

Use of Physical Assessment Knowledge Skills and Educational Requirement Levels of Emergency Nurses: A Quantitative Study

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Abstract

Physical assessment, which is a professional nursing practice, is an important component in making a nursing diagnosis, planning patient-centered goals, and evaluating patient outcomes by making appropriate interventions. The research has been done to determine the level of information and skill about the physical assessment and training requirements of emergency nurses. The descriptive research has been done with the participation of 130 nurses, who are working in adult emergency room. The data has been collected with nurse information form and physical assessment skills assessment form. It was determined that the physical assessment skills of the nurses, which had the highest level of knowledge and skill, were vital findings, skin and neurological evaluation, and the evaluation of genitourinary system was the lowest. Nurses stated that they need training for heart-peripheral vascular system, thorax-lung and neurological assessment. In the research, it is determined that the nurses did not use physical assessment skills at desired level. Although the physical assessment knowledge and skill levels of some nurses were high and the frequency of application was high, it was found that the nurses who see physical assessment among their roles were high in the training requirements related to the same fields.

Keywords

Educational requirement, emergency nurses, nursing assessment, physical assessment, physical assessment knowledge physical assessment skills

INTRODUCTION

Today, the development of technology, the aging of the population, socioeconomic and political reasons bring rapid changes in health care systems. Considering the complexity of patient care along with these changes, the need for qualified nurses increases, and there is a development and change in the roles of nurses. [1][2] Along with the developing nursing roles in this direction, it is argued that physical assessment is one of the most important roles of nurses and has become a basic nursing skill. [3]

Nurses must be adept at identifying patient care needs and making assessment-based decisions to meet patient needs effectively. [3] Physical assessment contributes to the collection of objective data for the nursing process that directs nursing interventions to practice and to the appropriate interpretation of subjective and objective data about the individual. [4][5] Providing effective and holistic care is possible when nurses understand and evaluate the underlying pathology by using inspection, palpation, auscultation and percussion methods that can only be done through physical assessment. [5][6] The necessity of nurses to perform physical assessment, whether there is a nursing role and its content in education programs have been widely discussed. [7][8] The nurse uses the physical assessment as part of the data collection process to formulate a nursing diagnosis, not to draw a firm conclusion about the patient's health, but to

assist in the development of an effective care plan regarding the patient's current and potential condition.

The education of physical assessment in nursing care has become widespread since the 2000s and its role in the evaluation of health has been strengthened. [9] However, studies show that there are some barriers in using physical assessment skills of nurses. These barriers are lack of knowledge, lack of trust [10], the belief that the nurse has no role [11][12][13], lack of physical environment and resources [14], time limitations [12][15], and lack of support from colleagues/trainers in performing the physical assessment. [13][15] Studies on the use of physical assessment skills by nurses in the clinical setting show that nurses do not use these skills at the desired level. [10][15][16] It is stated that nurses have low competency and need training in assessment methods that require special knowledge and skills such as auscultation of heart and lung sounds, deep palpation and percussion [4][12]. It is seen that most of the routinely applied skills are vital signs, skin assessment and neurological assessment. [4][15]

Emergency services are one of the areas where patients who require urgent intervention such as acute illness, violence, injury, pain and death risk apply and work flow is fast. In addition to using professional skills and technological resources, nurses working in these units need to be highly knowledgeable, experienced and specialized in order to ensure emergency patient safety and referral if necessary.

[17] It is a known fact that emergency nurses should be prepared to take care of pediatric and adult patients of all ages in the emergency room and that they should have broad-based training and certain competencies. [18][19] Nurses have an important role in the early diagnosis of patients at high risk of worsening through observing and evaluating patients. In particular, it is of great importance that the emergency nurse evaluates the patients effectively in triage. The nurse's proficiency and timing in physical assessment play a critical role in ensuring positive patient outcomes and safe care. [20] In deteriorating health conditions such as severe pain, active bleeding, stupor or sleepiness, orientation and emotional disorders, dyspnea, cyanosis, excessive sweating and vital signs outside the normal values, which are classified as emergency situations, in order to have the ability to notice any changes in the patient in a timely manner [21], it is very important for the emergency nurse to have knowledge about diseases and physical assessment skills. [22] The physical assessment provides a more complete database for nurses and enhances the nurse's ability to monitor and identify changes in patients and to support patients' functional competencies. Otherwise, delays in the treatment of patients and negative patient outcomes may occur. [20] This study was conducted to determine the physical assessment knowledge and skill levels, frequency of application and training needs of emergency nurses.

