Araştırma Makalesi/ Research Article

Does Nursing Students' Consciousness of Privacy Affect Their Attitudes to Registration and Preservation of Personal Health Data? A Descriptive Study

Hemşirelik Öğrencilerinin Mahremiyet Bilinci Kişisel Sağlık Verilerinin Kayıt ve Korunması Konusundaki Tutumlarını Etkiler mi? Tanımlayıcı Çalışma

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ABSTRACT
Objective: This study was aimed to determine the effect of privacy consciousness of nursing students on their attitudes towards registration and preservation of personal health data.
Method: The study was conducted as a descriptive and correlational research with 255 nursing students. The data were collected by using the Student Information Form, the Registration and Preservation of the Personal Health Data Attitude Scale and the Privacy Consciousness Scale. The data were evaluated in the IBM SPSS Statistics 21.0 program. Mann Whitney U and Kruskall Wallis test were used to analyze the mean scores of the scale in terms of descriptive characteristics. Multiple linear regression analysis was performed to determine the predictor of the Registration and Preservation of the Personal Health Data Attitude scores.
Results: The total mean score of the students' the Registration and Preservation of the Personal Health Data Attitude Scale was 4.15±0.43 and the mean total score of the Privacy Consciousness Scale was 4.48±0.48. It was determined that the Registration and Preservation of the Personal Health Data Attitude Scale total score averages of those who received training on the preservation of personal health data were statistically significantly higher than those who did not receive any training (p<0.05). There was a moderately significant positive correlation between the Registration and Preservation of the Personal Health Data Attitude Scale and the Privacy Consciousness Scale total scores (p<0.01). It was determined that the students' Privacy Consciousness Scale scores and status of receiving training on the preservation of personal health data explained 18.9% of the Registration and Preservation of the Personal Health Data Attitude Scale scores.
Conclusion: As the privacy level of students increases, their attitudes towards registration and preservation of personal health data are positively affected. The fact that students have positive attitudes towards the protection of patient records and have raised their privacy consciousness is important in terms of the sensitivity of future nurses to patient rights. Improving the privacy perception of nursing students will also be very effective in the process of preserving the personal health data of the individuals they care for. For this reason, it will be important to educate nursing students on privacy and the recording and protection of personal health data throughout their undergraduate education.
Keywords: Data registration and preservation, nursing students, personal health data, privacy consciousness

ÖZ
Amaç: Bu araştırma hemşirelik öğrencilerinin mahremiyet bilincinin sağlık verilerinin kayıt ve korunması konusundaki tutumlarına etkisini belirlemek amacıyla yapılmıştır.
Yöntem: Tanımlayıcı ve ilişki arayıcı tipteki bu araştırma 255 hemşirelik öğrencisinin katılımı ile gerçekleştirilmiştir. Araştırmanın verileri Öğrenci Bilgi Formu Kişisel Sağlık Verilerinin Kayıt ve Korunması Tutum Ölçeği (KSVKKTÖ) ve Mahremiyet Bilinci Ölçeği (MBÖ) kullanılarak toplanmıştır. Veriler IBM SPSS Statistics 21.0 programında analiz edilmiştir. Ölçek puan ortalamalarının tanımlayıcı özellikler açısından analizinde Mann Whitney U ve Kruskal Wallis testleri kullanılmıştır. Kişisel Sağlık Verilerinin Kayıt ve Korunması Tutumu Ölçeği toplam puanının yordayıcılarını saptamak amacıyla Çoklu Doğrusal Regresyon Analizi yapılmıştır.
Bulgular: Öğrencilerin Kişisel Sağlık Verilerinin Kayıt ve Korunması Tutum Ölçeği toplam puan ortalamalarının 4.15±0.43 olduğu ve Mahremiyet Bilinci Ölçeği toplam puan ortalamalarının ise 4.48±0.48 olduğu belirlenmiştir. Kişisel sağlık verilerinin korunması konusunda eğitim alanların Kişisel Sağlık Verilerinin Kayıt ve Korunması Tutum Ölçeği toplam puan ortalamalarının eğitim almayanlara göre istatistiksel olarak anlamlı derecede yüksek olduğu belirlenmiştir (p<0.05). Kişisel Sağlık Verilerinin Kayıt ve Korunması Tutum Ölçeği ile Mahremiyet Bilinci Ölçeği toplam puanları arasında orta düzeyde pozitif yönlü anlamlı bir ilişki olduğu saptanmıştır (p<0.01). Öğrencilerin Mahremiyet Bilinci Ölçeği puanları ile kişisel sağlık verilerinin saklanması konusunda eğitim alma durumunun Kişisel Sağlık Verilerinin Kaydedilmesi ve Saklanması Tutum Ölçeği puanlarının %18,9'unu açıkladığı belirlenmiştir.
Sonuç: Öğrencilerin mahremiyet düzeyi arttıkça kişisel sağlık verilerinin kayıt altına alınmasına ve saklanmasına yönelik tutumları da olumlu yönde etkilenmektedir. Öğrencilerin hasta kayıtlarının korunmasına yönelik tutumlarının iyi düzeyde olması ve mahremiyet bilinçlerinin gelişmiş olması geleceğin hemşirelerinin hasta haklarına gösterdikleri hassasiyet açısından önemlidir. Hemşirelik öğrencilerinin mahremiyet algılarının geliştirilmesi, bakım verdikleri bireylerin kişisel sağlık verilerinin korunması sürecinde de oldukça etkili olacaktır. Bu nedenle hemşirelik öğrencilerine lisans eğitimleri boyunca mahremiyet ve kişisel sağlık verilerinin kayıt ve korunması konusunda eğitim verilmesi önemli olacaktır.
Anahtar Kelimeler: Hemşirelik öğrencileri, kişisel sağlık verileri, mahremiyet bilinci, verilerin kayıt ve korunması

