

Investigation of the Medical Malpractice Tendency of Student Nurses

Serap Torun, Osman Bilgin, Ceylan Bickici

Abstract—Introduction: Medical malpractice can be defined as health workers neglecting the expected standard or intentionally not implementing it, doing it wrong and/or incomplete, not being able to implement the accurate practice due to personal or systemic reasons despite desiring to do it correctly and the condition that causes permanent or temporary damage to the patient as a result. If the training periods in which health workers improve their knowledge and skills are passed efficiently, they are expected to have a low rate of error in their professional lives. Aim: Aim of the study is to determine the medical malpractice tendencies of students studying in nursing department. Material and Methods: This descriptive research has been performed with 454 students who study in 3rd and 4th years in the Nursing Department of the Faculty of Health Sciences in a state university in normal and evening education and go out for clinical practice during the 2017-2018 academic year. The sample consisted of 454 students who agreed to participate in the study. Ethics committee approval, the permission of the institution and the verbal consent of the participants were obtained. In collection of data, 'Personal Information Form' developed by the researchers and the Malpractice Tendency Scale (SMT) were used. The data were analyzed using SPSS 20 package program. 0.05 was used as the level of significance. Results: The Cronbach's alpha internal consistency coefficient of the scale was 0.94 and the total mean value of the scale was 211.69 ± 22.14 . The mean age of the participants was $22,08 \pm 1,852$ years; 165 (36,4%) were male and 288 (63,6%) were female. Their mean General Point Average (GPA) was 2.65 ± 0.454 (min 1.03 - max 3.90). Students' average duration of self study per week was 2.89 ± 3.81 (min 0 - max 30) hours. The mean score (80.73) of the 4th year students in the sub-dimension of Drug and Transfusion Applications was significantly higher than the mean score (79.20) of 3rd year students ($p < 0.05$). The mean score (81.01) of the Drug and Transfusion Applications sub-dimension of those who willingly chose the profession was higher than the mean score (78.88) of those who chose the profession unwillingly. The mean average score (21.48) of Fallings sub-dimension of students who cared for 3 to 4 patients per day was lower than the mean score (22.41) of those who cared for 5 patients and over daily on average ($p < 0.05$). Conclusion: As a result of this study, it was concluded that malpractice tendency of nursing students was low, and an inverse relationship was found between the duration of education and malpractice tendency.

Keywords—Nursing student, medical malpractice, nursing, tendency, patient safety

I. INTRODUCTION

MEDICAL malpractices can be defined as health workers neglecting the expected standard or intentionally not implementing it, doing it wrong and/or incomplete, not being

able to implement the accurate practice due to personal or systemic reasons despite desiring to do it correctly and the condition that causes permanent or temporary damage to the patient as a result. According to Saygin and Keklik, medical malpractices were grouped by Reason in 1990 for the first time as active and hidden errors and the effects of active errors immediately occur while hidden errors state the situations beyond the control of the health workers [1] The most common errors in the literature are medication errors [2], [3].

If the training periods in which health workers improve their knowledge and skills are spent efficiently, it is expected from them to have low rates of making a mistake in their professional lives. Curriculum programs to include subjects related to patient safety increases the awareness of the student nurses and ensures taking the necessary measures related to the subject. Almost all of the courses given in the nursing rudiments course, which were first introduced to the student in order to develop professional skills in the field of nursing, the subjects of patient safety on the basis of treatment steps are addressed. For example; the first treatment step, 'wash your hands', is a measure against infection. The second step, "introduce yourself to the patient" means communication and then "explain the treatment to the patient" means informing the patient. Such examples can be increased.

II. AIM

To determine the tendency for medical malpractice of nursing students.

III. RESEARCH METHOD

A. The Sample and Location of the Research

The population of the study consisted of 580 students who were in the 3rd and 4th year in the nursing department of the Faculty of Health Sciences of Çukurova University in 2017-2018 academic year who started clinical applications while the sample consisted of 454 students who accepted to participate in the study. The study was carried out in 2017-2018 academic year in Çukurova University Faculty of Health Sciences Nursing Department.

