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Evaluation of occupational health and safety training for nursing students

Ocena szkolenia z zakresu bezpieczeństwa i higieny pracy dla studentów pielęgniarstwa

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Abstract

Introduction. Nurses, who constitute the largest part of the healthcare team, start to encounter many occupational exposures from the beginning of their education and this exposure continues throughout their professional lives.

Aim. The aim of the study is to evaluate the effect of occupational health and safety education on the knowledge levels of second year nursing students.

Materials and Methods. The sample of the quasi-experimental research with a single-group pre-test post-test design consisted of 261 second-year nursing students. The data of the research were collected with the "Descriptive Characteristics Questionnaire" and the "Occupational Health and Safety Training Questionnaire" between March-June 2018.

Results. The average age of the students participating in the research is 20.87±1.31. When the pre-test and post-test occupational health and safety knowledge levels of nursing students were compared, it was found that the rates of knowing the occupational health and safety law correctly, knowing the responsibilities of the employees, knowing the occupational hazards for the health workers, and knowing what to do to prevent the sharps injuries were statistically significant. level was found to increase ($p < 0.05$).

Conclusion. In the study, in which the effect of occupational health and safety education given to second-year nursing students on occupational health and

safety knowledge levels was evaluated, it was determined that the education provided an increase in the students' knowledge of occupational health and safety law, occupational hazards and protection from occupational hazards for healthcare workers, notification of occupational accidents and waste management.

Key words: Occupational health; training; nursing students

Streszczenie

Wstęp. Pielęgniarki, które stanowią największą część zespołu opieki zdrowotnej, zaczynają stykać się z wieloma narażeniami zawodowymi od początku swojej edukacji i narażenie to trwa przez całe życie zawodowe
Cel. Celem badania jest ocena wpływu edukacji w zakresie bezpieczeństwa i higieny pracy na poziom wiedzy studentów drugiego roku pielęgniarstwa.
Materiały i metody. Próba w badaniu quasi-eksperymentalnym z jednogrupowym projektem pre-test post-test składała się z 261 studentów drugiego roku pielęgniarstwa. Dane badawcze zostały zebrane za pomocą „Kwestionariusza charakterystyki opisowej" i „Kwestionariusza szkolenia w zakresie bezpieczeństwa i higieny pracy" w okresie od marca do czerwca 2018 roku.
Wyniki. Średnia wieku studentów biorących udział w badaniu wynosi 20,87±1,31. Kiedy porównano poziom wiedzy studentów pielęgniarstwa na temat bezpieczeństwa i higieny pracy przed testem i po nim, stwierdzono, że wskaźniki prawidłowej znajomości prawa dotyczącego bezpieczeństwa i higieny pracy, znajomości obowiązków pracowników, znajomości zagrożeń zawodowych dla pracowników służby zdrowia oraz wiedzy na temat tego, co należy zrobić, aby zapobiec zranieniom ostrymi narzędziami, były statystycznie istotne. poziom wzrósł ($p < 0,05$).
Wnioski. W badaniu, w którym oceniano wpływ edukacji w zakresie bezpieczeństwa i higieny pracy prowadzonej dla studentów drugiego roku pielęgniarstwa na poziom wiedzy w zakresie bezpieczeństwa i higieny pracy, stwierdzono, że edukacja zapewniła wzrost wiedzy studentów na temat prawa w zakresie bezpieczeństwa i higieny pracy, zagrożeń zawodowych i ochrony przed zagrożeniami zawodowymi dla pracowników służby zdrowia, powiadamiania o wypadkach przy pracy i gospodarki odpadami.

