



# Determination of Nursing Students' Pelvic Floor Health Knowledge Levels

## Hemşirelik Öğrencilerinin Pelvik Taban Sağlığı Bilgi Düzeylerinin Belirlenmesi

Rojjin Mamuk , Mukaddes Miral , Melike Dişsiz , Meltem Demirgöz Bal 

### ABSTRACT

**Objective:** This study aimed to investigate the pelvic floor health (PFH) knowledge levels of third and fourth grade nursing students.

**Methods:** This descriptive and cross-sectional study was conducted with a sample of 167 students who were enrolled in the third and fourth classes year of the Nursing Department of two foundation universities and met the research criteria. The inclusion criteria were being enrolled in the third and fourth classes year of the Nursing Department, to have taken the course of Obstetrics and Gynecology Nursing and agreeing to participate in the study. Data were collected face to face interview through the "Personal Information Form" and the "Pelvic Floor Health Knowledge Quiz (PFHKQ)". Statistical analyzes were obtained by using number, percentage, mean, students' t-test and one-way analysis of variance in SPSS package program.

**Results:** 50.3% of the students stated that they had moderate knowledge of PFH, 19.2% applied pelvic floor exercises (PFE), 18% informed patients and healthy individuals about PFH, and 21% took part in the care processes of patients with pelvic floor dysfunction. The total mean score obtained from the PFHKQ was found 16,29±7,00. In addition, the mean of the Function/Dysfunction sub-dimension of the scale was 4.40±1.98, in the Risk/Etiology sub-dimension 6.83±3.42, and 5.04±2.36 in the Diagnosis/Treatment sub-dimension.

**Conclusion:** In this study, the knowledge of nursing students about PFH is a moderate level. The rates of applying PFE and informing the individuals about PFH are low.

**Keywords:** Health, knowledge level, pelvic floor, pelvic floor exercises, nurse, university students

### Öz

**Amaç:** Bu çalışmada, hemşirelik bölümü üçüncü ve dördüncü sınıf öğrencilerinin pelvik taban sağlığı (PTS) bilgi düzeylerini belirlemek amaçlandı.

**Yöntem:** Tanımlayıcı-kesitsel tipte olan çalışmanın örneklemini iki vakıf üniversitesinin hemşirelik bölümü üçüncü ve dördüncü sınıflarında öğrenim görmekte olan ve araştırma kriterlerini karşılayan 167 öğrenci oluşturdu. Örneklem kabul kriterleri ise hemşirelik bölümlerinin üçüncü ve dördüncü sınıflarında bulunmak, Kadın Hastalıkları ve Doğum Hemşireliği dersini almış olmak ve çalışmaya katılmaya gönüllü olmak şeklindeydi. Veriler "Kişisel Bilgi Formu" ve "Pelvik Taban Sağlığı Bilgi Testi (PTSBT)" kullanılarak yüz yüze toplandı. İstatistiksel analizler SPSS paket programında sayı, yüzde, ortalama, students' t-testi ve tek yönlü varyans analizi kullanılarak elde edildi.

**Bulgular:** Öğrencilerin %50,3'ü PTS bilgisini orta düzeyde olduğunu, %19,2'si pelvik taban egzersizlerini (PTE) uyguladığını, %18'i PTS konusunda hastaları ve sağlıklı bireyleri bilgilendirdiğini ve %21'i pelvik taban fonksiyon bozukluğu olan hastaların bakım süreçlerinde yer aldığını belirtti. PTSBT'den elde edilen toplam puan ortalaması 16,29±7,00 idi. Ayrıca ölçeğin Fonksiyon/Disfonksiyon alt boyut puan ortalaması 4,40±1,98, Risk/Etyoloji alt boyutu 6,83±3,42 ve Tanı/Tedavi alt boyutu 5,04±2,36'dir.

**Sonuç:** Bu çalışmada hemşirelik öğrencilerinin PTS'ye dair bilgileri orta düzeydedir. PTE uygulama ve çevrelerindeki bireylere PTS konusunda bilgi verme oranları düşüktür.