Introduction

Nursing education has an educational process consisting of theoretical and clinical practice. Students participate in clinical practices in different fields in order to develop professionally. During this time, students encounter many people who come to receive health services (Öztürk et al., 2019) and their personal health data (PHD). The PHD is defined as all kinds of information about the physical and mental health of an identified or identifiable natural person, and information about the health service provided to the person (Ministry of Health, 2019). Preservation of PHD includes privacy and protection of private life (Atalay, 2021). Preserving PHD is an indicator of respect for the individual and is very important for the patient-nurse relationship. Especially in today's electronic records processes, healthcare professionals should avoid violating the confidentiality principle and show the necessary sensitivity (Karadağlı, 2016).

Privacy is defined as all information that is peculiar to an individual and that should be kept confidential from other people (Şen, 2015). Privacy can also be defined as a concept that includes everything that belongs to the person, such as confidentiality and inviolability, and is not shared with anyone other than the person without the person's consent (Arslan ve Demir, 2017; Korkmaz, 2013). The right to privacy cannot be separated from human rights. Therefore, privacy refers to the area where people can be alone, think and act as they want, decide who they will be in contact with or to what extent they will be in contact at any time, place or condition, and their rights in this area (Ministry of Health, 2015). Maintaining the privacy of the individual is based on personal autonomy and is very important in terms of controlling one's own life and protecting her dignity (Burkhardt and Nathaniel, 2013).

The concepts of "privacy and preservation of privacy" in the medical oath and ethical principles are considered important indicators of the idea of "respect for human dignity". Health professionals should be conscious of the preservation of personal data with the idea of "respect for human dignity" (Turkish Medical Association, 2020). Technological developments have made it easier to use health information systems and access data. These developments are trying to increase the quality of the health service by ensuring the monitoring of patient registrations, the prevention of lost and erroneous data in the execution and management of care by transferring the data to the computer environment (Balestra, 2017). This has made it easier for people to access their PHD. However, it also revealed the need to preserve information. For this reason, it is necessary to preserve this data, which is a very sensitive issue in order to prevent interference in the private life of individuals, and to take some precautions (Aygin and Gül, 2020). Today, with technological developments, it can become quite difficult to ensure patient privacy in matters such as keeping information and ensuring its confidentiality (Berg, 2011; Karaarslan et al., 2015). In addition, with the use of various systems, many problems may arise, including patient care, privacy, ethics and responsibility (Balestra, 2017). The principles of respect for privacy and autonomy in the ethical codes of the nursing profession mean preserving patient privacy and respecting the individual and their decisions (Turkish Nurses Association, 2022; ICN, 2021). Therefore, nurses, need to preserve the privacy of the individuals they care for about personal and private information (Burkhardt and Nathaniel, 2013). Clinical nurses and nurse educators also have important duties as role models for nursing students to adopt professional values, ethical codes, ethical principles and responsibilities to develop an attitude toward preserving privacy, and gaining consciousness of privacy (Kızılcık Özkan et al., 2020). Therefore, it is important to provide nursing students with the consciousness of privacy throughout their professional education and to ensure that they internalize this situation (Öztürk et al., 2019). No study has been found in the literature examining the effect of privacy consciousness of nursing students on the registration and preservation of PHD. For this reason, this study was conducted to determine the effect of privacy consciousness of nursing students on their attitudes toward registration and preservation of PHD.