Słowa kluczowe: Bezpieczeństwo i higiena pracy; szkolenie; studenci pielęgniarstwa

Introduction

Healthcare institutions provide treatment and care services for patients and are a workplace for healthcare workers. Healthcare workers are one of the riskiest groups in terms of injuries and diseases due to the nature of their work [1]. The Occupational Safety and Health Administration (OSHA) defines the occupational hazards faced by healthcare workers as pathogens and biological hazards transmitted by blood and blood products, drugs and chemicals, waste anesthetic gases, respiratory hazards, ergonomic hazards related to lifting and repetitive movements, laser hazards, workplace violence, hazards encountered in the laboratory, hazards associated with radioactive substances and x-rays [2]. The health sector is one of the sectors with the highest accident and disease rates in terms of occupational accidents and occupational diseases when compared with other sectors [2], and health services and nursing are classified in the group of very dangerous and dangerous services in our country [3]. Nurses, who constitute the largest part of the healthcare team, start to encounter many occupational exposures from the beginning of their education and this exposure continues throughout their professional lives [4-6]. Studies have shown that nursing students are at least as much at risk as nurses in terms of occupational hazards [7-9] and are exposed to many occupational risks including sharps injuries, contact with blood and blood products, musculoskeletal disorders, violence, stress, burnout, and dermatitis [10-12]. Nursing students are exposed to occupational hazards due to reasons such as lack of clinical experience, inadequate use of personal protective equipment, inadequate compliance with the necessary precautions to prevent occupational accidents and occupational hazards (not completing vaccinations before practice, not acting in accordance with standard precautions, trying to close needle caps, etc.) [7,13]. It is thought that occupational health and safety trainings for nursing students are needed to prevent and minimize these exposures [7].

According to the International Labor Organization (ILO), occupational health and safety aims to improve and maintain the physical, mental and

social well-being of workers in all occupations; to prepare and maintain conditions that reduce or prevent the possibility of injury in the workplace; to prevent health problems related to working conditions; to protect workers from occupational risks that adversely affect their health in the workplace environment where they work; and to employ them in a job and work environment suitable for their physical and mental capacities [14].

With the occupational health and safety law in force in our country, employers are held responsible for the training of employees. The content of occupational health and safety trainings is also determined by laws and regulations [15,16]. Occupational health and safety trainings are provided to all nursing students by their own schools or practice institutions before practical training [16]. Evaluation of the effectiveness of occupational health and safety trainings given to nursing students is very important in terms of reducing the exposure of nursing students, patients, and other healthcare workers to health risks.

Aim

The aim of this study was to evaluate the effect of occupational health and safety training on the knowledge levels of second-year nursing students.

Material and Methods

Participants

The study was conducted with second-year nursing students studying at a nursing faculty in Turkey. Since applied education starts in the second year in the nursing curriculum, 261 second-year nursing students who will receive this education for the first time were included in the study. This study was the quasi-experimental study with a one-group pre-test post-test design. Inclusion criteria: being a second-year nursing student, volunteering to participate in the study, not having been involved in any clinical practice before, and not having received any previous training on occupational health and safety. The study was conducted between March and June 2018 at a Faculty of Nursing in Turkey.

Intervention

Since nursing students start their first clinical practice in the second year, all students are given occupational health and safety training before starting clinical practice. The training content was prepared in line with the Occupational Health and Safety Regulation and consisted of Occupational Health and Safety Law, Immunization, Occupational Risks for Healthcare Workers, Occupational Accidents and Occupational Diseases, Prevention of Occupational Accidents and Occupational Diseases, Use of Personal Protective Equipment, Hospital Infections, Sterilization, Disinfection, Waste Management [16]. The trainings were divided into two days and lasted approximately 12 hours. For students who could not attend the training, the training was repeated on a different day, and it was ensured that all students received occupational health and safety training before practical training.

Data Collection Tools

The data of the study were collected with the "Descriptive Characteristics Questionnaire" and "Occupational Health and Safety Education Questionnaire".

The Descriptive Characteristics Questionnaire consists of four questions assessing the age and gender of the students and whether occupational health and safety training is necessary and useful.

The Occupational Health and Safety Education Questionnaire is a form created by the researchers, consisting of five sections and 14 questions, including "Occupational Health and Safety Law (three questions)", "Occupational Hazards (four questions)", "Protection from Occupational Hazards (three questions)", "Occupational Accidents (three questions)", and "Waste Management (one question)".

Data Collection

The students in the study were administered pre-tests (descriptive characteristics questionnaire, occupational health, and safety education questionnaire) before occupational health and safety education. Three

months after the training, post-tests were administered to the students again at the end of their practical training.