MATERIALS AND METHODS

Study Design

This study was conducted a quantitative design study.

Study Setting

The population of the study consisted of a total of 223 nurses working in the adult emergency services of a university hospital and three public hospitals located in the city center of Antalya. This study was conducted between October 2017 and May 2018. This was a descriptive study with a questionnaire design following the STROBE checklist.

Participants

No sample selection was made in the study, and all nurses who met the inclusion criteria were included in the study. The eligibility criteria included the nurses a) Working in the emergency department for at least 6 months, b) Working in the adult emergency department, c) Nursing graduate, d) Volunteering to participate in the research, e) Completely filling in the data collection tool and exclusion criteria from the study included the nurses a) Graduated from Emergency Medical Technician and Emergency Medical Technician, b) Working in pediatric emergency departments of emergency services. In line with the inclusion criteria of the study, a total of 130 nurses were included in the sample.

Data Collection Tools

Sociodemographic Form: The form data was collected using nurse information form. It variables were age, gender,

length of experience working in the emergency department, and viewing physical assessment as its role.

Physical Assessment Skills Assessment Scale: The scale was used to determine nurses' knowledge-skill application status, frequency of application and training requirement. The scale was developed by Bingöl in 2019. [23] The physical assessment skills assessment scale consists of 10 body system sub-dimensions and a total of 56 items of physical assessment skills. Each item is evaluated with likert scales consisting of three parts including knowledge-skill application status, application frequency and training requirement. The structure of the Nurses' Physical Assessment Skills Assessment Scale (Table 1), Cronbach's Alpha Values of the scale total and sub-dimensions are given in (Table 2).

Table 1. Nurses' Physical Assessment Skills Evaluation Scale

Scale Structure	Scale Item Number
Sub-Dimensions	
Vital Signs	6
1. Evaluation of pulse rate and rhythm 2. Measuring body temperature 3. Evaluation of oxygen saturation 4. Evaluation of respiratory rate and depth 5. Manual blood pressure measurement 6. Assessment of pain	
Skin Assessment	5
7. Inspection of the skin (Color/Moisture/Wound/Hair distribution.etc.) 8. Palpation of the skin 9. Evaluation of edema 10. Evaluation of skin turgor 11. Evaluation of nails	
Head-Neck Assessment	14
12. Inspection of the head 13. Facial inspection 14. Inspection of the oral cavity (Teeth, palate, pharynx, tonsils and uvula) 15. Evaluation of airway patency 16. Nasal inspection 17. Neck inspection 18. Inspection of the external structures of the eye 19. Evaluation of extraocular movements 20. Evaluation of visual acuity 21. Inspection of the outer ear 22. Evaluation of the external auditory canal with otoscope 23. Evaluation of speech-based hearing 24. Palpation of the head 25. Neck palpation (Troid/Trachea/Lymph nodes)	
Evaluation of Thorax and Lungs	4

26. Thorax Inspection (Shape of the thorax / Whether it is evenly ventilated or not)	
27. Thorax palpation (expansion of the chest wall and evaluation of sound vibrations)	
28. Thorax percussion	
29. Listening (Auscultation) of lung sounds	
Evaluation of Breast and Axilla	3
30. Breast inspection	
31. Breast palpation	
32. Evaluation of axillary lymph nodes	
Heart and Peripheral Vascular System Evaluation	5
33. Auscultation of heart sounds	
34. Measurement of jugular venous pressure	
35. Evaluation of peripheral pulses	
36. Evaluation of capillary refill time	
37. Palpation of the carotid artery	
Abdomen Evaluation	5
38. Abdomen inspection	
39. Abdomen palpation	
40. Abdominal percussion	
41. Auscultation of bowel sounds	
42. Evaluation of stool by inspection	
Musculoskeletal Evaluation	3