Method

Study Setting and Participants

The study was conducted as descriptive and correlational research. The population of this research consists of 749 nursing students at the Nursing Department of a university. According to the calculation made with a sampling error of 0.05 to determine the sample of the study, it was calculated that at least 255 students (p=0.5) should be included in the study, and the research was completed with 255 students between 15 November 2021 and 5 February 2022. The criteria for inclusion in the study were to be studying in the second, third

and fourth year of nursing (1) and to be willing to participate in the study (2). First-year students were not included in the study because they had not been involved in clinical practice before.

Instruments

The data of the study were collected by using the Student Information Form, the "Registration and Preservation of the Personal Health Data Attitude Scale" for Nursing Students (RPPHDAS), and the "Privacy Consciousness Scale" (PCS).

Student Information Form: In the form created by the researchers, there are 8 questions that evaluate the various introductory characteristics of the students as age, gender, class and place of residence, as well as the status of receiving training on the preservation of PHD.

The Registration and Preservation of the Personal Health Data Attitude Scale For Nursing Students (RPPHDAS): The scale was developed by Bezirgan Gözmener et al. (2019) consists of 31 items, that is 5-point Likert type. Each statement on the scale is scored from 1 to 5 as strongly disagree-strongly agree. The cut-off point of the scale was 3, and the attitudes of the students who score below 3 on average towards the registration and preservation of PHD are evaluated as "negative", and the attitudes of the students who score 3 and above towards the registration and preservation of PHD are evaluated as "positive". The scale consists of 5 sub-dimensions: "Personal Health Data Information", "Legal Information", "Legal Data Sharing", "Personal Health Data Sharing" and "Personal Health Data Registering". The Cronbach α reliability coefficient for the total scale was determined as 0.94. In this study, Cronbach's α of the scale was found to be 0.92.

Privacy Consciousness Scale (PCS): The scale was developed by Tabata and Hirotsune (2014) to measure privacy consciousness, its Turkish validity and reliability were performed by Öztürk et al. in 2019. The scale has three sub-dimensions: "Privacy Consciousness for the Self/Behaviors to Maintain the Privacy of the Self", "Privacy Consciousness for Others", and "Behaviors to Maintain the Privacy of Others". The five-point Likert scale is scored from one to five as strongly disagree-strongly agree. There are 4 items that are scored in reverse on the scale. In the evaluation of the scores obtained from the scale, 2.5 points and below are stated as low, between 2.5-3.5 moderate, 3.5-5 points as high privacy consciousness. It is accepted that as the score obtained from the scale increases, the consciousness of privacy increases positively. The

Cronbach's α coefficient of the scale was 0.77 in the study of Öztürk et al. (2019). In this study, the Cronbach's α of the scale was 0.79.

Data Collection

This research was conducted with nursing students in the nursing department of a university on 15 November 2021 and 5 February 2022. The data were collected with electronic data collection forms. The link to the form, which was created through Google Forms to collect the data for the research, was shared from the students' class WhatsApp group. Those who wanted to participate in the research were asked to fill out the form.

Data Analysis

The study data were evaluated in the IBM SPSS Statistics 21.0 program. Descriptive statistics are given as number (n), percent value (%), and mean±standard deviation. The normality of the data was analyzed with the Shapiro-Wilk test and Q-Q plot. Since $p<0.05$ was determined in the normality analysis of all variables, it was accepted that it did not show a normal distribution (Pallant, 2020). Mann Whitney U and Kruskall Wallis test were used to analyze the mean scores of the scale in terms of descriptive characteristics. The relationship between the scales was evaluated with Spearman correlation coefficient. Backward Multiple Linear Regression analysis was performed to determine the predictor of the Registration and Preservation of the Personal Health Data Attitude scores. The $p<0.05$ value was taken as a reference for statistical significance.