Data Analysis

The data of the study were evaluated in IBM SPSS Statistics 25 program. Descriptive analyses such as number, percentage, mean, and standard deviation were used to analyze descriptive information. McNemar test was used to compare the responses of the students to the occupational health and safety education questionnaire before and after the training. For all analyzes, significance was accepted at $p<0.05$ level.

Research Ethics

Permission was obtained from Ege University Faculty of Nursing Scientific Ethics Commission for the research to be conducted. Written permission was also obtained from the institution where the research would be conducted.

Results

The mean age of the students participating in the study was 20.87±1.31 years. 84.7% of the students were female and 15.3% were male (Table 1). When the opinions of the students about occupational health and safety education were evaluated, 99.2% thought that occupational health and safety education was necessary and 98.1% thought that occupational health and safety education was useful (Table 2).

Table 1. Socio-Demographic Characteristics of Nursing Students

	N	**%**
Age [x±SS]	20,87±1,31	
Gender Female Male	 221 40	 84,7 15,3
Total	**261**	**100**

Table 2. Students' Views on Occupational Health and Safety Education

	N	**%**
Occupational Health and Safety Training is necessary.		
Yes	259	99,2
No	2	0,8
Occupational Health and Safety Training is usefull.		
Yes	256	98,1
No	5	1,9
Total	**261**	**100**

The pre– and post-test Occupational Health and Safety knowledge levels of the students are shown in Table 3. In the pre-test, the rate of correct knowledge of the occupational health and safety law in force in our country was 80.6%, while this rate increased to 99.6% in the post-test and it was found that the rate of students' knowledge of the occupational health and safety law increased statistically significantly (χ^2=46.17, p=0.00). In the pre-test, the rate of students knowing the responsibilities of the employee correctly according to the Occupational Health and Safety Law was 42.1%, while this rate increased to 56.7% in the post-test (χ^2=13.16, p=0.00). The percentage of students who correctly knew which hazard class nursing services and inpatient hospital services were in increased from 36.4% in the pre-test to 72.8% in the post-test, and a statistically significant difference was found between the percentage of students correctly knowing the hazard class in the pre-test and post-test (χ^2=74.25, p=0.00).

Table 3. Comparison of Occupational Health and Safety Knowledge Levels of Students Before and After Occupational Health and Safety Education

	Pre-Test		**Post-test**			
	N	%	N	%	x2	p
Occupational Health and Safety Law [3 questions]						
What is the Occupational Health and Safety Law in force in our country?						
Correct answer	210	80,5	260	99,6	46,17	0,00*
Incorrect answer	51	19,5	1	0,4		
According to the Occupational Health and Safety Law, which is one of the responsibilities of the employee?						
Correct answer	110	42,1	148	56,7	13,16	0,00*
Incorrect answer	151	57,9	113	43,3		
What is the hazard class of "Nursing Services" and "Inpatient Hospital Services"?						
Correct answer	95	36,4	190	72,8	74,25	0,00*
Incorrect answer	166	63,6	71	27,2		
Occupational Hazards [4 questions]						
Which is one of the biological hazards for health workers?						
Correct answer	210	80,5	256	98,1	36,16	0,00*
Incorrect answer	51	19,5	5	1,9		
Which is one of the chemical hazards for health workers?						
Correct answer	243	93,1	247	94,6	0,32	0,57
Incorrect answer	18	6,9	14	5,4		

What is the most common type of occupational accident in health workers?						
Correct answer	221	84,7	258	98,9	33,23	0,00*
Incorrect answer	40	15,3	3	1,1		
What is the most common occupational hazard to which nurses are exposed?						
Correct answer	107	41	148	56,7	17,20	0,00*
Incorrect answer	154	59	113	43,3		
Protection from Occupational Hazards						
Which is one of the vaccines included in the immunization program for health workers?						
Correct answer	189	72,4	228	87,4	23,67	0,00*
Incorrect answer	72	27,6	33	12,6		
Which should be done to prevent needle stick sharps injuries?						
Correct answer	136	52,1	166	63,6	12,37	0,00*
Incorrect answer	125	47,9	95	36,4		
What is the "White Code"?						
Correct answer	200	76,6	247	94,6	35,86	0,00*
Incorrect answer	61	23,4	14	5,4		
Occupational Accidents [3 questions]						
What is a work accident?						
Correct answer	147	56,3	190	72,8	18,57	0,00*
Incorrect answer	114	43,7	71	27,2		
What is the official notification period for a work accident?						
Correct answer	98	37,5	197	75,5	88,11	0,00*
Incorrect answer	163	62,5	64	24,5		