B. Data Collection Tools

During the collection of data, Personal Information Form which was developed by the researchers and Scale of Malpractice Tendency (SMT), which was proved to be valid

Serap Torun, RN PhD is an Assistant Prof. Department of Nursing, Faculty of Health Sciences, Çukurova University, Adana, Turkey, (e-mail: torunserap@gmail.com, obilgin00@gmail.com, ceylanazrak01@gmail.com).

and reliable by Özata and Altuncan who developed it, were used [3]. The scale consisted of 5 sub dimensions and 49 questions related to the activities of nurses. Responses to the expressions in the scale were graded in 5-point likert style.

C. The Collection of the Data and Analysis

The research data were collected by the researchers between 1 November 2017 and 31 March 2018 by face to face interview method. The students who accepted to participate in the research were informed about the research and the information section in the first part of the personal data form was read. They were asked to answer the questions. On the scale, participants were asked to mark each statement according to their preferences. The options are in the range of 1 (never)-5 (always). The score range of the scale is between 49-245. The increase in total score is interpreted as a decrease in the tendency to make a medical malpractice. The collected data were analysed using SPSS 20 package program. While examining the differences between the groups, Independent t-test and One-Way ANOVA were used. In case of having significant differences in One-Way ANOVA, Tukey HSD analysis was used in cases where the variance of the groups were homogeneous and Tamhane's analysis was used in cases where the variance of the groups were not homogeneous. 0.05 was used as the level of noted in case of $p < 0.05$, and in the case of significance; a significant difference was $p > 0.05$, it was noted that there was no significant difference.

D. The Ethical Aspect of the Research

In order to conduct the study, ethics committee approval, institution permission and verbal consent of the students were obtained. In addition, in the first part of the Personal Information Form, information was given saying that consent was given to participate in the study if the questions about the research were answered.

IV. RESULTS

The Cronbach alpha internal consistency coefficient of the scale was 0.94 and the total average value of the scale was found to be 211.69 ± 22.14 (as shown in Table I).

When the demographic characteristics of the participants were examined; the average age of the participants was $22,08 \pm 1,852$, 165 (36,4%) were male and 288 (63,6%) were female. The average GPA of the participants was $2,65 \pm 0,454$ (min 1.03 max 3.90). 219 participants (48.3%) are in their 3rd year and 234 (51.7%) are in their 4th year. 236 students (52.1%) stated that they chose this profession willingly. 53% of the participants

live with their family. The average daily sleep time was $7,72 \pm 1,47$.

The average weekly hours worked by the participants was 2.89 ± 3.81 hours. The average number of applied courses taken by the students until the data collection time is $6,59 \pm 1,52$, and the number of clinical studies they studied is $11,68 \pm 4,40$. The students provide care for an average of 3.96 ± 2.05 patients daily. There was no statistically significant difference between the average scores of Drug and Transfusion Applications, Hospital Infections, Patient Monitoring and Material Safety, Falls and Communication sub dimensions belonging to health workers in terms of gender ($p > 0.05$).

There was a statistically significant difference between the average scores of Drug and Transfusion Applications sub dimension belonging to students in terms of class variables ($p < 0.05$). The average score of Drug and Transfusion Applications sub dimension belonging to 4th year nursing students (80,73) is significantly higher than the average score of Drug and Transfusion Applications sub dimension belonging to 3rd year nursing students (79,20). There was no statistically significant difference between the average scores of the Hospital Infections sub dimension in terms of class variables ($p > 0.05$). The average score of Patient Monitoring and Material Safety sub dimension belonging to 4th year nursing students (37,15) is significantly higher than the average score of Patient Monitoring and Material Safety sub dimension belonging to 3rd year nursing students (35,86) and has a statistical significance ($p < 0.05$). There was a statistically significant difference between the average scores of the Falls sub dimension ($p < 0.05$). The average score of Falls sub dimension belonging to 4th year nursing students (22,26) is significantly higher than the average score of Falls sub dimension belonging to 3rd year nursing students (21,31). The average score of Communication sub dimension belonging to 4th year nursing students (21,74) is significantly higher than the average score of Communication sub dimension belonging to 3rd year nursing students (20,74) ($p < 0.05$).

There was a statistically significant difference between the average scores of all sub dimensions of nursing students except Communication in terms of their state of choosing the profession ($p < 0.05$). The average score of Drug and Transfusion Applications sub dimension belonging to nursing students who have chosen the profession willingly (81,01) is significantly higher than the average score of Drug and Transfusion Applications sub dimension belonging to nursing students who have chosen the profession unwillingly (78,88).

