

Pressure Injuries in the Emergency Department: Prevalence and Healthcare Professionals' Knowledge Levels-A Pilot Study

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Abstract

BACKGROUND/AIMS: Patients in emergency departments (EDs) are a risk group in terms of pressure injuries.

MATERIALS AND METHODS: We conducted this descriptive study to determine both the prevalence of pressure injuries (PIs) in EDs and the level of knowledge of healthcare professionals working there regarding PIs. This study was a pilot study. The point prevalence study in the ED was conducted on 17.12.2018 with 23 patients who were being treated in the ED for more than 2 hours and who voluntarily participated in this study. A questionnaire to determine the level of knowledge of health professionals working in the ED was carried out with 16 physicians and 17 nurses working in the ED between 17-23 December, 2018. The data of this study were collected using The Demographic Questionnaire, Pressure Injuries Knowledge form, and Pressure Injuries Assessment form.

RESULTS: The prevalence of PIs in the patients followed up within the scope of this study was 17.4%; 85.71% of them were hospital-acquired injuries; 57.14% of them were stage 1; and 71.4% of them were related to medical devices. The mean knowledge test score of the participating physicians and nurses was 54.18 ± 13.08 . The mean knowledge test scores of the physicians and nurses who had received training on PIs were found to be higher than those who had not received training, and the difference was statistically significant ($p < 0.05$).

CONCLUSION: Healthcare professionals need to evaluate patients holistically, take precautions to avoid PIs, evaluate patients in terms of the risk of developing PIs, and provide treatment and care. Therefore, training about PIs should be given to healthcare professionals working in emergency departments.

Keywords: Emergency department, pressure injury, prevalence, healthcare professionals

INTRODUCTION

Pressure injuries (PIs), one of the quality indicators of healthcare departments, remain a common health problem today.^{1,2} PIs increase healthcare costs, mortality, morbidity, and the hospitalization period, and also negatively affect the quality of life of patients and their

families.^{3,7} According to data from the Joint Commission Center for Transforming Healthcare, more than 2.5 million patients in acute care units in the USA are exposed to PIs each year, and 60,000 people die from PI-related complications. The estimated cost of treating stage 4 PIs in the USA is up to \$70,000, and the total cost of PI treatment is \$11 billion annually.³ PIs are frequently seen in care areas, with a prevalence

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of 4% to 40%, while they are seen in emergency departments (EDs) with a prevalence of 12.8% to 19.6%.^{8,9} Although there are no studies on the prevalence of PIs in EDs in Turkey, the prevalence of PIs in hospitals overall was 9.5% according to studies conducted in different clinical areas.¹⁰

EDs are accessible at any hour, have high patient numbers, and are special places that differ from other units as a result of the unique problems they face, how they function, and the need for making quick and correct decisions.¹¹ Although the duration of stays in EDs varies, it ranges from 6.5-15.4 hours on average in the literature.^{9,12} The follow-up periods of patients are prolonged, especially in elderly patients and patients with chronic diseases and also those with bad general health statuses.^{8,12,13} The fact that the physical environment of an ED often does not have the necessary infrastructure to handle high patient densities and there is a greater number of patients with severe diseases means that patients can be monitored on stretchers for lengthy periods of time and it limits the quality of care provided and decreases efficiency.¹⁴ The high risk of critically ill emergency patients developing PIs is thus a critical problem. For example, traumatic injuries can lead directly to tissue damage, loss of sensation, and impairment of tissue perfusion, which are known risk factors for the development of PIs, due to prolonged immobilization, hypovolemic shock and impaired tissue nutrition.¹⁵ In trauma patients, monitoring and oxygen masks are frequently used, while plasters, splints, and traction may be employed to stabilize spinal injuries or to fix broken bones. In addition to pressure and frictional forces, the skin beneath these medical devices is also affected by moisture and heat, and thus the risk of developing PIs due to the use of these devices increases.¹⁶

Although PIs are a preventable health problem, preventive measures are not always implemented effectively, and PIs continue to be prevalent in hospitals.^{17,18} It is the responsibility of healthcare professionals to identify those patients who are at risk of PIs and to prevent them.^{1,2} It is thus necessary to increase the awareness of healthcare professionals about how to diagnose and prevent PIs and to use evidence-based practices. Healthcare professionals need training in the prevention and treatment of PIs.¹⁹ In studies, it has been found that training provided on PIs can improve the assessment and diagnostic skills of emergency healthcare personnel.^{8,20,21}

This study was carried out to determine the prevalence of PIs in an ED and the level of knowledge of health personnel about PIs. It is our hope that this study will contribute to a reduction of both PIs in EDs and the incidence of complications due to PIs, as well as to the literature on this topic.