Ethical Considerations

Institutional permission and Ethics Committee approval were obtained from the University Social and Human Sciences Ethics Committee (427/2021) in order to conduct the study. Permission was obtained from the authors for the use of scales. First of all, an informative text explaining the purpose of the research was presented to the students. Afterward, they were asked to continue the research by clicking "I have read, I agree to participate in the study" to the question of "Do you agree to participate in the study". There is no conflict of interest with the students participating in the research.

Results

The mean age of the students was 20.89±1.95. 81.2% of them were female, 34.5% were second-year students, and 89.8% were Anatolian High School graduates. 67.5% of the students lived in the province before the university, 83.1% were middle-income, and 46.7% stayed in the dormitory during

university education. 61.6% of them received training on the preservation of PHD (Table 1). It was determined that the total mean score of the students' RPPHDAS was 4.15±0.43 and the mean total score of the Privacy Consciousness Scale was 4.48±0.48 (Table 2).

Table 1. Descriptive characteristics of students

Characteristics		
Age (X̄ ±SD)		20.89±1.95
	n	**%**
Gender		
Female	207	81.2
Male	48	18.8
Class		
2nd grade	88	34.5
3rd grade	83	32.5
4th grade	84	33.0
Graduated high school		
Anatolian High School	229	89.8
Health Vocational High School	20	7.8
Religious Vocational High School	6	2.4
Pre-university place of residence		
Province	172	67.5
District	52	20.3
Village	31	12.2
Family income status		
Good	4	1.6
Middle	212	83.1
Low	39	15.3
Place of stay during university education		
With family	116	45.5
At home with friends	13	5.1
In the dormitory	119	46.7
With relatives	7	2.7
Status of receiving training on the preservation of personal health data		
Yes	98	38.4
No	157	61.6

The total score averages of RPPHDAS and PCS were similar and there were no statistical differences in terms of gender, class, place of residence before university, family income status, graduated high school and place of residence during university education (p>0.05). The total score averages of RPPHDAS was statistically significantly higher according to the training status on the preservation of PHD (p<0.05) (Table 3).

There was a moderately significant positive correlation between the RPPHDAS and the PCS total scores (r=0.439, p<0.01) (Table 4). It was determined that the students' PCS scores and status of receiving training on the preservation of personal health data explained 18.9% of the RPPHDAS scores (Table 5).

Discussion

Personal data covers the confidential area of individuals, and violation of personal data is also considered a violation of privacy. This situation can shake individuals' confidence in institutions and affect society in many ways (Atalay, 2021). In this present study, which was carried out to define the effect of nursing students' privacy consciousness on their attitudes towards registration and preservation of PHD; the students' total mean score of RPPHDAS was 4.15±0.43 (Table 2). When the mean scores of the scale are evaluated, the fact that the students score above 3 indicates that they have a positive attitude. Atalıkoğlu Başkan et al. (2021) determined in their study they conducted on nursing students that the total mean score of RPPHDAS was 3.97±0.71. In other studies, it is stated that students have developed a positive attitude toward the registration and preservation of PHD and their consciousness is at a high level, and they have similar results to our study (Tural Büyük and Ünaldı Baydın, 2020; Pakiş Çetin and Çevik, 2021; Maraş and Ceyhan, 2021).

The students' total mean score on the PCS was 4.48±0.48 and they had a high level of privacy consciousness. Kurt (2021) found that the total mean score of the PCS was high in a study conducted with nursing students. Eti Aslan et al. (2019) found that the mean score of the nurses' PCS was 4.5±0.44 in the study they conducted with nurses working in surgical clinics. Kızılcık Özkan et al. (2020) determined that nursing students have a positive perception of patient privacy. In general, the results of this study are similar to the results of these studies (Eti Aslan et al., 2019; Kızılcık Özkan et al., 2020; Kurt, 2021). Contrary to the studies mentioned, other studies, they stated that the attitudes of nursing students toward patient privacy were moderate (Buldan and Arslan, 2021; Fallah Morteza Nejad et al., 2021). It can be thought that the results of the studies that differ may be due to the different samples and therefore the individuals living in different societies. Because many factors such as the society in which individuals grow up, family structure, and education affect the privacy consciousness.