**Anahtar kelimeler:** Sağlık, bilgi düzeyi, pelvik taban, pelvik taban egzersizleri, hemşire, üniversite öğrencileri

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**Rojjin Mamuk**

Eastern Mediterranean University,  
Faculty of Health Sciences, Nursing  
Department, Famagusta, TRNC  
✉ rojinmamuk@gmail.com  
ORCID: 0000-0003-3612-2010

**M. Miral** 0000-0002-0696-8923

Istanbul Kültür University, Faculty of  
Health Sciences, Nursing Department,  
Istanbul, Turkey

**M. Dişsiz** 0000-0002-2947-3915

Health Sciences University, Hamidiye  
Faculty of Nursing, Department of  
Obstetrics and Gynecology Nursing,  
Istanbul, Turkey

**M. Demirgöz Bal** 0000-0003-4009-7137

Marmara University, Faculty of Health  
Sciences, Midwifery Department,  
Istanbul, Turkey

## INTRODUCTION

The pelvic floor consists of bony pelvis muscles, fascia and neurovascular structures. These structures support the bladder, reproductive organs, and the rectum <sup>(1,2)</sup>. The pelvic floor, by working in dynamic coordination, helps to maintain continence, sexual function, optimal intra-abdominal pressure, and to realize labor <sup>(2,3)</sup>. The pelvic floor is affected by factors such as age, menopause, parity, birth traumas, obesity, constipation, excessive caffeine intake, smoking, systemic diseases and stress, leading to the development of pelvic floor dysfunction (PFD) <sup>(3)</sup>. PFD causes some health problems such as urinary and anal incontinence, sexual dysfunction, pelvic organ prolapse and chronic pelvic pain. Although this condition does not threaten women's life, it has significant effects on their quality of life in terms of its physical, social and economic aspects <sup>(4-6)</sup>. The current literature indicates that 46,2% of women experience at least one PFD, 21,9% experience at least two, and 8,7% experience more than three <sup>(4)</sup>. On the other hand, although it is symptomatic, not many women ask for medical help <sup>(7)</sup>. This is considered to be caused by not seeing PFD as pathology and having a lack of knowledge about protection and treatment <sup>(7,8)</sup>. The related literature reports that low pelvic floor knowledge levels are associated with high PFD and that knowledge could encourage women to adopt preventive strategies against pelvic dysfunction and seek medical assistance <sup>(7,9)</sup>. In their randomized controlled study, Berzuk and Shay (2015) reported a decrease in PFD symptoms with an increase in pelvic floor knowledge <sup>(9)</sup>.

The literature indicates that education and consultancy not only increase women's awareness but also improve their quality of life and relieve their symptoms by encouraging active participation in rehabilitation, which is considered to help to decrease the PFD incidence <sup>(4)</sup>. Health professionals have critical roles in terms of preventing PFD and informing about its treatment <sup>(9)</sup>. With their educator roles, one of their professional roles, nurses should help women to gain awareness about PFD and provide them with consultancy about protection, diagnosis, and treatment <sup>(10)</sup>. However, Çelenay et al. (2021) assessed the pelvic floor knowledge level of health professionals and nurses were found to be the profession group who responded "I do not know" the most <sup>(2)</sup>. Mamuk et al. (2018) reported that doctors, nurses, and midwives did not have sufficient pelvic floor knowledge and compared to the other two groups, nurses' knowledge level was

lower; they reported that pelvic floor knowledge should be improved during undergraduate education and through trainings after graduation <sup>(11)</sup>. A study conducted with female students enrolled in university reported that although pelvic floor knowledge level was higher in health sciences students compared to other students, it was not at a sufficient level <sup>(7)</sup>.

Nurses in our country receive fundamental information about pelvic floor health (PFH) and PFD within the scope of woman's health and diseases nursing courses. However, no studies in the literature were found to have assessed PFH knowledge levels of students who received woman's health and diseases nursing courses. This study aims to determine third and fourth-year nursing students' level of knowledge about PFH.

### Research Questions

- What is university students' pelvic floor health knowledge level?
- What factors affect university students' pelvic floor health knowledge level?

## METHODS

### Research Design, Target Population, and the Sample

The research was conducted descriptive and cross-sectional design between June 10 and July 20, 2022 in two foundation universities. The target population of the study was 170 students who were enrolled in the third and fourth classes year of the Nursing Department of two foundation universities during the spring semester of the 2021-2022 academic year. No methods were utilised for sample selection and 167 students (96%) who met the inclusion criteria constituted the sample of this study. The inclusion criteria were being enrolled in the third and fourth classes year of the Nursing Department of two foundation universities which the study was carried out, to have taken the course of Obstetrics and Gynecology Nursing and agreeing to participate in the study.

### Data Collection Process and Tools

Data were collected by conducting face-to-face interviews with the participants in their classroom after main lessons. After obtaining their written and oral consent, we asked the participants to complete the questionnaire. Study data were collected using a personal information form, and the Pelvic Floor Health Knowledge Quiz (PFHKQ). Each participant spent approximately 15 minutes for the study.

### Personal information form

This form, developed by the researchers, was composed of eight questions about age, gender, grade, income level, knowledge about pelvic floor problems, application of pelvic floor exercises etc.