TABLE I
SCALE VALUES

	Number of expressions	Lower and Upper scores of the Study	Lower dimension total average score	±SD	Cronbach Alpha
SMT	49	1-245	211,69	22,14	0,94
Drug and transfusion administering	18	44-90	79,99	7,515	0,877
Hospital infections	12	27-60	52,14	6,32	0,869
Patient Monitoring and Material Safety	9	15-45	36,53	5,56	0,815
Falls	5	10-25	21,80	3,31	0,850
Communication	5	5-25	21,26	4,07	0,819

TABLE II

EVALUATION OF THE RELATIONSHIPS BETWEEN THE SOCIO-DEMOGRAPHIC CHARACTERISTICS OF HEALTH WORKERS AND THE SMT SUB DIMENSION AVERAGE SCORES

Descriptive properties		Drug and transfusion administering	Hospital Infection	Patient Monitoring and Material Safety	Falls	Communication
		Mean±SD	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD
Cender	Male(n=165)	80,46±7,67	51,68±6,77	36,85±5,59	21,77±3,41	21,35±3,81
	Female(n=288)	79,72±7,42	52,41±6,03	36,34±5,55	21,82±3,27	21,21±4,23
	Critical Score	t=1,016	t=-1,176	t=0,953	t=-0,164	t=0,335
	P score	p=0,310	p=0,240	p=0,341	p=0,870	p=0,738
Class	3rd Class (n=219)	79,20±7,24	51,86±6,10	35,86±5,44	21,31±3,58	20,74±4,39
	4th Class(n=234)	80,73±7,70	52,41±6,51	37,15±5,62	22,26±2,98	21,74±3,71
	Critical Score	t=-2,175	t=-0,937	t=-2,464	t=-3,090	t=-2,622
	P score	p=0,030*	p=0,349	p=0,014*	p=0,002*	p=0,009*
Status of choosing the profession	voluntarily(n=236)	81,01±6,80	53,09±5,87	37,03±5,19	22,19±2,93	21,56±3,99
	compulsory (n=217)	78,88±8,09	51,12±6,63	35,98±5,91	21,39±3,65	20,94±4,16
	Critical Score	t=3,023	t=3,352	t=2,018	t=2,556	t=1,606
	P score	p=0,003*	p=0,001*	p=0,044*	p=0,011*	p=0,109
Daily average sleep time	Less than 4 hours (n=10)	80,20±6,53	49,10±6,44	33,90±8,09	18,70±4,88	19,50±6,08
	5-7 hours(n=164)	80,95±6,51	52,77±6,09	36,75±5,45	22,12±3,08	21,44±3,85
	8 and above (n=279)	79,42±8,04	51,89±6,41	36,49±5,53	21,73±3,34	21,22±4,13
	Critical Score	F=2,154	F=2,203	F=1,254	F=5,309	F=1,104
	P score	p=0,117	p=0,112	p=0,286	p=0,005*	p=0,333
	group differences				1-2 , 1-3	
Are you satisfied with your student	dissatisfied (n=97)	78,84±8,73	51,00±6,83	35,68±6,21	21,32±3,86	20,94±4,30
	partially(n=271)	80,21±6,93	52,36±5,98	36,56±5,45	21,92±3,19	21,30±3,99
	satisfied (n=85)	80,58±7,75	52,76±6,64	37,39±5,07	21,99±3,03	21,52±4,15
	Critical Score	F=1,528	F=2,175	F=2,155	F=1,331	F=0,480
	P score	p=0,218	p=0,115	p=0,117	p=0,265	p=0,619
Do you have any health problem?	Yes(n=50)	79,84±8,32	51,76±6,26	35,56±6,27	21,46±4,11	21,08±4,06
	No(n=403)	80,00±7,42	52,19±6,33	36,65±5,47	21,85±3,21	21,28±4,09
	Critical Score	t=-0,146	t=-0,458	t=-1,301	t=-0,776	t=-0,331
	P Score	p=0,884	p=0,647	p=0,194	p=0,438	p=0,741

The average score of Hospital Infections sub dimension belonging to students who have chosen the profession willingly (53,09) is significantly higher than the average score of this sub dimension belonging to students who have chosen the profession unwillingly (51,12)($p < 0,05$). The average score of Patient Monitoring and Material Safety sub dimension belonging to participants who have chosen the profession willingly (37,03) is significantly higher than that of belonging to students who have chosen the profession unwillingly (35,98)($p < 0,05$). The average score of Falls sub dimension (22,19) is significantly higher than the average score of this sub dimension belonging to students who have chosen the profession unwillingly($p < 0,05$).