The students' total mean scores of RPPHDAS were similar in terms of gender, class, place of residence before university, family income status, graduated high school and place of residence during university education (p>0.05).

Table 2. Scores of the RPPHDAS for nursing students and the Privacy Consciousness Scale

	Min-Max	X̄ ±SD
RPPHDAS		
Legal data sharing	3.00-5.00	4.46±0.47
Legal information	2.57-5.00	4.36±0.50
Personal health data information	2.83-5.00	4.05±0.50
Personal health data sharing	2.75-5.00	3.93±0.59
Personal health data registration	2.33-5.00	3.95±0.64
RPPHDAS Total Score	3.00-5.00	4.15±0.43
PCS		
Privacy consciousness for the self/behaviors to maintain the privacy of the self	2.25-5.00	4.60±0.51
Privacy consciousness for others	2.75-5.00	4.49 ±0.56
Behaviors to maintain the privacy of others	2.00-5.00	4.30±0.73
PCS Total Score	3.00-5.00	4.48±0.48

RPPHDAS: The RPPHDAS For Nursing Students, PCS: Privacy Consciousness Scale

Table 3. Distribution of scale score averages by descriptive characteristics (n=255)

	RPPHDAS	
	X̄±SD	p
Gender*		
Female (n=207)	4.16 ±4.23	0.571
Male (n=48)	4.11 ±0.50	U=4707,0
Class**		
2nd grade	4.13 ±0.43	0.682
3rd grade	4.13 ±0.46	X²=0,767
4th grade	4.19 ±0.41	
Pre-university place of residence**		
Province	4.15±0.43	0.853
District	4.18±0.42	X²=0,318
Village	4.12±0.46	
Graduated high school**		
Anatolian High School	4.15±0.44	0. 991
Health Vocational High School	4.15±0.46	X²=0,018
Religious Vocational High School	4.15±0.28	
Family income status**		
Good	4.34±0.19	0.104
Middle	4.12±0.44	X²=4,523
Low	4.26±0.42	
Place of stay during university education**		
With family	4.16±0.43	
At home with friends	4.06±0.43	0.765
In the dormitory	4.14±0.43	X²=1,148
With relatives	4.22±0.55	
Status of receiving training on the preservation of personal health data*		
Yes	4.24±0.41	**0.011**
No	4.09±0.44	**U=6238,0**

*Mann Whitney U testi, **Kruskal Wallis testi*

Similar to our study, in the study of Küçükkelepçe et al. (2021) in which they examined the level of privacy consciousness of nursing students, they found no difference between gender and privacy awareness (p>0.05). However, Maraş and Ceyhan (2021) determined that nursing students' scores on the RPPHDAS differ according to the class (p<0.05). Similarly, in the study conducted by Pakiş Çetin and Çevik (2021) a significant difference was found between the total mean scores of the RPPHDAS according to the class (p<0.05). In a study examining nursing students' attitudes towards professional values, it was determined that the mean scores of the female students were higher than the averages of the male students (p<0.05) (Poorchangizi et al., 2019). When Buldan and Arslan's (2021) PCS and sub-dimension mean scores were compared according to the gender of the students, the mean privacy consciousness score of female students was found to be 4.52±0.65 (p<0.001). As Küçükkelepçe Erkuş et al. (2021) stated, this may be due to the principle of the nursing, which provides equal service without distinction of language, religion, gender, and the

Table 4. The correlation of total and subscale scores of the RPPHDAS and the PCS

	1	2	3	4	5	6	7	8	9	10
1. Legal data sharing	-									
2. Legal information	0.660**	-								
3. Personal health data information	0.651**	0.794**	-							
4. Personal health data sharing	0.420**	0.791**	0.576**	-						
5. Personal health data registration	0.491**	0.560**	0.560**	0.453**	-					
6. RPPHDAS total score	0.763**	0.856**	0.874**	0.738**	0.775**	-				
7. Privacy consciousness for the self/behaviors to maintain the privacy of the self	0.362**	0.387**	0.371**	0.257**	0.291**	0.415**	-			
8. Privacy consciousness for others	0.367**	0.427**	0.364**	0.135*	0.302**	0.397**	0.553**	-		
9. Behaviors to maintain the privacy of others	0.308**	0.309**	0.321**	0.131*	0.200**	0.312**	0.436**	0.553**	-	
10. PCS total score	0.407**	0.444**	0.412**	0.185**	0.312**	0.439**	0.765**	0.850**	0.807**	-