To which organization should employees report the work accident?						
Correct answer	68	26,1	112	42,9	22,55	0,00*
Incorrect answer	193	73,9	149	57,1		
Waste Management [1 question]						
Which waste should go in which waste bag?						
Correct answer	231	88,5	243	93,1	4,65	0,03*
Incorrect answer	30	11,5	18	6,9		

* $p<0.05$

† McNemar Testi

The effect of the occupational health and safety education given to the students on their knowledge of occupational hazards for health workers was evaluated with four questions. It was found that while the rate of students' correct knowledge of biological hazards was 80.5% in the pre-test, this rate increased to 98.1% in the post-test and the rate of students' knowledge of biological hazards increased statistically significantly ($\chi^2=36.16$, $p=0.00$). When the knowledge of chemical hazards for healthcare workers was evaluated, no statistically significant difference was found between the rate of correct knowledge of chemical hazards in the pre-test and post-test ($\chi^2=0.32$, $p=0.57$). When the students' knowledge of the most common occupational accidents in health workers before and after the training was compared, it was found that the rate of correct knowledge of the most common occupational accidents in health workers increased statistically significantly in the post-test ($\chi^2=33.23$, $p=0.00$). While the rate of students knowing the most common occupational hazard to which nurses are exposed was 41% in the pre-test, this rate increased to 56.7% in the post-test and it was found that the rate of students knowing the most common occupational hazard to which nurses are exposed increased statistically significantly ($\chi^2=17.20$, $p=0.00$).

The effect of the occupational health and safety education given to the students on their protection from occupational hazards was evaluated with three questions including the immunization program for healthcare workers, strategies to prevent sharps injuries and the white code. While 72.4% of the students knew about the immunization program for healthcare workers before the training, this rate increased to 87.4% in the post-test. There was a statistically significant difference between the pre-test and post-test knowledge of the immunization program for healthcare workers (χ^2=23.67, p=0.00). In the pre-test, the rate of students' correct knowledge of what to do to prevent sharps injury was 52.1%, while this rate increased to 63.6% in the post-test and the rate of correct knowledge of what to do to prevent sharps injury increased statistically significantly (χ^2=12.37, p=0.00). When the percentages of students knowing the white code correctly before and after the training were compared, a statistically significant difference was found between the pre-test (76.6%) and post-test [94.6%] (χ^2=35.86, p=0.00).

The effect of occupational health and safety training on occupational accident reporting was evaluated with three questions including the definition of occupational accident, duration of occupational accident reporting and where the occupational accident was reported. While 56.3% of the students knew the definition of occupational accident before the training, this rate increased to 72.8% in the post-test. There was a statistically significant difference between the students' knowledge of the definition of occupational accident in the pre-test and post-test (χ^2=18.57, p=0.00). A statistically significant difference was found between the pre-test (37.5%) and post-test (75.5%) when the students' correct knowledge of the duration of occupational accident notification was compared (χ^2=88.11, p=0.00). In the pre-test, the rate of students knowing where the occupational accident notification was made correctly was 26.1%, while this rate increased to 42.9% in the post-test and it was found that the rate of knowing where the occupational accident notification was made correctly increased statistically significantly (χ^2=22.55, p=0.00).

While the rate of students' correct knowledge of which bags to put waste in was 88.5% in the pre-test, this rate increased to 93.1% in the post-test, and the rate of students' correct knowledge increased statistically significantly in the post-test (χ^2=4.65, p=0.03).

