadership	Being Open to Experience	Taking Risk	IIS Total score
		Mean± SD	Mean± SD	Mean± SD	Mean± SD	Mean± SD
Grade	1.Grade (n:53)	21,16±4,37	15,94±4,34	16,46±4,39	6,85±1,92	65,13±8,80
	4. Grade (n:59)	21,31±4,93	17,44±3,16	17,87±3,11	7,67±1,35	65,69±10,19
		U: -,248 P: ,804	U: -,1780 P: ,075	U: -,1,657 P: ,098	U: -,2,401 P: ,016	U: -,1,291 P: ,197
Achievement Level	Low (n=6)	21,66±2,58	15,50±0,83	16,50±1,97	7,16±0,40	62,33±2,58
	Moderate (n=95)	21,33±4,87	16,68±3,91	17,32±3,90	7,23±1,78	65,47±9,45
	High (n=11)	20,18±3,42	17,72±4,07	16,45±4,18	7,72±1,34	66,45±11,81
		U: ,755 P: ,685	U: 2,173 P: ,337	U: 1,764 P: ,414	U: 1,254 P: ,534	U: 1,827 P: ,401
Internet Usage Status	Partially Enough (n=12)	21,66±5,17	16,16±4,17	18,50±2,67	8,08±1,24	68,00±9,55
	Enough (n=47)	21,42±5,20	17,17±3,17	17,65±3,50	7,23±1,73	66,12±9,13
	Fully Enough(n=53)	20,98±4,05	16,45±4,29	16,49±4,23	7,13±1,73	64,16±9,68
		KW: ,078 P: ,962	KW: 1,120 P: ,571	KW: 3,096 P: ,213	KW: 2,776 P: ,250	KW: ,685 P: ,710
Smartphone Usage Status	Never (n=39)	23,52±2,78	16,53±4,05	15,42±3,27	6,42±1,53	67,43±9,90
	Partially Enough (n=22)	20,40±5,38	17,68±3,73	17,20±3,92	7,50±1,81	64,87±9,52
	Enough (n=21)	21,61±5,01	16,00±2,81	17,74±4,33	7,38±1,61	67,81±9,76
	Fully Enough(n=30)	19,76±4,08	16,76±4,25	17,90±2,84	7,56±1,69	60,95±6,81
		KW: 11,638 P: ,009	KW: 3,288 P: ,349	KW: 9,381 P: ,025	KW: 8,697 P: ,034	KW: 10,707 P: ,013

KW: Kruskal Wallis Test, U: Mann Whitney U Test

## DISCUSSION

This study was conducted to determine the individual innovation profiles of midwifery students and factors affecting. In findings of this study, midwifery students were found to be moderately innovative (65.40±9.44). In the study conducted by Oran et al. on midwifery students, it was determined that the students were moderately innovative. [8] Similarly, midwifery students were found to be moderately innovative in the study of Özkan et al. These results support the findings of our study. [9] In contrast to our work, Ertuğ and Kaya’s study on nursing students revealed that the students were at a low level (63.92±10.06) of innovation. [10] It is thought that the differences in the results of the studies are due to the individual characteristics of the students.

When the individual innovation characteristics of the students were evaluated, it was determined that 53.6% were in the questioner category and 3.6% were in the innovative category. In the study of Özkan et al., 57.1% of the midwifery students were found to be questioner, 2.3%

were innovative, and in the study of Oran et al., 44.7% of the students were found to be questioner and 5.5% were innovative. [8,9]

In studies, it is seen that the vast majority of midwifery students are questioner and minority is innovative. Questioners can be said to be cautious about adopting innovation, not being very willing to take risks, and having spent a great deal of time thinking about it before adopting a new idea. Innovative ones are people who love to take on new ideas and take risks and have a vision. [6] We believe that it will be beneficial to revise education and training programs in order to influence students’ perception of innovation and to make them realize their need for innovation.

In this study, it was seen that taking risk scores of the last grade students were higher than the first-grade students. Items that are collected under the “taking risk” dimension appear to consist of items that reflect the irresistible motives of individuals in the face of uncertainties. Taking risk is also defined as a concept related to other personal characteristics such as being open to experience. [6] Innovation is defined as

changing, taking risks, even more important getting out of the known. As the level of education increases, it is expected that the awareness of individuals and their needs for innovations increase. In the light of these definitions, it can be said that when the level of education of the students become increase, they would be willing to try new ideas and take risks.