MATERIALS AND METHODS

Study Design

This descriptive study was conducted as a pilot study to determine the prevalence of PIs in an ED and the level of knowledge of healthcare professionals in this department regarding PIs. In this study, the prevalence of PIs in the ED was determined by the point prevalence method.

Study Sample

The study was conducted between 17-23 December 2018 in the adult ED in the largest state university hospital in Ankara, the capital of Turkey.

Inclusion criteria for the study;

- Participants who voluntarily agreed to participate in the study (health workers and patients),

- Since it was stated that the risk of PIs increased in patients who were followed up on for more than 2 hours in the emergency room²², patients who stayed in the emergency room for 2 hours or more were included in this study.

This study was conducted between 17-23 December, 2018 in the adult ED of the largest state university hospital in Ankara, the capital of Turkey. The sample consisted of the physicians (n=38) and nurses (n=22) working in the ED between 17-23 December, 2018 and the patients hospitalized in this department on 17.12.2018.

The point prevalence study in the ED was conducted on 17.12.2018 with 23 patients who voluntarily participated in this study. The questionnaire to determine the level of knowledge of health professionals working in the ED was conducted with 16 physicians and 17 nurses who voluntarily participated in this study. The participation rate was 100% for patients, 77.2% for nurses, and 42.1% for physicians.

Data Collection Tools

The data were collected using the Demographic Questionnaire, PIs Knowledge Form, and PIs Assessment Form, which were created by the researchers in line with the current literature.^{1,8,21,23-26}

In the Demographic Questionnaire, there were 10 questions about the basic characteristics of the physicians and nurses, such as age, gender, education level, total years of employment, years of employment in the ED, whether or not they had received training about PIs, etc.

The PIs Knowledge Form consisted of 25 multiple-choice questions with illustrations. Each question had five possible answers. The form was intended to evaluate the knowledge levels of physicians and nurses about diagnosis, evaluation, categorization of the stages of PIs, prevention, treatment, and care of PIs. Before the application, the questions were evaluated by five experts in the fields of PIs, emergency nursing, and surgical nursing, and any necessary corrections were made.

The PIs Assessment Form included 37 closed-ended questions to assess the patients' characteristics, nutritional status, laboratory findings, position, mobilization, stretcher characteristics, PIs, and the Braden Pressure Injury Risk Assessment Scale. The Braden Pressure Injury Risk Assessment Scale (Braden Scale) is a widely used scale in the assessment of PIs in Turkey and around the world.²⁷ In categorizing the PIs, the current stages of PIs proposed by the National Pressure Injury Advisory (2016) were used.²⁸

Data Collection

The scope of this study required the objective evaluation and categorizing of PIs. Before the study, the nurses who would conduct the prevalence study were trained by the Wound Ostomy Continence Nurses Association on the prevention, categorizing and evaluation of PIs. The prevalence study for PIs was carried out simultaneously by two nurses, one of whom was an internal observer (the emergency room head nurse), and the other of whom was an external observer (researcher), on 17.12.2018. Patients who stayed in the ED for more than

2 hours and who voluntarily agreed to participate in this study were evaluated for PIs; the PIs Assessment Form was applied by the internal observer nurse and the external observer nurse. The prevalence study took an average of 4 hours, and the administration of the assessment form took an average of 10 minutes for each patient. The Demographic Questionnaire and the PIs Knowledge Form were then administered to 33 healthcare professionals who were working in the ED during the week of the study and who agreed to participate. The administration of these forms took an average of 10-15 minutes.

