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Effect of Training on Nurse Awareness Concerning Malpractice Cases

Eğitimin Hemşirelerin Malpraktis Vakaları Konusundaki Farkındalıklarına Etkisi

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ABSTRACT When healthcare professionals carry out direct or indirect technical and scientific procedures on people with the purpose of curing, mitigating or preventing disease, their actions are considered medical interventions. According to Turkish Penal Code, "healthcare professionals" generally means physicians, dentists, pharmaceutists, midwives, nurses and other persons providing healthcare services. These professionals are entitled to perform medical interventions to the extent permitted by law. Medical interventions do not always result in positive outcomes. Due to this reason, nurses may face cases filed against them. The present study aimed to determine nurse awareness of malpractice cases. In this descriptive survey method study, nurses were given training about medical malpractice cases. A questionnaire covering the cases concerning the consequences medical malpractices and other items was implemented before and after the provided training. Prior to the study, 36.0% of the participants had no training or courses on prevention of malpractice. Among the other 64%, most had received only in-service training. The percentage of nurses concerned about being judged or penalized due to medical malpractice was 53% before training and 57% after training. The number of correct answers given by the participants regarding malpractice case outcomes increased in a statistically significant way after training (p=0.000). Increasing nurse awareness about the risks and consequences of medical malpractice may be an important factor in reducing malpractice.

Keywords: Education; malpractice; nursing care

ÖZET Teknolojinin gelişimiyle birlikte hemşireler, daha fazla invaziv girişim uygulamaktadırlar. Dolayısıyla bu durum, tıbbi uygulama hata riskini artırabilmektedir. Sağlık hizmeti veren kişiler, sağlık hizmetini verirken; kişiler üzerinde hastalıkları iyileştirmek, hafifletmek veya önlemek amacına yönelik olarak doğrudan ya da dolaylı teknik ve bilimsel çalışmalar yapıyorlarsa fiilleri tıbbi müdahale fiilidir. Türk Ceza Kanunu'nunda sağlık mesleği mensubu deyiminden genel olarak tabip, diş tabibi, eczacı, ebe, hemşire ve sağlık hizmeti veren diğer kişiler anlaşılır. Bu kişiler, yasaların izin verdiği ölçüde tıbbi müdahale eyleminde bulunabilen meslek mensuplarıdır. Tıbbi girişim sonrası her zaman olumlu gelişmeler olmayabilir. Bu nedenle hemşireler, davalarla karşı karşıya gelebilirler. Bu çalışmanın amacı, malpraktis vakaları konusunda hemşirelerin farkındalığını belirlemektir. Tanımlayıcı tipteki araştırmada, hemşirelere malpraktis vakaları ile ilgili eğitim verilmiştir. Eğitim öncesi ve sonrasında tıbbi uygulama hatalarının sonuçlarıyla ilgili vakaları ve diğer soruları içeren anket formu uygulanmıştır. Eğitim öncesi katılımcıların %36'sı, malpraktisi önlemeye yönelik eğitim veya kurs almadıklarını belirtmiştir. %64'ü ise hizmet içi eğitim aldığını belirtmiştir. Malpraktis nedeniyle yargılanmak veya cezalandırılma korkusu yaşayan hemşirelerin yüzdesi, eğitimden önce %53 ve eğitimden sonra %57 olarak belirlenmiştir. Katılımcıların malpraktis vakalarının sonuçları ile ilgili verdikleri doğru cevap sayısı, eğitimden sonra istatistiksel olarak anlamlı bir şekilde artmıştır (p=0,000). Malpraktis riskleri ve sonuçları hakkında hemşirelerin farkındalığının artırılması, malpraktis riskinin azaltılmasında önemli bir faktör olabilir.