There was no statistically significant difference between the average scores of Drug and Transfusion Applications, Hospital Infections, Patient Monitoring and Material Safety and Communication sub dimensions in terms of daily average sleep time belonging to nursing students ($p > 0,05$). The average score of the Falls sub dimension of nursing students who sleep less than 4 hours daily on average (18,70) is significantly lower than the average score of the Falls sub dimension of nursing students who sleep 5-7 hours daily on average (22,12) and the average score of the Falls sub dimension of nursing students who sleep at least 8 hours daily on average (21,73) ($p < 0,05$).

There was no statistically significant difference between the average scores of Drug and Transfusion Applications, Hospital

Infections, Patient Monitoring and Material Safety, Falls and Communication sub dimensions in terms of the state of satisfaction related to their lives as a student belonging to nursing students ($p > 0,05$). There was no statistically significant difference between the average scores of Drug and Transfusion Applications, Hospital Infections, Patient Monitoring and Material Safety, Falls and Communication sub dimensions in terms of having a health problem belonging to nursing students ($p > 0,05$) (as shown in Table II).

There was no statistically significant difference between the average scores of Drug and Transfusion Applications, Hospital Infections, Patient Monitoring and Material Safety, Falls and Communication sub dimensions in terms of average weekly work hours, the number of applied courses taken and the number of clinics they have worked in belonging to nursing students ($p > 0,05$). There was a statistically significant difference between the average scores of Falls sub dimension in terms of the daily average number of patients who had been provided with care belonging to nursing students ($p < 0,05$). The average score of the Falls sub dimension of nursing students who provide care for 3-4 patients daily on average (21,48) is significantly lower than the average score of the Falls sub dimension of nursing students who provide care for at least 5 patients daily on average (22,41).

TABLE III
EVALUATION OF THE RELATIONSHIPS BETWEEN PROFESSIONAL EDUCATION CHARACTERISTICS OF STUDENTS AND THE SMT SUB DIMENSION

	Descriptive properties	Drug and transfusion administering	Hospital Infection	Patient Monitoring and Material Safety	Falls	Communication
		Mean±SD	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD
weekly average course work time	0-4 hours(n=368)	79,77±7,51	51,89±6,56	36,68±5,61	21,65±3,44	21,36±4,02
	5-9 hours (n=58)	79,90±8,02	52,72±5,06	35,53±5,59	22,24±2,73	20,72±4,53
	10 hours and above(n=27)	83,15±5,74	54,33±4,83	36,52±4,85	22,89±2,38	21,11±3,95
	Critical Score	F=2,566	F=2,168	F=1,065	F=2,336	F=0,619
	P Score	p=0,078	p=0,116	p=0,345	p=0,098	p=0,539
number of administered courses	1-5 Course(n=44)	79,55±9,73	51,41±7,55	35,98±6,04	21,93±3,75	21,75±3,17
	6-9 Course (n=398)	80,01±7,23	52,24±6,18	36,53±5,55	21,77±3,28	21,21±4,19
	10 Course and above (n=11)	80,91±8,14	51,73±6,05	38,73±3,47	22,64±3,04	21,09±3,24
	Critical Score	F=0,160	F=0,366	F=1,075	F=0,404	F=0,355
	P Score	p=0,852	p=0,694	p=0,342	p=0,668	p=0,752
number of clinics by internship	1-5 Clinics(n=14)	78,43±11,85	51,93±9,43	37,86±5,70	21,43±5,32	21,5±3,25
	6-10 Clinics (n=214)	80,01±7,08	52,13±6,04	36,22±5,62	21,55±3,36	21,2±4,00
	11-15 Clinics (n=159)	79,85±7,25	51,72±6,62	36,21±5,59	21,78±3,30	20,92±4,40
	16-19 Clinics (n=23)	80,17±9,96	53,52±6,32	38,39±5,88	22,70±2,70	22,52±3,15
	20 Clinics and above (n=43)	80,79±7,64	53,12±5,31	37,77±4,72	22,79±2,35	22,07±3,82
	Critical Score	F=0,289	F=0,708	F=1,678	F=1,736	F=1,279
	P Score	p=0,885	p=0,587	p=0,154	p=0,141	p=0,277
number of patients care average daily	0-2 patients(n=116)	79,66±8,32	51,99±6,78	36,27±5,58	21,56±3,32	20,9±4,05
	3-4 patients(n=189)	79,43±6,96	51,61±6,07	36,22±5,48	21,48±3,60	21,02±4,38
	5 patients and above(n=148)	80,96±7,48	52,95±6,20	37,11±5,66	22,41±2,83	21,86±3,64
	Critical Score	F=1,882	F=1,902	F=1,237	F=3,772	F=2,405
	P Score	p=0,154	p=0,151	p=0,291	p=0,024*	p=0,091
	group differences				2-3	
GPA	Less than 1,99 (n=28)	77,14±9,14	49,18±7,76	34,82±5,58	20,46±3,83	19,68±3,55
	Between 2 and 2,99 (n=311)	80,38±7,35	52,38±6,35	36,77±5,54	21,98±3,16	21,44±3,93
	3 and above(n=114)	79,62±7,44	52,23±5,65	36,27±5,58	21,66±3,54	21,15±4,53
	Critical Score	F=2,574	F=3,355	F=1,741	F=2,845	F=2,478
	P Score	p=0,077	p=0,036*	p=0,177	p=0,059	p=0,085
	Group differences		1-2 , 1-3			