Statistical Analysis

The data analysis was carried out using the Statistical Package for the Social Sciences (SPSS) version 22.0 (IBM SPSS Corp.; Armonk, NY, USA). Each multiple-choice questions on the PIs Knowledge Form was scored out of 4, for a total score of 100. The descriptive statistics of the variables examined within the scope of this study are shown as frequency, percentage, mean and standard deviation. The Shapiro-Wilk test was used to test the fitness to the normal distribution in the groups in order to compare the knowledge test scores of the groups. While parametric tests were used for the groups in which there was a normal distribution, nonparametric tests were used for those groups where the data did not fit a normal distribution. In this context, the Mann-Whitney U Test and the Kruskal-Wallis H test were used to evaluate the knowledge test scores according to the participants' characteristics. $p < 0.05$ was accepted as statistically significant. Those patients who were in the ED were checked for PIs on the specified date.

Ethical Considerations

Ethical committee permission from Yıldırım Beyazıt University Ethical Committee (nr: 240/date: 2018) and official permission from the institution were obtained in order to conduct this research. The verbal and written consent of all the nurses, physicians, and patients who voluntarily agreed to participate in this study was obtained. The informed consent of two intubated patients who were followed up in the resuscitation department was obtained from their relatives. The principles of the Declaration of Helsinki were followed during this study. All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee.

RESULTS

The mean age of the patients was 59.56 ± 17 years. Of the patients, 73.9% (n=17) were male. Of the patients who had been admitted to the ED, 43.5% (n=10) were due to respiratory system problems, 21.7% (n=5) of them were due to neurological disorders, 17.4% (n=4) of them were due to gastrointestinal disorders, and 65.2% (n=15) of them were due to chronic disease. The general condition of the skin of 78.3% (n=18) of the patients was normal, 65.2% (n=15) were able to move independently, 8.7% (n=2) were completely dependent and 13.0% of the patients were only fed with liquid intravenously (Table 1).

While 30.4% (n=7) of the patients had been evaluated within the previous 24 hours, only 13% (n=3) of them were evaluated for the risk of PI within the previous 24 hours. The stretcher head angle of 87% of the patients (n=20) was higher than 30 degrees (Table 1). Of the patients, 4.3% (n=1) had PIs during their hospitalization in the ED; and 17.4% of them had PIs at the time of evaluation. The mean Braden score of the patients was 19.56 ± 4.33 (Table 1).

In this study, the prevalence of PIs in the patients was 17.4% (n=4). Of the detected PIs, 85.71% (n=6) were hospital acquired. Of the wounds, 57.14% (n=4) were stage 1, 28.57% (n=2) of the wounds were stage 2 and 14.29% (n=1) were suspected deep tissue damage. 71.4% (n=5) of the wounds were in the ear; 14.29% (n=1) of them were in the neck; and one of them was in the coccyx. 71.4% (n=5) of the wounds were related to medical devices. While 60% (n=3) of the medical devices causing PIs were oxygen masks, 40% (n=2) of the PIs were related to surgical masks (Table 2). The mean age of the patients with PIs was 61.25 ± 15.69 years and two (50%) of the patients were male. All of the patients with PIs had a chronic disease, and all had been admitted to the ED with respiratory system disorders (n=4). Three (75%) of the patients with PIs had normal skin. Three (75%) of the patients were able to independently move. While skin evaluation had been performed in only one (25%) of the

Table 1. Characteristics of the patients in the emergency department (n=23)