Anahtar Kelimeler: Eğitim; malpraktis; hemşirelik bakımı

When healthcare professionals carry out direct or indirect technical and scientific procedures on people with the purpose of curing, mitigating or preventing disease, their actions are considered medical interventions.[1] According to Turkish Penal Code, "Healthcare professionals" generally means physi-

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cians, dentists, pharmaceutists, midwives, nurses and other persons providing healthcare services".[2] These professionals are entitled to perform medical interventions to the extent permitted by law.

During or after the implementation of any medical practice, the desired improvements may not be achieved and/or the patient may be harmed. In such cases, the legality of the medical practice may come into question (Savaş, 2007) and the issue of malpractice may be raised. Malpractice, or "faulty medical intervention", is defined as harm caused on a patient by a physician's or healthcare personnel's deviation from standard practices during treatment, or his/her lack of skills or failure in treating the patient.[1]

Currently, due to increased awareness of human and patient rights, the number of lawsuits filed on the basis of violation of such rights is increasing.[3] In Turkey, the two principal institutions accepting applications concerning medical malpractice are the High Council of Health and the Forensic Medicine Institute. Between 1990 and 2000, 653 malpractice cases were submitted to the Forensic Medicine Institute. Between 2000 and 2004, the High Council of Health evaluated 112 medical malpractice claims in emergency services alone. The council determined that malpractice was involved in 55 (%49) of these cases.[4]

The legal responsibilities of healthcare professionals are generally examined at three levels: responsibility under penal law, responsibility under civil law and disciplinary responsibility.[5,6] In the area of medical intervention, all occupational groups, including nurses, are subject to the same legal regulations for crimes based on negligence.[7] According to the (2011) Nursing Act, nurses are healthcare professionals charged with and authorized to (I) implement treatments given in writing by physicians except for emergency situations, (II) determine the medical needs of individuals, families and society that can be met through nursing care, and (III) plan, implement, supervise and evaluate nursing care within the framework of needs determined as per the diagnosis process.[8] During the performance of these tasks, nurses may be involved in malpractice. The types of malpractice that nurses are frequently involved in include noncompliance to physicians' requests or available protocols, failure to notify physicians of unexpected conditions in a timely manner, medication errors, blood transfusion errors, caretaking errors, use of inappropriate materials, inadequate monitoring/lack of sufficient control, inadequate measures against infection and lack of communication. Frequent complaints include patients falling, foot drop complication following intramuscular injection and birth-related mistakes.[9]

With the development of technology, nurses engage in an increasing number of invasive interventions, increasing their risk for medical malpractice. Of the 636 claims made to the Forensic Medicine Institute in 1990 to 2000, 107 were in the field of obstetrics and gynecology, and %22,5 of those involved accusations against a nurse.[10] In a retrospective study conducted by Ertem and colleagues that examined newspaper articles about medical malpractice, %12.2 of cases involved a nurse.[11] In Turkey in 1973 to 2007, 20 out of 120 cases submitted to the jurisdiction and concluded involved a nurse.[12] In order to avoid malpractice, it is important for nurses to be knowledgeable on the topic and manifest the required attention and care. Studies on the legal consequences nurses may face due to malpractice are fairly limited. Although a number of studies have been conducted on malpractice by nurses, prospective nurses and physicians in Turkey, no study has directly examined malpractice among nurses.[11,13-22] Moreover, there is no study that evaluates the knowledge among nurses of results in malpractice cases submitted to the Turkish Higher Jurisdiction. Existing studies are usually of a retrospective structure and conducted by examining files concerning physicians submitted to jurisdiction.

The present study aimed (1) to determine the awareness of nurses in Turkey about nurse malpractice cases submitted to the Turkish High Jurisdiction and their consequences, and (2) to evaluate the contribution of training to this level of awareness. This study will help answer questions concerning the legal consequences of medical malpractice, a significant concern to healthcare professionals. The data obtained from the present study will:

■ Help nurses practice with greater care based on their increased knowledge. This should ultimately reduce the number of malpractice cases, as well as malpractice-related sequelae and mortality rates.

■ Provide an opportunity to understand and address inadequacies in the education of nurses on the legal aspects of their profession.