It was found that the students who use the smartphone fully enough showed significantly lower resistance to change scores and significantly higher being open to experience, taking risk and overall individual innovation scores. Smartphones are mass media tools with many advantages such as direct access to information, new applications, close monitoring of technology and coordination. Today, smartphones have become a computer that is carried on the pocket which used not only for communication purposes but also multimedia, banking, games, health-care applications and so on. [11] Under the innovation umbrella, there are individuals who use the technology and make the most use of the mass media. As a matter of fact, our study supports the literature and it is determined that the level of individual innovation of smartphone users is higher.

When the situations which were perceived as obstacles to innovation by the students participated in the study, individual, social and institutional reasons like being not encouraged, risk avoidance, lack of information on innovation, unable teaching process to develop innovative thinking skills are exist. In this context, educational institutions should update their programs to encourage and support innovations, and instructors should encourage their students to develop new ideas and be open to change. Thus, situations that are perceived as obstacles to innovation can be improved or eliminated.

## **CONCLUSION AND RECOMMENDATIONS**

In conclusion, it was determined that midwifery students were moderately

innovative and their individual innovativeness characteristics were in the “questioner” category. It can be said that students who use smartphones fully enough are more innovative and the level of taking risk increases as the grades getting higher. Today, being open to innovations, being the leading individuals in implementing these innovations and being example for society and colleagues are among the most important expected features of health professionals. In this context, it can be suggested that the curriculum and course contents should be structured in a way that supports the creativity and that the students can be educated as individuals who can think critically for increasing the individual innovativeness of the students who will be the future midwives. Furthermore, considering that each university has its own academic and social background, it is necessary to conduct research with future midwife candidates studying at different universities and evaluate the results within this scope.

## **ACKNOWLEDGEMENT**

The authors thank the midwifery students who participated in this study.

## **REFERENCES**

1. Foxall GR. Corporate Innovation: Marketing Strategy. New York: St. Martin's Press; 1984.
2. Ottenbacher M, Gnoth J. How to Develop Successful Hospitality Innovation. Cornell Hotel and Restaurant Administration Quarterly. 2005; 46:205-222.
3. Luecke R. Managing Creativity and Innovation (Translation Editor: Parlak T): İş Dünyasında Yenilik ve Yaratıcılık. 1. Baskı. İstanbul: Türkiye İş Bankası Kültür Yayınları; 2008: 3-9.
4. Şengün H. Innovation in Health Care Delivery. Med Bull Haseki. 2016; 54:194-8.
5. Hurt HT, Joseph K, Cook CD. Scales for The Measurement of Innovativeness. Human Communication Research. 1977; 4:58-65.

6. KılıçerK. &Odabaşı F. Bireysel Yenilikçilik Ölçeği: Türkçeye Uyarlama, Geçerlik ve Güvenirlik Çalışması. Hacettepe Üniversitesi Eğitim Fakültesi Dergisi.2010;38:150-164.
7. Kılıçer K. Bilgisayar ve Öğretim Teknolojileri Eğitimi Öğretmen Adaylarının Bireysel Yenilikçilik Profilleri (Doctoral Dissertation). Eğitim Bilimleri Enstitüsü. Anadolu Üniversitesi: Eskişehir; 2011.
8. Oran NT, Utkun E, Hadımlı E, Kırımlı B. Ebelik Bölümü Öğrencilerinin Bireysel Yenilikçiliğinin İncelenmesi. 3rd International & 7th. National Midwifery Student Congress; 2016April 26-29, Çukurova University, Adana, Turkey; 2016.
9. Özkan SA, Gözüarı S, Albayrak B, Şimşek DK, Yıldırım Ö. Ebelik Öğrencilerinin Bireysel İnovatif/ Yenilikçilik Özelliklerinin İncelenmesi. 3rd International & 7th. National Midwifery Student Congress; 2016 April 26-29, Çukurova University, Adana, Turkey; 2016.
10. Ertuğ N& Kaya H. Hemşirelik Öğrencilerinin Bireysel Yenilikçilik Profilleri ve Yenilikçiliğin Önündeki Engellerin İncelenmesi. Hemşirelikte Eğitim ve Araştırma Dergisi. 2017;14 (3): 192-197.
11. De Prato G, Feijoo C, Simon JP. Innovations In The Video Game Industry: Changing Global Markets. Digiworld Economic Journal.2014; 94(2):17-38.

How to cite this article: Kartal YA, Özsoy A, Üner K. Determination of Individual Innovation Profiles of Midwifery Students and Factors Affecting. Int J Health Sci Res. 2018; 8(4):104-109.

\*\*\*\*\*