Characteristics		Mean	SD
Age (24-84 years)		59.56	17.60
Braden score (8-23)		19.56	4.33
		n	%
Gender	Male	17	73.9
	Female	6	26.1
Diagnosis	Neurological disorders	5	21.7
	Fluid/electrolyte imbalance	2	8.7
	Respiratory system disorders	10	43.5
	Gastrointestinal system disorders	4	17.4
	Cardiological disorders	2	8.7
Chronic disease	Yes	15	65.2
	No	8	34.8
General state of the skin	Normal	18	78.3
	Dry	5	21.7
Nutrition method	Oral feeding	18	78.3
	IV. liquid feeding	3	13.0
	IV. liquid and oral feeding	2	8.7
Mobilization status	Independently mobile	15	65.2
	Able to sit/lie	6	26.1
	Completely dependent	2	8.7
Status of having a skin assessment within the previous 24 hours	Yes	7	30.4
	No	16	69.6
Status of having a risk assessment within the previous 24 hours	Yes	3	13.0
	No	20	87.0
Position of stretcher head (angle)	0-30 °	3	13.0
	>30 °	20	87.0
Status of having pis at the time of the hospitalization in the Emergency department	Yes	1	4.3
	No	22	95.7
Status of having PIs at the time of assessment	Yes	4	17.4
	No	19	82.6

SD: standard deviation, PIs: pressure injuries.

patients with PIs within the previous 24 hours, none (n=4) of them had a risk assessment within the previous 24 hours. The stretcher head angle of three (75%) of the patients with PIs was higher than 30 degrees. Two PIs were detected in three (75%) of the patients, and three (75%) of the patients were fed orally (Table 3).

The mean age of the healthcare professionals in the ED included in this study was 28.51 ± 3.65 years; the mean total years of employment was 3.33 ± 3.09 years; and the mean years of employment in the ED was 2.14 ± 1.68 years. Of the employees, 45.5% (n=15) were female. 48.5% (n=16) of the employees were physicians, and 51.5% (n=17) of them were nurses. Of the healthcare professionals, 75.8% (n=25) had an experience of working with a patient with PIs; and 42.2% (n=14) of them had received training on PIs (Table 4).

The mean score of the physicians and nurses was 15.27 ± 5.42 on the sub-dimension of the diagnosis and evaluation of PIs; their mean score on the sub-dimension of categorizing the stage of the PI was 18.18 ± 5.92 ; their mean score on the treatment and care sub-dimension was 4.36 ± 3.21 ; their mean score on the prevention sub-dimension was 16.36 ± 4.83 ; and finally their mean score on the whole scale was 54.18 ± 13.08 out of 100 (Table 5).

No statistically significant correlation was found between the mean knowledge test scores of the physicians and nurses and their age, total years of employment, and their duration of working in the ED ($p > 0.05$). The mean knowledge test scores of the healthcare professionals did not differ statistically significantly according to their education levels and their status of having previously worked with PIs ($p > 0.05$). However, their mean knowledge test scores were statistically significantly different according to whether they had received training on PIs ($U = 65.50$, $p = 0.013$): the mean score of the physicians and nurses who had previously received training on PIs was 60.28 ± 13.53 and this was

Pressure injury characteristics	n	%	
Pressure injury prevalence	4	17.4	
Place of PI development	Non-hospital PI	1	14.29
	Hospital acquired PI	6	85.71
	Total	7	100.0
Stage	Stage 1	4	57.14
	Stage 2	2	28.57
	Suspected deep tissue injury	1	14.29
	Total	7	100.0
Body area	Ear	5	71.4
	Neck	1	14.29
	Coccyx	1	14.29
	Total	7	100.0
Pressure injury/medical device relation	Yes	5	71.4
	No	2	29.6
	Total	7	100.0
Medical device causing PIs	Oxygen mask	3	60.0
	Surgical mask	2	40.0
	Total	5	100.0

PI: pressure injuries.

significantly higher than the mean score of those who had not received training (49.68 ± 11.02) (Table 6).

DISCUSSION

This study, which was conducted to determine the prevalence of PIs in the ED and the level of knowledge of healthcare professionals about PIs, was a pilot study. Despite the small sample size, the point prevalence of ED PIs was 17.4% in this study. In addition, medical device-related PIs due to oxygen masks were often detected in patients. No study has been found on the prevalence of PIs in specifically regarding EDs in Turkey. This study is important in that it is the first study specific to an ED. At the same time, considering that ED PI studies are limited in the literature, the results of this study will contribute to the literature.