■ Serve as a guide for the planning of post-graduation and in-service training of nurses.

■ This study is the first of its kind to our knowledge and should have global impact on nurse education and nursing care.

MATERIAL AND METHODS

SAMPLE AND SETTINGS

The present study used a descriptive design (survey method) and was conducted at one university and two state hospitals in the Aegean Region of Western Turkey. The research population comprised 1007 nurses working in internal medicine units, surgical units, pediatric units, intensive care units, specialized units and administrative units of these hospitals. The sample consisted of 86 nurses who were available during working hours and attended the conference-type training.

DATA COLLECTION

Data were collected in two steps: (I) the pre-training questionnaire was completed by a total of 86 nurses one month prior to training, and (II) the post-training questionnaire was implemented in the conference hall immediately after the completion of training.

The instrument used was a self-administered three-part questionnaire prepared by the researchers with the help of literature that included Supreme Court decisions.[12] The first part focused on informative data, such as age and gender of the nurse, the unit he/she worked in and his/her duty in the unit. The second part included open-ended questions concerning the nurse's experience and awareness regarding medical malpractice, the Turkish Penal Code and legal responsibilities of nurses. The third part presented five malpractice cases related to nursing and that had been submitted to jurisdiction, and were arranged and presented by the researchers in the form of questions. The five cases are provided in Appendix.

Nurses were asked to select the outcome of each case from the following closed-end choices: (a) The nurse was sentenced to pay indemnification, (b) The physician was sentenced to pay indemnification, (c) The nurse and the physician were jointly sentenced to pay indemnification, (d) Neither the nurse nor the physician was sentenced to pay indemnification, (e) The organization was sentenced to pay indemnification/there could be a situation of reckless injury and therefore it was decided to reinvestigate the case, and (f) No idea.

TRAINING

The training on "Medical malpractices related with nursing practices cases submitted to the Turkish Supreme Court" was conducted by one of the researchers (HS), who has both nursing and legal training and whose legal work generally involves medical malpractice cases. Each nurse attended one of the two four-hour sessions.

ETHICAL CONSIDERATIONS

Written permission to carry out this study was granted by the director of one university and two state hospitals. The research project was presented and approved by the Pamukkale University Non-interventional Clinical Researches Board of Ethics (approval date: 12.06.2012, number: B.30.2.PAÜ.0.20.05.09/129). The questionnaire included an explanatory statement at the beginning of the form stressing the aim of the study and that participation was entirely voluntary. This statement explained the purpose, intent and nature of participation as a guarantee of the preservation of personal data. Authorization for the use of data for scientific purposes was obtained from all research participants. To allow comparisons among the data, all participants were requested to write their names or alias on the questionnaire.

This study was conducted according to the principles of the Declaration of Helsinki.

STATISTICAL ANALYSIS

Data were analyzed using number and percentage distribution, McNemar's test was used to evaluate the

APPENDIX: Cases submitted to jurisdiction for malpractice committed by nurses (Savaş, 2009).

Case 1: Function loss in the leg of a child patient in consequence of the injection made by a nurse working in a private clinic... The plaintiffs have alleged that in the private clinic belonging to the defendant physician ....., the other defendant nurse ..... had made an injection to the plaintiffs' daughter, in consequence of which the plaintiffs' daughter suffered loss of function in her leg, that they had to commit to a long process of treatment and that they were worried that their daughter would become permanently disabled, and therefore have filed a lawsuit against both the physician and the nurse for material and moral indemnities. How do you think the lawsuit was concluded?
Supreme court decision: The nurse and the physician were jointly convicted to indemnity.