43. Inspection of the musculoskeletal system	
44. Evaluation of joint range of motion	
45. Evaluation of muscle strength	
Neurological Assessment	8
46. Evaluate the speech	
47. Evaluating walking	
48. Mental state-Assess the level of consciousness	
49. Evaluation of the sensory system	
50. Evaluation of coordination	
51. Evaluation of deep tendon and superficial reflexes	
52. Evaluation of pupil size and light reaction	
53. Evaluation of Glasgow coma scale	
Genitourinary System Evaluation	3
54. Inspection of external genitalia	
55. Palpation of external genitalia	
56. Inspection of the anus and rectum	

The knowledge-skill application situation has a 4-point Likert feature and consists of options such as "I don't know", "I know but I can't apply it skillfully", "I can apply it but I can't make sense of it", "I know and I can apply it skillfully". A minimum of 56 and a maximum of 224 points can be obtained from the scale. An increase in the scale score indicates that the level of knowledge and skill of nurses about physical assessment has increased.

Table 2. Cronbach Alpha Values of Total and Sub-Dimensions of Physical Assessment Skills Evaluation Scale

Sub-Dimensions	Scale Item Number	Knowledge-Skill Level α	Application frequency α	Educational Requirement α
Vital Signs	6	.87	.95	.98
Skin Assessment	5	.93	.94	.95
Head-neck Assessment	14	.96	.95	.97
Evaluation of Thorax and Lungs	4	.92	.94	.93
Evaluation of Breast and Axilla	3	.96	.97	.99
Heart and Peripheral Vascular System Evaluation	5	.88	.91	.94
Abdomen Evaluation	5	.93	.94	.97
Musculoskeletal Evaluation	3	.95	.94	.96
Neurological Assessment	8	.94	.95	.97
Genitourinary System Evaluation	3	.85	.87	.97
Scale Total	56	.98	.98	.98

The frequency of application is in a 5-point likert scale, and it is made up of "never", "very rarely (1-2 times a year)", "rarely (1-2 times a month)", "often (1-2 times a week)" and "very often (every shift)" options. A minimum of 56 and a maximum of 280 points can be obtained from the scale. An increase in the scale score indicates that the frequency of nurses' practice in physical assessment has increased.

The training requirement consists of "not required" and "required" options. In the education need scale, the total and subscale scores are converted into scores between 0-100. The scores of 56 items are summed (no requirement: 0, yes: 1) and a raw score between 0 and 56 is obtained. The raw score is divided by 56, which is the total number of items, and a score

between 0-1 is obtained. The score between 0-1 is multiplied by 100 to obtain a total education requirement score between 0-100. The increase in the scores of the nurses from the scale indicates that their educational needs on physical assessment increase.

Statistical Analysis

After the emergency room nurses of the hospitals where the research would be conducted were informed about the research, the consent of the nurses who met the inclusion criteria was obtained. The questionnaire forms were given to the nurses during working hours when they were available, and they were received by waiting for them to be filled in

during working hours.

The data of the study were evaluated in SPSS for Windows Version 16.0. (Chicago, SPSS Inc.) statistical package program, and the number, percentage distributions and average scores were calculated.

Ethical Considerations

Written approval was obtained from the Local Ethics Committee (212-KAEK-20) and the hospitals where the research was conducted to carry out this study. The purpose of the study was explained verbally and in writing to the nurses who participated in the study, and their consent was obtained.

RESULTS

Sample characteristics

It was determined that more than half of the nurses (67.7%) were women, and their mean age was 34.95±8.18. 53.1% of the nurses are undergraduate and 32.3% of them are associate degree graduates. When the working time of the nurses in the emergency service is examined, the rate of nurses with a working time of 4-9 years is 38.5%, and the rate of nurses with a working time of 1-3 years is 30%. 70% of the nurses within the scope of the study stated that they did not receive training on physical assessment, and more than half (64.6%) stated that they had a role in physical assessment (Table 3).

Age (min-max / $\bar{x} \pm SS$)	20-57	34.95±8.18
	n	%
Gender		
Female	88	67.7
Male	42	32.3
Level of education		
Diploma	53	40.8
Bachelor's	69	53.1
Master's	8	6.2
Years of work in ED		
6ay-1 yıl	19	14.6
1-3 yıl	39	30.0
4-9 yıl	50	38.5
≥ 10 yıl	22	16.9
Belief in the role of nurses in performing physical assessment		
Yes	84	64.6
No	46	35.4

Table 3. Nursing characteristics (N=130)

Physical Assessment Skills Assessment Scale

The knowledge-skill level of the nurses' Physical Assessment Skills Assessment Scale sub-dimensions (vital signs, skin, head-neck, thorax-lungs, breast-axillary, heart-PVS, abdomen, musculoskeletal, neurological and gastrointestinal), the frequency of application and the distribution of the scores obtained from the level of education need are presented in Table 4.