EDs are places where treatment and care are given to many people of different age groups and different diseases. Patients are extensively evaluated and monitored, usually on stretchers^{14,20} until their acute condition resolves²⁰. During follow-up, PIs can develop due to an

Table 3. Characteristics of the patients with pressure injuries

Characteristics	Mean	SD	
Age (years) (n=4) (48-84)	61.25	15.69	
Braden score (n=4) (8-21)	17.00	6.05	
	n	%	
Gender	Male	2	50.0
	Female	2	50.0
	Total	4	100.0
Diagnosis	Respiratory system disorders	4	100.0
Chronic disease	Yes	4	100.0
General state of the skin	Normal	3	75.0
	Dry	1	25.0
	Total	4	100.0
Mobilization status	Independently mobile	3	75.0
	Completely dependent	1	25.0
	Total	4	100.0
Status of having a skin assessment within the previous 24 hours	Yes	1	25.0
	No	3	75.0
	Total	4	100.0
Status of having a risk assessment within the previous 24 hours	No	4	100.0
	30	1	25.0
Position of stretcher head (angle)	>30	3	75.0
	Total	4	100.0
	1 PI	1	25.0
Number of PIs	2 PIs	3	75.0
	Total	4	100.0
	Oral feeding	3	75.0
Nutrition method	IV fluid feeding	1	25.0
	Total	4	100.0

SD: standard deviation, PIs: pressure injuries.

inability to move for reasons that may include obesity, the narrowness of the stretcher, the presence of an oxygen mask/cannula, etc., or as a result of lying in the same position for a long period of time.²⁹ Immobilization, which is frequently applied in life-threatening situations, prevents ambulation.⁸ Measures such as raising the armrests of the stretcher to ensure patient safety, and applications such as intravenous treatments, fluids, catheters, intubation, etc., can limit patient mobility. All of these result in an increased risk that patients in EDs will develop PIs. Dugaret et al.⁸ emphasized that there is a risk of PIs in patients in EDs. Denby and Rowlands²² emphasized that 99.2% of patients in EDs were followed up for more than 2 hours, and they were at risk in terms of the development of PIs due to their comorbidity and critical conditions. In this study, it was observed that the patients had chronic diseases which posed a risk for the development of PIs and that patients frequently applied to the ED due to respiratory system diseases.

Table 4. Socio-demographic characteristics of the physicians and nurses in the emergency department

Socio-demographic characteristics		Mean	SD
Age (years) (n=31) (23-37)		28.51	3.65
Total years of employment (n=33) (min.: 1; max.: 14 years)		3.33	3.09
Years of employment in the emergency department (n=33) (1-6 years)		2.14	1.68
		n	%
Gender	Female	15	45.5
	Male	18	54.5
	Total	33	100.0
Profession	Physician	16	48.5
	Nurse	17	51.5
	Total	33	100.0
Education level	Bachelor's	17	51.5
	Master's	13	39.4
	PhD	3	9.1
	Total	33	100.0
Status of previously working with a patient with PIs	Yes	25	75.8
	No	8	24.2
	Total	33	100.0
Status of receiving training about PIs	Yes	14	42.4
	No	19	57.6
	Total	33	100.0

SD: standard deviation, PIs: pressure injuries, min.: minimum, max.: maximum.

Table 5. Distribution of PI knowledge scores of the emergency healthcare professionals according to question groups

Knowledge test sub-dimensions	Score interval	Knowledge test score	
		Mean	SD
Diagnosis and evaluation of PIs ^{1-3,12,13,20,21}	0-28 Points	15.27	5.42
Categorization of stages ^{4-6,16,23-25}	0-28 Points	18.18	5.92
Treatment and care ^{14,15,17,19}	0-16 Points	4.36	3.21
Prevention ^{7-11,18,22}	0-28 Points	16.36	4.83
Total score	0-100 Points	54.18	13.08

SD: standard deviation.

In this context, emergency healthcare professionals need to evaluate the risk that patients will develop PIs after they have been admitted to the department.