Case 2: Amputation of arm due to gangrene that developed as a result of a nurse working in a state hospital missing the vein while administering the injection
It is understood from the examination of the documents in the file that the arm of the plaintiff, who was hospitalized to the orthopedics service of the ..... State Hospital for the treatment of his broken right foot, had to be amputated due to the gangrene that developed as a result of the faulty injection made by the nurse in charge of the treatment. The High Council of Health, which was consulted in the trial carried out in relation with the case, have reported that the injection that was supposed to be made into the vein was made out of the vein, and therefore the left arm of the plaintiff had developed gangrene. A law suit for moral and material damages was filed against the public administration. How do you think the lawsuit was concluded?
Supreme court decision: The institution was sentenced to indemnify the plaintiff.

Case 3: After a traffic accident, the person that had been brought to the emergency service was hospitalized to the orthopedics service after the initial intervention. However, despite the long duration that passed after hospitalization, neither the nurse nor the physician in charge attended the patient. Later on, the patient lost his life.
A malpractice suit was filed against the physician ..... and the nurse ..... with the claim of "neglect of duty", on the basis that they failed to perform the necessary intervention according to the clinic symptoms of the deceased that had to be determined through timely conducted inspection, or to ensure that such intervention is performed, despite the fact that a long period of time had passed after the initial intervention made when the deceased was brought to the emergency service. How do you think the lawsuit was concluded?
Supreme court decision: It was decreed that there may have been a case of reckless injury, and therefore the file had to be reinvestigated.

Case 4: A nurse working in a community health center vaccinated an infant with the use of the wrong dilution fluid, the arm of the infant had swelled as a consequence, and the infant had to be kept under monitoring for a period of one year.
The defendant nurse and the defendant midwife working in a community health center administered tuberculosis vaccine diluted with measles to the infant, instead of the measles vaccination they were supposed to carry out, and accordingly the infant G had to be kept under monitoring for a year and an inflammatory swelling at the size of a walnut developed on the infant's arm. A penal action was filed against the nurse and the midwife with the charge of "neglect of duty". How do you think the lawsuit was concluded?
Supreme court decision: It was decreed that there may have been a case of reckless injury, and therefore the file had to be reinvestigated.

Case 5: After the family that had an infant boy and an infant girl in the hospital was discharged from the hospital, they received a phone call informing them that there had been a mistake and the infant girl they got from the hospital was not their girl.
The plaintiffs declared that ..... had given birth to a girl and a boy, that they were discharged from the hospital after four days following the birth, that the day they left the hospital they received a call from the hospital informing that the name tags of infants were mixed and therefore they left the hospital with another family's girl, that they contacted the other family in order to arrange the switch of children, yet they suffered a great pain and misery from breastfeeding someone else's child, and therefore filed a claim for the compensation of moral damages. How do you think the lawsuit was concluded?
Supreme court decision: The institution was sentenced to indemnify the plaintiffs.

proportion of correct answers before and after training. The PASS-W 18 program was used to evaluate the data. Statistical significance was accepted as $p<0.05$.

RESULTS

Demographic and work characteristics of the participants are presented in Table 1. The majority of participants were female, had a bachelor's degree and were service nurses.

The participants' prior experience and level of awareness about medical malpractice before and after training is shown in Table 2. Prior to the study, 36.0% of the participants had no training or courses on prevention of malpractice. Among the other 64%, most had received only in-service training. The percentage of nurses concerned about being judged or penalized due to medical malpractice was 53% before training and 57% after training.

Five malpractice cases were evaluated by the participants and the percentage of correct answers about case outcomes before and after training were compared. As for the rate of correct answers before the training it varied between 16.1% and 69%, after

TABLE 1: Demographic and work characteristics of study participants (n=86).