### Pelvic Floor Health Knowledge Quiz (PFHKQ)

The scale developed by Al-DeGES and Çelenay in 2019 aims to measure individuals' pelvic floor health knowledge level. The scale has 29 items and 3 sub-scales (Function/Dysfunction sub-scale, Risk/etiology sub-scale, Diagnosis/treatment sub-scale). Each item of the PFHKQ is responded as "Yes", "No" or "I don't know". While correct answers are scored 1, wrong answers and "I don't know" are scored 0. Scores to be obtained from the scale range between 0 and 29, with higher scores indicating higher levels of knowledge about pelvic floor health. In the reliability analysis of the PFHKQ, the Person Separation Index (PSI) and Kuder-Richardson-20 (KR-20) values were 0.89 and 0.89 for Function / Dysfunction subscale, 0.93 and 0.92 for the Risk / Etiology subscale, 0.91 and 0.92 for the Diagnosis and Treatment subscale and 0.95 and 0.92 for the PFHKQ totale score, respectively <sup>(12)</sup>. In this study, PSI and KR-20 values were 0.71 and 0.81 for Function / Dysfunction subscale, 0.82 and 0.85 for the Risk / Etiology subscale, 0.80 and 0.84 for the Diagnosis and Treatment subscale and 0.88 and 0.92 for the PFHKQ totale score, respectively.

### Statistical Analyses

Data obtained from the study were analyzed using Statistical Package for Social Sciences (SPSS) 21.0 program. Statistical significance was set at  $p < 0.05$ . Number, percentage distribution, t test and oneway Anova tests were used in data analysis.

### Ethics

Before the study was conducted, ethics approval was obtained from the İstanbul Kültür University Ethics Committee (2022/113, dated June 8, 2022), and a research permit was obtained from the University Rectorate. Participants were asked to submit their consent via a consent form prepared in accordance with the Declaration of Helsinki.

## RESULTS

This study was conducted with 167 students. The mean age of the students was  $22,71 \pm 2,93$  years (min:20, max:32) and the majority of the students

**Table 1. Distribution of the Students' Descriptive Characteristics and Their Experiences About Pelvic Floor Health (n=167)**

	Number (n)	Percent (%)
<b>Age group</b>		
≤ 22 years	101	60,5
>22 years	66	39,5
<b>Gender</b>		
Female	112	67,1
Male	55	32,9
<b>Grade</b>		
Third	88	52,7
Fourth	79	47,3
<b>Perceptions of students about their level of knowledge about pelvic floor health</b>		
Low knowledge	42	25,1
Medium knowledge	84	50,3
High knowledge	41	24,6
<b>Status of applying pelvic floor exercises</b>		
Yes	32	19,2
No	135	80,8
<b>Family history of pelvic floor dysfunction</b>		
Yes	28	16,8
No	139	83,2
<b>Participation in the care of patients with pelvic floor dysfunction in clinical practice</b>		
Yes	41	24,6
No	126	75,4
<b>The status of informing patients and healthy individuals about pelvic floor health</b>		
Yes	30	18,0
No	137	82,0

were female (67.1%) and more than half (52.7%) are in the third grade. When the knowledge and experiences of the students about PFH are evaluated; 50.3% of them found their knowledge about PFH at a moderate level, 19.2% of them applied pelvic floor muscle exercises, 18% of them informed the patients and healthy individuals about pelvic floor health. In addition, 21% of the students stated that they participated in the care process of patients with pelvic floor dysfunction in clinical practice (Table 1).

Students' general PFHKQ mean score was 16,29±7,00, and the distribution of the scores obtained from the sub-scales is demonstrated in Table 2.

**Table 2. Students' PFHKQ Mean Scores (n=167)**

	$\bar{x}$	$\pm SD$	Min.-Max. (ordinal scale)
Function/Dysfunction sub-scale	4,40	1,98	0-8
Risk/etiology sub-scale	6,83	3,42	0-13
Diagnosis/treatment sub-scale	5,04	2,36	0-8
<b>PFHKQ –Total score</b>	<b>16,29</b>	<b>7,00</b>	<b>0-29</b>

A comparison of students' PFHKQ scores according to some of their descriptive characteristics is given in Table 3. Comparisons showed that age, gender and grade had no effects on the PFHKQ scores ( $p > 0,05$ ). Similarly there was no statistical difference between status of applying pelvic floor exercises (PFE), family history of PFD, participation in the care of patients with PFD in clinical practice, the status of informing patients and healthy individuals about PFH and the PFHKQ scores ( $p > 0,05$ ). However, there was a significant difference between the groups when the PFHKQ sub-scale and total score averages were compared according to the students' perceptions of their level of knowledge on PFH ( $p < 0,05$ ). Students who perceived their level of knowledge about PFH as high had higher scores in the PFHKQ Function/Dysfunction, Risk, and Etiology sub-scale compared to those who perceived their level of knowledge as low (Table 3).