In the current study, four patients had PIs, and the prevalence of PIs was 17.4% (Table 2). Fulbrook et al.²⁹ conducted a study on patients who arrived at EDs via ambulance and found that the prevalence of PIs was 5.2% during admission. This rate increased during follow-up and rose to 7.8% during hospitalization. Pham et al.⁹ determined that the prevalence of hospital-acquired PIs was 19.6% in elderly patients admitted to the ED. Dugaret et al.⁸ evaluated the prevalence and incidence of PIs with a 15-day follow-up in the ED and found that the prevalence of PIs was 12.8% when patients were admitted and 19.1% when they were discharged. The prevalence rates in these studies are similar to the prevalence rate in the current study. Although the prevalence of PIs at the time of admission was not evaluated in this study, we believe that the prevalence of PIs probably increased in parallel with the risk factors of the patients and their length of stay in the ED.

When the stages of PIs are examined, in the prevalence studies of Fulbrook et al.²⁹, six of the 14 (42.9%) PIs found were stage 1; 14.3% of them were stage 2; 14.3% of them were stage 3; and 35.7% of the injuries had formed in the ears. Pham et al.⁹ conducted a study on elderly patients and determined that 9.0% of PIs in the ED were stage 1; 9.9% of them were stage 2; and 0.6% of them were stage 3. Denby and Rowlands²² found that 61.6% of the PIs that developed in patients in an ED were stage 1; 38.4% of them were stage 2; and they most commonly formed in the sacrum (42.4%), coccyx (30%) and heels (14.4%). In the study of Dugaret et al.⁸, the regions where PIs developed most frequently were the heels (42.4-46.1%), sacrum (48.7-49.3%), and hip (5.2-7.8%). In the current study, seven (57.14%) PIs were stage 1 and 28.57% of them were stage 2; the majority of them (71.4%) were found to have developed due to the use of medical devices such as a nasal cannulas or masks, and were localized in the ear (71.4%) (Table 2). Patients who are admitted to an ED must receive medical interventions as soon as possible,²⁰ and during medical interventions, tools such as catheters, oxygen cannulas/masks, intubation ties, etc. are often used. It has been emphasized that the PIs found in EDs are often in the earliest stages and that they are associated with the use of medical devices.^{22,29} These data reveal that healthcare professionals working in EDs should take precautions to protect patients from PIs, and especially from medical device-related PIs.

Although the hospital stay of the patients is shorter compared to inpatient and intensive care units, the risk of developing PIs is higher due to the patients' profiles and characteristics, and the equipment and treatment used in the EDs.^{8,22} Healthcare professionals in EDs consider resolving the acute problems affecting their patients' lives as their top priority and focus on this.^{20,21} This situation may cause them to ignore PIs. Padula and Pronovost²⁰ stated that healthcare professionals focus little on the preventing PIs during the immediate follow-up, and they mostly monitor acute problems since the priority in the emergency room is to address the patients' acute problems.

Healthcare professionals working in these departments should evaluate patients holistically, take measures to prevent possible problems such as PIs while solving existing problems, evaluate the patients' risks of PIs, and provide treatment and care for PIs.^{15,21,30} It has been recommended in the clinical guidelines that patients in EDs should be evaluated for PI risk within the first eight hours, and that other healthcare professionals

Table 6. Distribution of PI knowledge scores of the emergency healthcare professionals according to socio-demographic characteristics

Socio-demographic characteristics		r*	p			
Age (years) (n=31)		0.083	0.659			
Total years of employment (n=33)		-0.163	0.365			
Years of employment in the emergency department (n=33)		0.082	0.649			
		n	Mean	SD	H/U	p
Education level	Bachelor's	17	58.35	12.96	3.963 ^H	0.138
	Master's	13	49.23	12.47		
	PhD	3	52.00	12.00		
Status of previously working with a patient with PIs	Yes	25	56.00	13.61	63.50 ^U	0.123
	No	8	48.50	9.89		
Status of receiving training about PIs	Yes	14	60.28	13.53	65.50 ^U	0.013
	No	19	49.68	11.02		

*pearson correlation co-efficient, H: Kruskal-Wallis H test, U: Mann-Whitney U test, SD: standard deviation.

should be informed about PIs in patients when they are transferred to different units (intensive care units, wards, etc.) or sent home after follow-up.^{20,29}