Characteristic	n (%)
Gender	
Female	86 (100)
Male	-
Education	
Bachelor's degree	62 (72.1)
Associate's degree	22 (25.6)
Vocational health high school diploma	2 (2.3)
Specialty	
Management	7 (8.1)
Medical	20 (23.3)
Surgical	13 (15.1)
Intensive care	16 (18.6)
Pediatrics	12 (14.0)
Emergency	3 (3.5)
Other*	15 (17.4)
Position	
Staff nurse	55 (63.9)
Senior nurse	26 (30.2)
Infection control nurse	1 (1.2)
Clinical nurse educator	4 (4.7)
Professional experience	
1-5 years	14 (16.3)
6-10 years	12 (14.0)
11-15 years	13 (15.1)
16-20 years	21 (24.4)
21+ years	26 (30.2)

*Specialized units such as blood collection, training and infection control, chemotherapy, etc.

the training it varied between 49.4% and 93.1% (Table 3). The rate of correct answers increased significantly after training for all five cases ($p<0.001$).

DISCUSSION

Most legal actions brought against nurses arise because a patient or patient advocate claims that the nurse breached a standard of care and that the breach resulted in harm to the patient.[23] The main reasons nurses are accused of malpractice include patient safety, medication errors, errors in methods and treatments, failure or fault in the use of medical equipment, failures in documentation/registration and lack of communication.[24] Limb dysfunction is the most frequent consequence of nursing malpractice. It may result from injections made at the wrong site, use of the wrong medication or injection method, or insufficient attention to hygiene or other standards of care**.** Although intramuscular injection seems to be a simple procedure, when the correct point of injection is not used, complications such as sciatic nerve injury may take place.[25,26] Faulty intramuscular injections can also lead to loss of limb function and disability. A number of case presentations involving intramuscular injection errors and sciatic nerve injury have been published.[27] For intravenous injections, complications such as vein damage and infection may result in material injury, including loss of limb or limb dysfunction.[12] Although the administration of injections is a fundamental nursing skill, it is not without risk.

Children receive numerous vaccines, most of which are administered by pediatric nurses via the intramuscular route. Thus, they must be knowledgeable about safe and evidence-based immunization procedures. However, nurses may not always be aware of the potential consequences associated with poor injection practices, and have historically relied on basic nursing training or the advice of colleagues as a substitute for newer evidence about the administration of injections.[28] An example is a case in which a nurse working in a community health center vaccinated an infant with the wrong dilution fluid, causing swelling on the infant's arm that required monitoring for an entire year.[12] Safe immunization administration has been recognized as one of the primary responsibilities of nurses.[8] Administration of drugs in accordance with the six principles of drug administration is among the fundamental rules in preventing malpractice.[23,29]

From the cases included in our study questionnaire, cases 1, 2 and 4 were related to medication errors. In a study conducted on drug administration errors, drugs were either prepared or administered using incorrect techniques in 33.5% of instances evaluated.[30]

In a study that reviews the literature, also the rulings have been reviewed. However, it is stated that the data examined in published studies do not reflect or report the actual figures.[25] The court rulings included in our study can be accessed by lawyers to the extent permitted by the Supreme Court. For this reason, the study was limited to the number of cases for

TABLE 2: Participants' experience and level of awareness about medical malpractice.

Experience	**n (%)**	
Prior participation in training/course on prevention of malpractice (n=86)		
Yes	55 (64.0)	
No	31 (36.0)	
Type of training/course (n=55)		
Symposium	6 (10.8)	
In-service training	42 (76.4)	
Course	1 (1.8)	
Presentation at conference	3 (5.5)	
Within school curriculum	3 (5.5)	
Level of awareness	**Before training**	**After training**
Participants' belief about who can be tried in a malpractice lawsuit (n=86)		
Only the physician	1 (1.2)	0
Only the nurse	5 (6.0)	0
Hospital executive	5 (6.0)	13 (15.1)
All healthcare personnel involved in the medical intervention and the hospital executive (correct answer)	58 (69.0)	73 (84.9)
No idea	17 (19.8)	0
Number of participants concerned about being judged or penalized for malpractice (n=86)		
Concerned	46 (53.5)	49 (57.0)
Not concerned	40 (46.5)	37 (43.0)

which the Supreme Court allows examination**.** In case 1 (Appendix), the error in the intramuscular injection was not clearly defined, and only the legal consequence was clearly stated. Based on the literature, it is believed that the error made by the nurse in that case caused sciatic nerve injury.