Discussion

In this study, second year nursing students were given occupational health and safety training and the effect of this training on their occupational health and safety knowledge levels was evaluated. When the knowledge levels of the students about the occupational health and safety law in force in our country were evaluated, it was found that the rates of students knowing the occupational health and safety law correctly, knowing the responsibilities of the employee correctly, and knowing the hazard class in which nursing services-inpatient hospital services are located increased statistically significantly in the post-test (p<0.00). The knowledge of the Occupational Health and Safety Law, which regulates working life and secures the rights of employees and employers, is very important for students to be aware of their legal obligations. Although there is a significant difference between the pre-test and post-test mean scores of the students in terms of knowing the responsibilities of the employees, it is seen that 43.3% of the students do not know their responsibilities sufficiently in the post-test. Despite the positive effect of occupational health and safety training, it is seen that the responsibilities of the employees need to be emphasized more in the content of the training. Nursing services are classified as hazardous services according to the Communiqué on Workplace Hazard Classes Regarding Occupational Health and Safety [3]. It is very important for students to know the hazard class of nursing services both now and throughout their professional life in terms of understanding the importance of occupational health and safety trainings, job entry, periodic examinations, and regular participation in them.

When the effect of occupational health and safety education on the students' knowledge of occupational hazards for healthcare workers

was evaluated, it was found that the knowledge levels of the students increased significantly in the post-test in the other three questions except for the knowledge of chemical hazards. Healthcare workers are exposed to biological risks such as viruses (such as Hepatitis B, Hepatitis C), bacteria (such as Tuberculosis), fungi or parasites, chemical risks such as disinfectants, sterilization materials, ergonomic risks that cause musculoskeletal disorders, psychosocial risks such as stress and burnout, as well as safety hazards and risks such as electricity, fire, explosion, contact with very hot or very cold objects, falls and bumps, and sharps injuries [17]. In the study, the level of nursing students' knowledge of biological hazards, the most common type of work-accident in healthcare workers and the most common occupational hazard to which nurses are exposed increased significantly after the training, while no difference was found in the level of knowledge of chemical hazards. Although the most common occupational hazard to which nurses and even student nurses are exposed is sharps injuries [7,18,19], 43.3% of nursing students did not know that the most common occupational hazard to which nurses are exposed is sharps injuries after education. Therefore, there is a need to include more occupational hazards to which nurses are exposed in occupational health and safety trainings.

The effect of the occupational health and safety education given to the students on their protection from occupational hazards was evaluated with three questions including the immunization program for healthcare workers, strategies to prevent sharps injuries, and their knowledge of the white code. The Department of Vaccine-Preventable Diseases of the General Directorate of Public Health [HSGM] aims to prevent pertussis, diphtheria, tetanus, measles, rubella, mumps, tuberculosis, poliomyelitis, varicella, hepatitis A, hepatitis B, and invasive diseases caused by Streptococcus pneumoniae and Haemophilus influenzae type b, as well as death and disability due to these diseases within the framework of the Expanded Program of Immunization (EP) [20]. It is aimed to vaccinate healthcare workers in risk groups, students of medical faculties, dental faculties, schools providing nurse/midwifery

education, health vocational colleges, etc. [20]. In this direction, nursing students are asked to complete their vaccinations before practice. However, studies have shown that 50.5% of nursing students have complete Hepatitis B vaccination [21], only 3.6% have influenza vaccination [22], measles antibody positivity rates are 70.6%, and 90.2% have sufficient immunity for tetanus [23]. After the training, the rate of nursing students' correct knowledge of the immunization program for healthcare workers increased statistically significantly. It is thought that this situation will contribute to the nursing students to have the necessary vaccinations before the practice. In the study conducted by Solak et al. (2021) [18], it was found that 50.4% of nursing students were exposed to sharp-piercing instrument injuries, and in the study conducted by Yıldız, Gemici, and Güzel (2021) [19], 68.7% of nursing students were exposed to sharp-piercing instrument injuries. In the study conducted by Kepenek, Şahin-Eker (2017) [7], it was found that nursing students ranked first among healthcare professionals exposed to sharps injuries. These results make it even more important for nursing students to know the correct actions to be taken to prevent sharps injuries. As a result of the study, the rate of nursing students knowing what to do to prevent sharps injuries increased significantly. One of the dangers that nursing students are exposed to during clinical practice is violence. In the study conducted by Çakar, Şişman, Oruç (2019) [24], it was found that 13.3% of nursing students faced the threat of violence, and in the study conducted by Terkeş, Bedir, Değirmenci (2021)[25], it was found that one fourth of nursing students witnessed violence against health workers. Therefore, to prevent violence against healthcare workers, nursing students should know the code white application. In the study, it was found that the rate of nursing students knowing the white code increased statistically significantly after the training and that the training made a positive contribution.