There was a statistically significant difference between the average scores of Hospital Infections sub dimension in terms of the GPA belonging to nursing students ($p < 0.05$). The average score of the Hospital Infections sub dimension of nursing students who have a GPA less than 1.99 (49,18) is significantly lower than the average score of the Hospital Infections sub dimension of nursing students who have a GPA between 2-2.99 (52,38) and the average score of the Hospital Infections sub dimension of nursing students who have a GPA of at least 3 (52,23) ($p < 0,05$) (as shown in Table III).

V.DISCUSSION

In our study, the total scale score was 211.69 ± 22.14 , the average scores of the Drug and Transfusion Applications (79,99) and Hospital Infections (52.14) sub dimensions were the highest while the average scores of Falls (21.80) and Communication (21.26) were the lowest. In the study of Mankan et al. with intern nurses, the average score of SMT was found to be 200.62 ± 33 [4]. In our study, it is possible to say that participants have lower tendencies for medical malpractice. In the study conducted by Andsoy et al. with nurses using the same scale, the highest average score belonging to nurses on sub dimensions was determined as infection prevention and communication, and the lowest average score was patient

monitoring and material device safety [5]. When the results of our study are compared with the results of the study of Andsoy et al., it can be said that the professional experience reduces the possibility of making errors in communication sub dimension. Our participants being a student may cause them to be shy to communicate with the patient and, accordingly, may increase the likelihood of communication errors.

There was no statistically significant difference between the average scores of Drug and Transfusion Applications, Hospital Infections, Patient Monitoring and Material Safety, Falls and Communication sub dimensions belonging to health workers in terms of gender ($p > 0.05$). It is possible to say that both sexes provide care for their patient in the same way and they do not have malpractice tendencies.

The average score of the 4th grade students in the "Drug and Transfusion Applications" sub dimension in terms of the class variable was 80.73 while the average score of 3rd grade students was 79.20. In this sub dimension, it is seen that the tendencies to make medical malpractices of both grade's students are very low. Ayik et al. found in their study with nursing students that drug errors were the most common [6]. Similarly, Bodur et al. found that the participants of the study named midwifery and nursing senior students' attitudes towards patient safety and medical malpractices made mistakes in drug

applications most frequently [7]. The low tendency to make a medical malpractice in this sub dimension does not mean that there will be no error, but giving more importance on the subject during the education process will increase the awareness and attention. The average score of Patient Monitoring and Material Safety sub dimension (37,15) belonging to 4th grade students is significantly higher than the average score of this sub dimension belonging to 3rd grade students (35,86). The average score of Falls sub dimension belonging to 4th grade students is significantly higher in terms of the class variable while there is a statistically significant difference ($p < 0,05$). The average score of Communication sub dimension is also higher than 3rd grade students (21,74/20,74) and there is a statistical significance ($p < 0,05$). It is possible to say that the tendency for medical malpractice belonging to 4th grade students is lower in the communication sub dimension because of the directly proportionate increase of the clinical experiences and the number of patients they provide care for. Choosing the profession willingly affects the professional life. As an example, in the study conducted by Gökdoğan et al., it was found that nurses believe that 83.1% of the errors occurring in the hospital are originated from communication [8]. The lack of a statistically significant difference between the average scores of Hospital Infections sub dimension in terms of the class variable indicates that students from both grades are sufficiently sensible in this sub dimension and do not have malpractice tendencies.