It has been suggested that being aware of court decisions concerning malpractice could be helpful in preventing malpractice. Given that the highest rate of malpractice is related to drug administration, conducting continuous evidence-based drug administration training, monitoring these training procedures.[31] And inspecting drug administration procedures may reduce nursing malpractice.

In our study, 36% of the participants stated that they had not previously attended a malpractice prevention training session (Table 2). After the four-hour conference-style training session, a significant improvement in level of awareness was observed (Table 2). The rate of correct answers given by all participants ranged from 16.1% to 69% at the beginning and from 49% to 93% at the end of the study (Table 3). It is believed that conducting periodic training would create awareness and sensibility on the topic and thereby reduce cases of malpractice (Table 3). Our study showed that the participants' level of concern over being penalized due to malpractice increased after attending the training session (Table 2). One of the topics addressed in training was penalties for injection malpractice. In Turkey, injection-related complaints fall within the scope of negligence, and anyone who negligently causes harm to someone else is subject to articles 85 and 89 of the Turkish Penal Code.[2] Article 85 regulates cases of involuntary manslaughter. According to this article, anyone that causes involuntary manslaughter shall be penalized with a prison sentence of two to six years. This would include a healthcare professional who causes death by injection of an erroneous drug. In contrast, a

TABLE 3: Correct answers about case outcomes given by participants before and after training.

	Correct answer, n (%)		**p value**
Case	**Before training**	**After training**	**(McNemar's test)**
1	25 (29.1)	51 (59.3)	p<0.001
2	35 (41.2)	79 (92.9)	p<0.001
3	14 (16.1)	43 (49.4)	p<0.001
4	32 (36.4)	61 (69.3)	p<0.001
5	60 (69.0)	81 (93.1)	p<0.001

healthcare professional who causes vital danger to a patient due to medication malpractice shall be judged according to the second subparagraph of article 89. If medication malpractice causes untreatable and permanent physical damage to the patient, the healthcare professional shall be judged pursuant to the third subparagraph of the same article. One of the most frequently experienced injection-related complaints is foot drop. If foot drop has occurred due to injection, again the healthcare professional shall be judged as per article 89. If a complete sciatic nerve paralysis has occurred, the case shall be evaluated within the scope of "loss of function in limb".[2,5] Our findings suggest that the participants' knowledge about such penalties was limited prior to training, and that new information provided to them increased their concerns. As a primary principle for preventing malpractice, it is important to establish a systematic approach for patient safety, reporting of errors, and the creation of an environment where errors are discussed from all aspects and where strategies for preventing errors can be developed.[32]

CONCLUSION

We found that training nurses on nurse-related medical malpractice cases submitted to the Turkish Supreme Court, and on the penalties under the Turkish Penal Code, increased their concern of being penalized for malpractice. Ensuring that nurses know their legal responsibilities within their professions is important, and it is believed that continuous training would reduce medical malpractice. For this reason, we suggest the establishment of repetitive in-service training and certification programs in line with appropriate occupational standards.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Design: *Bengü Çetinkaya, Nevin Kuzu Kurban, Halide Savaş;* ***Control/Supervision:*** *Bengü Çetinkaya, Nevin Kuzu Kurban;* ***Data Collection and/or Processing:*** *Bengü Çetinkaya, Nevin Kuzu Kurban, Halide Savaş;* ***Analysis and/or Interpretation:*** *Bengü Çetinkaya;* ***Literature Review:*** *Bengü Çetinkaya, Nevin Kuzu Kurban, Halide Savaş;* ***Writing the Article:*** *Bengü Çetinkaya, Nevin Kuzu Kurban, Halide Savaş;* ***Critical Review:*** *Bengü Çetinkaya, Nevin Kuzu Kurban;* ***References and Fundings:****Bengü Çetinkaya, Nevin Kuzu Kurban.*

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