The effect of occupational health and safety education given to the students on occupational accident reporting was evaluated with three questions including the definition of occupational accident, duration of

occupational accident reporting and where to report the occupational accident. Previous studies show that nursing students have low rates of reporting occupational accidents due to reasons such as not knowing the occupational accident reporting process and not having a contagious accident [13, 26]. In this study, a significant increase was found in the rates of nursing students knowing the definition of occupational accident, knowing the duration of occupational accident notification, and knowing where to report the occupational accident correctly after occupational health and safety training. However, the fact that 42.9% of the students knew where to report an occupational accident correctly even after the training shows that more importance should be given to the occupational accident reporting system in trainings.

Since medical waste can be a source of transmission for many diseases, it is very important to classify them correctly. In the study conducted by Turan et al. (2019) [27], the knowledge levels of nursing students regarding waste management were evaluated and it was found that 89.4% of the students knew the correct color of the medical waste bag. Similarly, in this study, it was found that 88.5% of the students knew the correct color of the waste bags before the training and this rate increased to 93% after the training.

Conclusions

In the study evaluating the effect of occupational health and safety training given to second year students of the Faculty of Nursing on occupational health and safety knowledge levels, it was found that the training increased the students' knowledge levels of occupational health and safety law, occupational hazards, and protection from occupational hazards for health workers, occupational accident notification and waste management. The results obtained from the study show that occupational health and safety trainings are necessary to increase the knowledge levels of students, but they need to be improved in the areas of knowing the legal responsibilities of employees, knowing the occupational hazards that nurses are exposed to, and knowing where to report occupational accidents.

Recommendations for Nursing Practice

Although it is important for nursing students to participate in clinical practice after receiving occupational health and safety education for all grades, this education becomes even more important for second year students because they will start clinical practice for the first time. The effectiveness of the trainings should be evaluated regularly for the students to use the information they have learned through occupational health and safety trainings and to maintain them throughout their professional life.

Bibliografia/ Bibliography:

1. WHO 2006. "Working Together for Health". The World Health Report 2006.
2. Occupational Safety and Health Administration (OSHA). "Healthcare". https://www.osha.gov/healthcare.
3. Çalışma ve Sosyal Güvenlik Bakanlığı. İş Sağlığı ve Güvenliğine İlişkin İşyeri Tehlike Sınıfları Tebliğinde Değişiklik Yapılmasına Dair Tebliğ. Resmi Gazete, 2017.
4. El Ghaziri M, Dugan AG, Zhang Y, Gore R, Castro ME. Sex and gender role differences in occupational exposures and work outcomes among registered nurses in correctional settings. Annals of Work Exposures and Health, 2019;63(5):568-582.
5. El Amri I, Lahlou D, Benali B, El Kholti A. Occupational exposure to blood and body fluids: knowledge, attitude and practices among nurses at ibn rochd university hospital of casablanca.Occupational & Environmental Medicine, 2018;75(2): A322.
6. Wilson-Stewart K, Shanahan M, Fontanarosa D, Davidson R. Occupational radiation exposure to nursing staff during cardiovascular fluoroscopic procedures: A review of the literature. Journal of Applied Clinical Medical Physics, 2018;19(6):282-297.
7. Kepenek E, Şahin-Eker HB. Evaluation of sharp and piercing instrument injuries among employees in a state hospital. Klimik Journal, 2017;30(2):78.

8. Seibel M. For us or against us? Perceptions of faculty bullying of students during undergraduate nursing education clinical experiences. Nurse Education in Practice, 2014;14(3):271-274.