Table 4. Mean Scores of Nurses' Physical Assessment Skills Evaluation Scale Sub-dimensions (N=130)

Physical Assessment Items	Knowledge-Skill Level (1-4)	Application frequency (1-5)	Educational Requirement *	
	$\bar{x} \pm SS$	$\bar{x} \pm SS$	n	%
Vital Signs	3.83±.32	4.42±.82	65.26±45.23	
1. Evaluation of pulse rate and rhythm	3.82±.53	4.42±.94	89	68.5
2. Measuring body temperature	3.91±.42	4.50±.93	80	61.5
3. Evaluation of oxygen saturation	3.90±.43	4.49±.91	85	65.4
4. Evaluation of respiratory rate and depth	3.85±.47	4.38±1.00	86	66.2
5. Manual blood pressure measurement	3.90±.46	4.52±.92	81	62.3
6. Assessment of pain	3.60±.83	4.08±1.29	88	67.7
Skin Assessment	3.52±.79	3.37±1.25	75.85±38.80	
7. Inspection of the skin (Color/Moisture/Wound/Hair distribution.etc.)	3.60±.87	3.58±1.39	92	70.8
8. Palpation of the skin	3.45±.94	3.31±1.39	102	78.5
9. Evaluation of edema	3.61±.80	3.52±1.36	101	77.7
10. Evaluation of skin turgor	3.40±.99	3.19±1.43	100	76.9
11. Evaluation of nails	3.56±.83	3.24±1.39	98	75.4
Head-Neck Evaluation	2.58±1.01	2.15±1.04	72.91±36.83	
12. Inspection of the head	3.00±1.23	2.57±1.41	96	73.8
13. Facial inspection	2.98±1.24	2.59±1.38	92	70.8
14. Inspection of the oral cavity (Teeth, palate, pharynx, tonsils and uvula)	2.89±1.25	2.50±1.35	98	75.4
15. Evaluation of airway patency	3.33±1.11	3.16±1.56	108	83.1