## DISCUSSION

Pelvic floor dysfunctions are very common health problems with costly treatment and have negative effects on the quality of life of millions of men and women <sup>(4-6, 13)</sup>. On the other hand, with approaches protecting PFH, it is possible to prevent dysfunctions and support the treatment <sup>(14-17)</sup>. Nurses have great responsibilities for these approaches that present lifelong interventions in a multidisciplinary manner. However, a limited number of studies on the issue revealed that compared to other health professionals, nurses had lower awareness and knowledge levels about PFH <sup>(2,11)</sup>. When it is considered that awareness of the issue should be formed in the professional

education process, assessment of nurses' PFH knowledge becomes necessary.

More than half of the participating nurses reported to have a moderate level of knowledge about PFH. Scale mean scores also showed that students had a moderate level of knowledge about PFH. A limited number of studies conducted in other countries also support the findings of this study. For instance, a study conducted in Spain reported that although the level of PFD knowledge was higher in female students in the field of health compared to other fields, it was still accepted as insufficient <sup>(7)</sup>. Another study conducted in England also noted a lack of knowledge about PFH among medical, midwifery, and physiotherapy students <sup>(18)</sup>. A joint study conducted in England and Spain reported that midwifery education had an important gap in the pelvic floor and its health, which caused clinician midwives and midwifery students to feel a lack of confidence about protecting the perineum <sup>(19)</sup>. This limited knowledge about the pelvic floor confuses nurses and care seekers and may interrupt the flow and quality of care <sup>(20,21)</sup>.

"Education is the process of making desired and intentional changes in individual's behaviors through his/her experiences". Namely, behavioral change is the output that should be obtained at the end of the learning process <sup>(22)</sup>. Hence, health professionals who received professional education about the pelvic floor are expected to integrate this knowledge to their own lives and transfer it to people around. For this reason, this study investigated nurses' implementation of PFE and informing and teaching other people around them. However, a very limited number of students was found to inform patients and people around them about PFH and implement PFE themselves. These results indicate that pelvic floor knowledge, which is already at a moderate level, was turned to behaviors less, and the learning process was not completed. A similar study conducted with midwifery students also indicated that students knew about PFE, yet they did not implement and teach their knowledge about PFE sufficiently <sup>(23)</sup>. Considering study results indicating that pelvic floor knowledge gap does not decrease with graduation and introduction to professional life <sup>(2,11,19)</sup>, the need for reviewing the education given during nursing education in terms of content and methods becomes evident.

**Table 3. Comparison of PFHKQ Scores According to the Individual Characteristics of the Students and Their Experiences About Pelvic Floor Health (n=167)**