*Spearmen Correlations Analysesn*p<0.05, ** p<0.01*

Table 5. Regression Analysis of the status of receiving training on the preservation of personal health data and the PCS on RPPHDAS

Variables	RPPHDAS						R^2	Durbin-Watson
	B	**β**	**SE.**	**t**	**p**	**95 % CI Lower-Upper**		
Constant	2.446		0.235	10.410	<0.001	1.983-2.909		
PCS	0.367	0.403	0.052	7.092	<0.001	0.265-0.469		
Status of receiving training on the preservation of personal health data	0.161	0.179	0.051	3.148	0.002	0.060-0.261	0.189	1.879

F= 29.366

students are given this awareness during their education. This current study determined that the students' PCS scores and status of receiving training on the preservation of personal health data explained 18.9% of the RPPHDAS scores (Table 5). Studies have shown that as the privacy awareness of nursing students increases, their ethical sensitivity also increases. It is stated that as their ethical sensitivity increases, their attitudes towards registration and preservation of personal health data will also increase. It has been stated that one of the factors affecting nursing students' protection of patient privacy is ethical values (Kurt, 2021; Tural Büyük and Ünaldı Baydın, 2020; Joo, Sook and Chae, 2018). The concept of privacy, which is under ethical concepts, is important for people to act more consciously against other people's personal data. In line with the ethical principles and responsibilities of nursing, it is important to develop the privacy awareness of nursing students throughout their education life as future health professionals and to raise awareness on this issue in order to make the right ethical decision on behalf of the patient. The status of receiving training on the preservation of personal health data also affects RPPHDAS. In addition, the score of the RPPHDAS differed statistically significantly according to the training status on the protection of PHD (p<0.05). Jung and Jung (2014) stated that education experience in medical information protection in their study which they examined the level of privacy consciousness of some general hospital employees had a significant relationship with scores on awareness. In the study conducted by Özata and Özer (2017), it was determined that 64% of the participants received training on patient privacy and that there was a significant difference between receiving training and attitude scores (p<0.05). In the study conducted by Maraş and Ceyhan (2021), the total attitude score average of the students who had heard the phrase PHD before was 4.17±0.43 and that of the students who had not heard it was 3.98±0.44, and this difference between the attitude scores was statistically significant, this has similar results to our study. The fact that students have heard of these subjects can increase their interest in these subjects and raise awareness. These issues are particularly emphasized in nursing education. In every practice, students' attention is drawn to these issues. In addition, the fact that nursing students have taken courses on health law in recent years may have increased the students' interest in these issues.

Preservation of personal data is related to the issue of privacy and preservation of private life (Atalay, 2021). In this study, there was a moderately positive and significant correlation between the RPPHDAS and the total scores of the PCS. This result shows that students with high privacy consciousness have a high level of attitude toward registration and preservation of PHD. The concept of privacy within the ethical codes includes the protection of personal data and respect for the individual (Turkish Medical Association, 2020). For this reason, people with high privacy awareness are expected to have high respect for the individual and their data.

Conclusion

The results obtained from the study show that the participants' attitudes towards registration and preservation of personal health data are positive and they have a high level of privacy. In addition, as the privacy level of individuals increased, their attitudes towards registration and preservation of personal health data were positively affected. Nursing students' perceptions of privacy will affect the process both for themselves and for the individuals they care for. Improving the privacy perception of nursing students will also be very effective in the process of protecting the PHD of the individuals they care for. For this reason, it will be important to raise awareness among nursing students about privacy and preservation of PHD throughout their undergraduate education.

Limitations

The limitation of this study is that it was carried out with only one university's nursing students. The collection of data with an online questionnaire is another limitation of this study.

What did the study add to the literature?

- Nursing students' consciousness of privacy affects their attitudes toward preserving their personal health data,
- The privacy consciousness of nursing students and the status of receiving training on the preservation of personal health data positively affects their attitudes toward the preservation of personal health data.

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