Healthcare professionals should have sufficient knowledge about the diagnosis, risk assessment, categorization of stages, prevention, treatment, and care of PIs.^{8,21} We determined that the mean score of the healthcare professionals in EDs for the PI knowledge form was 54.18 ± 13.08 out of 100, and the most well-known subjects were categorization of stages, prevention, definition and evaluation, treatment and care, respectively. However, the total score was lower than expected (Table 5). There are many studies relating to the knowledge of nurses and nursing students about PIs.^{31,32} However, the number of studies on healthcare professionals working in EDs in terms of their level of knowledge of PIs is quite limited, and they have generally determined that the knowledge of healthcare professionals is at a moderate or lower level.^{21,31,33} Rafiei et al.³³ found that nurses working with trauma patients in the ED had the greatest knowledge about the characteristics of wounds (77.3%), while they had the lowest knowledge (57%) about the onset of PIs. Ham et al.²¹ conducted a single-group pre-post-test intervention study on nurses and physicians in an ED and they emphasized that training improved their ability to define and categorize stages of PIs. The healthcare professionals in the current study did not have the desired knowledge levels regarding PIs, and therefore their knowledge should be improved by training.

The prevalence of PIs is considered to be a quality indicator for healthcare institutions, and a patient outcome affected by nursing care.^{34,35} In this context, the training given to healthcare professionals in EDs is very important in reducing the prevalence of PIs.²¹ In the current study, the fact that the total knowledge scores of the healthcare professionals who had received training on PIs were significantly higher supports this finding (Table 6). It has been recommended that periodically repeated training programs on the diagnosis, categorization of stages, prevention, treatment, and care of PIs be provided.^{8,21,31,33}

Study Limitations

This study has some limitations. First, this study was conducted in the ED of a state university hospital, and therefore the data represents a single center. This was accepted as a limitation. Secondly, this study was the first pilot study conducted in the ED and it was descriptive. In this

study, all of the patients who stayed in the ED for more than 2 hours constituted the sample of the study. Therefore, the age range of the patients included in the sample was wide and it was determined that those patients who developed PIs were 50 years or older. In the future, it is recommended to conduct in-depth studies investigating the PIs risk factors specific to patient groups and the ED.

CONCLUSION

PIs are a serious problem which occur after patients have been hospitalized in EDs and they tend to increase during follow-up.^{8,9,29} The intensive follow-up period and the critical status of patients in EDs further increase the risk of developing PIs.⁸ As the primary goal of emergency healthcare professionals is to solve the acute problems of their patients, PIs remain only a background concern from the moment the patient enters the ambulance. In this study, the prevalence of PIs shows the need to place more emphasis on this problem. The moderate level of knowledge of emergency healthcare professionals regarding PIs can be considered to affect their prevalence. The prevalence of PIs is one of the quality indicators and nursing care-responsive patient outcomes.^{34,35} Healthcare institutions should organize training programs and comprehensively evaluate the measures they are taking for the prevention, treatment, and care of PIs in all care areas and clinics.

MAIN POINTS

- Patients in EDs form a risk group for PIs.
- The risk of PIs remains in the background as the primary aim of emergency room staff is to solve the patients' acute problems.
- Emergency health staff have a moderate knowledge of PIs.
- The prevalence of PIs in the ED is a reflection of the knowledge and practices of healthcare professionals working in these units.

ETHICS

Ethics Committee Approval: Ethical committee permission from Yildirim Beyazit University Ethical Committee (approval number: 240, date: 2018) and official permission from the institution were obtained in order to conduct this research.

Informed Consent: The verbal and written consent of all the nurses, physicians, and patients who voluntarily agreed to participate in this study was obtained.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: G.Y., Design: G.Y., D.A., S.G., H.B., Z.G.B., A.D., Supervision: G.Y., S.G., H.B., Z.G.B., A.D., Data Collection and/or Processing: G.Y., Analysis and/or Interpretation: G.Y., D.A., S.G., H.B., Literature Search: G.Y., Writing: G.Y., D.A., S.G., Critical Review: G.Y., H.B., Z.G.B., A.D.

DISCLOSURES

Conflict of Interest: No conflict of interest was declared by the authors.

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