16. Nasal inspection	2.78±1.28	2.24±1.39	93	71.5
17. Neck inspection	2.63±1.26	2.21±1.37	97	74.6
18. Inspection of the external structures of the eye	2.75±1.27	2.32±1.42	98	75.4
19. Evaluation of extraocular movements	2.39±1.27	1.82±1.20	96	73.8
20. Evaluation of visual acuity	2.45±1.28	1.81±1.23	92	70.8
21. Inspection of the outer ear	2.29±1.33	1.76±1.23	90	69.2
22. Evaluation of the external auditory canal with otoscope	1.90±1.23	1.64±1.13	94	72.3
23. Evaluation of speech-based hearing	1.96±1.22	1.63±1.16	89	68.5
24. Palpation of the head	2.46±1.31	1.96±1.25	92	70.8
25. Neck palpation (Troid/Trachea/Lymph nodes)	2.34±1.30	1.83±1.20	92	70.8
Evaluation of Thorax and Lungs	2.29±1.13	2.07±1.27	79.42±36.76	
26. Thorax Inspection (Shape of the thorax / Whether it is evenly ventilated or not)	2.62±1.30	2.41±1.47	107	82.3
27. Thorax palpation (expansion of the chest wall and evaluation of sound vibrations)	2.20±1.26	1.95±1.29	103	79.2
28. Thorax percussion	1.99±1.25	1.89±1.33	99	76.2
29. Listening (Auscultation) of lung sounds	2.35±1.28	2.02±1.41	104	80.0
Evaluation of Breast and Axilla	2.45±1.25	1.73±1.01	76.15±42.17	
30. Breast inspection	2.49±1.31	1.77±1.09	98	75.4
31. Breast palpation	2.53±1.31	1.72±1.01	98	75.4
32. Evaluation of axillary lymph nodes	2.32±1.29	1.69±1.02	101	77.7
Heart and Peripheral Vascular System Evaluation	2.47±1.06	2.18±1.22	81.54±35.01	
33. Auscultation of heart sounds	2.39±1.27	2.09±1.41	108	83.1
34. Measurement of jugular venous pressure	2.15±1.21	1.92±1.29	110	84.6
35. Evaluation of peripheral pulses	2.99±1.27	2.72±1.59	103	79.2
36. Evaluation of capillary refill time	2.62±1.35	2.26±1.47	105	80.8
37. Palpation of the carotid artery	2.22±1.32	1.92±1.31	104	80.0
Abdomen Evaluation	2.24±1.13	1.83±1.11	73.54±41.46	
38. Abdomen inspection	2.46±1.28	1.98±1.29	98	75.4
39. Abdomen palpation	2.27±1.26	1.88±1.28	99	76.2
40. Abdominal percussion	2.12±1.27	1.82±1.23	96	73.8
41. Auscultation of bowel sounds	2.24±1.28	1.75±1.14	94	72.3
42. Evaluation of stool by inspection	2.12±1.30	1.73±1.19	91	70.0
Musculoskeletal Evaluation	2.44±1.22	2.09±1.28	76.67±40.80	
43. Inspection of the musculoskeletal system	2.38±1.28	2.05±1.33	100	76.9
44. Evaluation of joint range of motion	2.33±1.30	2.08±1.36	99	76.2
45. Evaluation of muscle strength	2.61±1.28	2.15±1.34	100	76.9
Neurological Examination	2.97±.99	2.90±1.32	79.33±36.62	
46. Evaluate the speech	3.24±1.11	3.31±1.56	100	76.9
47. Evaluating walking	3.27±1.10	3.19±1.57	101	77.7
48. Mental state-Assess the level of consciousness	3.22±1.13	3.26±1.56	104	80.0
49. Evaluation of the sensory system	3.06±1.21	2.92±1.55	104	80.0
50. Evaluation of coordination	3.05±1.18	2.91±1.57	102	78.5
51. Evaluation of deep tendon and superficial reflexes	2.37±1.24	2.18±1.47	105	80.8
52. Evaluation of pupil size and light reaction	2.75±1.25	2.56±1.48	102	78.5
53. Evaluation of Glasgow coma scale	2.82±1.27	2.88±1.61	107	82.3
Genitourinary System Evaluation	2.07±1.09	1.67±1.01	68.21±45.25	
54. Inspection of external genitalia	2.39±1.34	1.86±1.28	90	69.2
55. Palpation of external genitalia	1.98±1.23	1.59±1.07	88	67.7
56. Inspection of the anus and rectum	1.85±1.16	1.55±1.04	88	67.7
Physical Examination Skills Evaluation Scale Total	2.75±.76	2.53±.86	74.68±29.01	

* Only the numbers and percentages of those who said “education is required” are given.

Knowledge-Skill Level Scores of Physical Assessment Skills Evaluation Scale Items and Sub-Dimensions

When the knowledge-skill level scores of the Physical Assessment Skills Assessment Scale were examined, it was found that the nurses' vital signs (3.83±.32), skin evaluation (3.52±.79) and neurological assessment (2.97±.99) knowledge-skill level scores were very high. It was determined that the body system with the lowest physical assessment knowledge-skill levels of the nurses was gastrointestinal (2.07±1.09). When the items in the sub-dimensions of the Physical Assessment Skills Assessment Scale were examined, it was figured out that the lowest mean score of the head and neck assessment sub-items was evaluation of the ear with otoscope (1.90±1.23) and evaluation of speech-based hearing (1.96±1.22).