9. Magnavita N, Heponiemi T. Workplace violence against nursing students and nurses: an Italian experience. Journal of Nursing Scholarship, 2011;43(2):203-210.

10. Huang H, Yi Q, Tang S, An R. Occupational exposure among Chinese nursing students: current status, risking factors and preventive interventions. International Journal of Clinical & Experimental Medicine, 2016; 9(8):16578-16586.

11. Akan A, Toyran M, Erkoçoğlu M, Kaya A, Kocabaş C. The prevalence of allergic contact sensitization of practicing and student nurses. Int J Occup Environ Med (The IJOEM), 2012;3(1 January).

12. Tao X, Peng H, Qian L, Li Y, Wu Q, Ruan J, Cai D. Occupational exposure to positive blood and body fluids among health care workers in a Chinese university hospital: a Three Years Retrospective Study. Glob J Health Sci, 2017;9:157-162.

13. Gök Uğur H, Kaya A. The knowledge and experience of nursing students about occupational health and safety. Middle Black Sea Journal of Health Science, 2019;5(3):212-220.

14. Inernational Labor Organization. What is occupational safety and health? 2011. [https://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/---sro-port_of_spain/documents/presentation/wcms_250188.pdf].

15. Occupational Health and Safety Law. 20.06.2012. Sayı:28339 [https://www.mevzuat.gov.tr/mevzuatmetin/1.5.6331.pdf].

16. Regulation on the Procedures and Principles of Occupational Health and Safety Training of Employees 15.05.2013 Oficial Gazette Number:28648.

17. Labor and Social Security Training and Research Center (ÇASGEM) Hazards and Risks in the Health Sector. Ankara, 2016.

18. Solak M, Uygur R, Cihan G, Gülşah E. Determination of medical malpractice tendencies of nursing intern students. Journal of Continuing Medical Education, 2021;30(6):427-435.

19. Yıldız A, Gemici EZM, Güzel, KG. Determination of Cappadocia University vocational school students' attitudes about occupational health and safety. Journal of Inonu University Health Services Vocational School, 2021;9(2):746-754.

20. General Directorate of Public Health [HSGM] Department of Vaccine-Preventable Diseases. Vaccines Required for Healthcare Workers and Implementation Schemes. [https://hsgm.saglik.gov.tr/tr/saglik-calisanlari-asilama.html].

21. Sönmez M, Akben M. Hepatitis b, hepatitis c seroprevalence and immunization status of nursing students. Journal of Health Services and Education, 2020; 4(1):19-23.

22. Alpteker H. Determination of nursing students' awareness of seasonal influenza and pneumonia vaccination. Journal of Continuing Medical Education, 2019;28(4):257-263.

23. Yenilmez E, Çetinkaya RA. Hepatitis-HIV seroprevalence and immunization rates against vaccine-preventable diseases in nurse trainees. Ankara Üniversitesi Tıp Fakültesi Mecmuası, 2019;72(2):174-178.

24. Çakar M, Şişman NY, Oruç D. Health risks encountered by nursing students in clinical practice. Journal of Nursing Effect, 2019;12(2):116-125.

25. Terkeş N, Bedir G, Değirmenci K. "Violence against health workers" from the perspective of nursing students. Izmir Katip Celebi University Faculty of Health Sciences Journal, 2021;6(2):57-62.

26. Menteşe HÖ, Karaca A. Knowledge levels of nursing and midwifery students about sharps injuries. Klimik Journal/Klimik Dergisi, 2021;34(3).

27. Turan N, Aydın GÖ, Kaya H, Aştı TA, Aksel G, Yılmaz A. Knowledge levels of nursing students about medical waste management. Ordu University Journal of Nursing Studies, 2019;2(1):11-21.

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SEVCAN TOPÇU[A-F]
MELEK ARDAHAN[A-E]

A – Koncepcja i projekt badania, B – Gromadzenie i/lub zestawianie danych, C – Analiza i interpretacja danych, D – Napisanie artykułu, E – Krytyczne zrecenzowanie artykułu, F – Zatwierdzenie ostatecznej wersji artykułu

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