Descriptive Characteristics	PFHKQ			
	Function/ Dysfunction sub-scale	Risk/etiology sub-scale	Diagnosis/ treatment sub-scale	Scale Total Score
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
<b>Age group</b>				
≤ 22 years (n:101)	4,23 ± 2,08	6,49 ± 3,44	4,93 ± 2,32	15,66 ± 7,10
>22 years (n:66)	4,66 ± 1,81	7,36 ± 3,84	5,22 ± 2,42	17,25 ± 6,78
Test (t)	-1,367	-1,611	-,799	-1,443
p Values	,174	,109	,429	,151
<b>Grade</b>				
Third (n:88)	4,44 ± 2,12	7,02 ± 3,33	5,13 ± 2,22	16,60 ± 6,92
Fourth (n:79)	4,36 ± 1,84	6,63 ± 3,52	4,94 ± 2,51	15,94 ± 7,11
Test (t)	,246	,734	,510	,600
p Values	,806	,464	,611	,549
<b>Gender</b>				
Female (n:112)	4,06 ± 1,89	7,00 ± 3,35	5,21 ± 2,15	16,88 ± 6,65
Male (n:55)	3,89 ± 2,09	6,49 ± 3,56	4,70 ± 2,71	15,08 ± 7,58
Test (t)	1,484	,919	1,204	1,561
p Values	,218	,360	,232	,120
<b>Participation in the care of patients with pelvic floor dysfunction in clinical practice</b>				
Yes (n:41)	4,58 ± 2,04	7,43 ± 3,42	4,68 ± 2,65	16,70 ± 7,31
No (n:126)	4,35 ± 1,97	6,64 ± 3,41	5,16 ± 2,25	16,15 ± 6,92
Test (t)	,819	1,296	-1,140	,435
p Values	,414	,197	,256	,664
<b>The status of informing patients and healthy individuals about pelvic floor health</b>				
Yes (n:30)	4,50 ± 1,83	7,11 ± 1,59	5,01 ± 2,29	16,80 ± 6,90
No (n:137)	4,40 ± 2,08	6,75 ± 3,30	5,09 ± 2,37	16,20 ± 7,07
Test (t)	,591	,639	,041	,498
p Values	,551	,520	,961	,629
<b>Status of applying pelvic floor exercises</b>				
Yes (n:32)	4,59 ± 1,86	7,18 ± 1,62	5,06 ± 2,34	16,84 ± 6,99
No (n:135)	4,36 ± 2,02	6,75 ± 3,38	5,04 ± 2,32	16,16 ± 7,02
Test (t)	,589	,641	,039	,493
p Values	,557	,523	,969	,623
<b>Family history of pelvic floor dysfunction</b>				
Yes (n:28)	4,71 ± 1,99	7,64 ± 3,48	5,32 ± 2,35	17,67 ± 6,86
No (n:139)	4,34 ± 1,89	6,67 ± 3,39	4,99 ± 2,36	16,01 ± 7,02
Test (t)	,899	1,367	,671	1,148
p Values	,372	,174	,403	,253
<b>Perceptions of students about their level of knowledge about pelvic floor health</b>				
Low (n:42) <sup>a</sup>	3,83 ± 2,30	5,80 ± 3,70	4,80 ± 2,56	14,45 ± 7,76
Medium (n:84) <sup>b</sup>	4,36 ± 1,79	6,96 ± 3,40	5,05 ± 2,33	16,39 ± 6,84
High (n:41) <sup>c</sup>	5,07 ± 1,86	7,63 ± 2,95	5,26 ± 2,22	17,97 ± 6,17
Test (F)	4,222	3,142	,967	2,675
p Values	,016 c>a	,046 c>a	,382	,071

t: Student's t- test, F: oneway Anova tests



All the participants in this study had received Surgical Diseases Nursing and Gynecology and Obstetrics Nursing courses and then had practical training in these clinics. However, a limited number of students took part in the diagnosis, treatment and care of a patient with PFD. Seeing a limited number of cases can be considered to affect students' knowledge and awareness about the issue negatively. However, comparisons indicated no differences between the knowledge levels of students who took part in the care of these patients and who did not. This finding, as described above, shows that the problem arises from the insufficient theoretical education given at school and indicates the need for improving this education.

Compared to treatment in case of a disease, protection of the pelvic floor is a more successful, easier and more cost-effective approach. Therefore, people of all ages and genders should be informed about how to protect against PFH <sup>(3,9,24)</sup>. Nursing care plans and trainings to be prepared for healthy individuals and patients can serve as a good tool for this purpose <sup>(10,25)</sup>. On the other hand, this study also showed that only a limited number of students provided their patients or healthy individuals with information about PFH. This can be considered to be associated with their perceptions of students' lack of knowledge. However, there were no significant differences between students who provided information and who did not, which refutes this claim. In this regard, students were found to have a low level of awareness about providing PFH trainings to patients or healthy individuals.

Another important finding of this study is that students who perceived their level of knowledge about PFH as high also had significantly higher sub-scales scores in the pelvic floor functions and dysfunctions as well as PFD etiology and risk factors. Although this result is expected and satisfying, similar knowledge levels of these students about diagnosis and treatment with other students indicate the still higher education gap, particularly about the diagnosis and treatment of PFD.

## CONCLUSION AND RECOMMENDATIONS

This study found that nursing students had a moderate level of knowledge about PFH. The rates of implementing PFE and informing healthy individuals or patients about the topic are rather low. In light of this information, it was acknowledged that students reflected the PFH education they received according

to the curriculum in their life in limited ways. In this regard, further studies can contribute to the understanding of the limitations of PFH problems better by conducting studies including in-depth focus group interviews with nursing students and instructors.

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## Author contribution

Study conception and design: RM, MM, MD and MDB; data collection: RM and MM; analysis and interpretation of results: MD and RM; draft manuscript preparation: RM, MM, MD and MDB. All authors reviewed the results and approved the final version of the manuscript.

## Ethical approval

The study was approved by the İstanbul Kültür University Ethics Committee (Protocol no. 2022/113/08.06.2022).

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## Conflict of interest

The authors declare that there is no conflict of interest.

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