There was a statistically significant difference between the average scores of all sub dimensions of nursing students except Communication in terms of their state of choosing the profession ($p < 0.05$).

The average scores of Drug and Transfusion Applications sub dimension (81,01), Hospital Infections sub dimension (53,09), Patient Monitoring and Material Safety sub dimension (37,03), Falls sub dimension (22,19) belonging to nursing students who have chosen the profession willingly are significantly higher than those of belonging to nursing students who have chosen the profession unwillingly ($p < 0,05$). This situation can be explained by the motivation of the students. Trying to work unwillingly can cause a decrease in the motivation and an increase in the possibility of making an error. This result is also influenced by the fact that those who chose the profession willingly will have a high motivation for learning and practice.

The average score of the Falls sub dimension of nursing students who sleep less than 4 hours daily on average (18,70) is significantly lower than the average score of the "Falls" sub dimension of nursing students who sleep 5-7 hours daily on average (22,12) and the average score of the Falls sub dimension of nursing students who sleep at least 8 hours daily on average (21,73) in terms of the average daily sleep duration belonging to nursing students ($p < 0,05$). It is an undeniable fact that lack of sleep increases the possibility of making an error and it is possible to say that students who sleep less have a tendency to make medical malpractice.

We can say that the nursing students' state of satisfaction related to their lives as a student, of having any health problems,

weekly average hours of study, numbers of applied courses they have taken and clinics they have worked in did not affect their tendency for medical malpractice ($p > 0.05$).

The average score of the Falls sub dimension of nursing students who provide care for 3-4 patients daily on average (21,48) is significantly lower than the average score of the Falls sub dimension of nursing students who provide care for at least for 5 patients daily on average (22,41) ($p < 0,05$). Experience increases as the number of patients increases. Thus, it becomes easier to take protective measures. Similarly, 4th grade students having a higher average score in this sub dimension also supports this result.

The average score of the Hospital Infections sub dimension of nursing students who have a GPA less than 1.99 (49,18) is significantly lower than the average score of the Hospital Infections sub dimension of nursing students who have a GPA between 2-2.99 (52,38) and the average score of the Hospital Infections sub dimension of nursing students who have a GPA of at least 3 (52,23). In the study of Işık et al. which evaluated medical malpractices according to nurses, they found that the inadequate level of knowledge belonging to nurses was thought to cause medication or dosing errors [9]. According to the results of our study, it is possible to say that the ranks success and the GPA indicated the accumulation of knowledge and willingness in the learning process. It is possible to say that students' knowledge on the subject, who have a high GPA, enables preventive interventions to be carried out in a comfortable and deliberate manner and thus, the tendency for medical malpractices to be low.

VI. CONCLUSION

As a result of our study; it was found that the malpractice tendency of the nursing students was low. Malpractice tendency of 4th grade students was found to be lower than 3rd grade students, and it was detected that the students from both grades had no malpractice tendency in the Hospital Infections sub dimension. It has been found that the choosing the profession willingly decreases the malpractice tendency and the decrease of daily average sleeping duration increases the malpractice tendency. The nursing students' state of satisfaction related to their lives as a student, of having any health problems, weekly average hours of study, numbers of applied courses they have taken and clinics they have worked in did not affect their tendency for medical malpractice. The number of patients who have been provided with care reduces the malpractice tendency as it increases the experience. Likewise, it can be said that malpractice tendency decreases as the level of success increases. In order to reduce the tendency for medical malpractices, it may be recommended to focus on applied education to increase the experience of hospital and patient during the professional education of nursing students. In order to protect students from medical malpractices in their professional lives, it may be recommended to include elective courses for medical malpractice in the curriculum like the institution where the study was conducted.

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