Application Frequency Scores of Physical Assessment Skills Evaluation Scale Items and Sub-Dimensions

Application frequency scores of the Physical Assessment Skills Assessment Scale were found as vital signs (4.42±.82) skin evaluation (3.37±1.25). It was determined that the neurological assessment (2.90±1.32) was very high and the body system with the lowest frequency of application was the genitourinary system (1.67±1.01). Other systems with low mean scores were breast axilla (1.73±1.01), abdomen (1.83±1.11), thorax-lung (2.07±1.27) and musculoskeletal system (2.09±1.28). It has been determined that 15 skills, which are frequently used by nurses, include all sub-dimensions of vital signs and skin assessment, speaking, walking and evaluating mental status-consciousness level from neurological assessment sub-dimensions, and

evaluation of airway patency from head-neck evaluation sub-dimensions. (Table 2). It is obvious that the 15 skills, which are frequently practiced by nurses, include all sub-dimensions of vital signs and skin evaluation, speaking, walking and evaluating mental status-consciousness level from neurological assessment sub-dimensions, and evaluation of airway patency from head-neck evaluation sub-dimensions (Table 4).

Educational Requirement Levels of Physical Assessment Skills Evaluation Scale Items and Sub-Dimensions

When the educational requirement scores of the Physical Assessment Skills Evaluation Scale were examined, nurses were observed to have the highest level of training needs regarding the heart and PVS assessment (81.54±35.01) sub-dimension. The sub-dimension with the lowest education requirement of nurses was determined as vital signs (65.26±45.23) (Table 4).

The mean scores of the nurses from the Physical Assessment Skills Evaluation Scale according to their physical assessment skills were given in Table 5. In the study, it was determined that the nurses' knowledge and skill levels (2.93±.67) and the frequency of application (2.90±.88) regarding the multiple method, among the physical assessment skills used in the evaluation of the systems in the sub-dimensions of the Physical Assessment Skills Evaluation Scale, had the highest average score. It was understood that the multiple method was followed by inspection with a mean score of 2.67±.91. Auscultation (78.46±33.94) was determined as the physical assessment skill that nurses need the most training.

Table 5. The Average Scores of the Nurses from the Physical Assessment Skills Evaluation Scale According to their Physical Assessment Skills (N=130)

Physical Examination Skills	Item Number	Knowledge-Skill Level		Application frequency		Educational Requirement	
		Lowest/highest	$\bar{x} \pm SS$	Lowest/highest	$\bar{x} \pm SS$	Lowest/highest	$\bar{x} \pm SS$
Inspection	16	1-4	2.67±.91	1-4.63	2.32±.93	0-100	73.37±31.36
Auscultation	3	1-4	2.33±1.10	1-5	1.95±1.14	0-100	78.46±33.94
Palpation	11	1-4	2.56±.84	1-4.73	2.16±.85	0-100	75.66±31.21
Multiple Methods	26	1.54-4	2.93±.67	1.23-5	2.90±.88	0-100	74.64±29.13

DISCUSSION

The current study focused on determining the physical assessment knowledge and skill levels, frequency of application and training needs of emergency nurses. It is very important for nurses working in the emergency room to provide fast and safe care to patients, to detect patients at risk of worsening early [21] to apply physical assessment knowledge-skills for the referral of patients if necessary. [22] The importance and necessity of using the physical assessment knowledge and skills of nurses in the clinic is emphasized in many studies. [8] [24][25][26][27] The findings obtained from our study were discussed under three

headings in line with the literature and research questions.

Knowledge-Skill Level

In the study, it was found out that the body systems with the highest level of knowledge and skills of nurses were vital signs, skin assessment and neurological assessment, respectively. A study determined that 30 skills were used routinely and 79 out of 126 skills were not used in the clinical setting. [28] Changes in the health system and increasing responsibilities require nurses to gain advanced knowledge and skills. [1] Considering that nurses working in the emergency department have to manage high-risk patients who require urgent intervention, it is very important to observe the vital signs, level of consciousness, skin and

trauma symptoms of the patients in the early period. It is possible for nurses to manage the care of patients by making the right clinical decisions. Since vital signs and neurological evaluation are required, especially in basic and advanced life support, it is thought that nurses' physical assessment skills related to these areas more frequently are effective in finding high levels of knowledge and skills in these areas.

In our study, it was determined that nurses' knowledge-skill level of application of genitourinary system, speech-based hearing and evaluation of the ear with otoscope and percussion of the thorax was very low. In a study was determined that 71 out of 126 physical assessment skills were not known how to be performed by nurses. [1] It is thought that nurses do not have the opportunity to develop these skills and their knowledge-skills are low because the majority of patients who come to the emergency department with gynecological, eye, ear, nose and throat complaints are referred to the relevant polyclinics for assessment or are discharged after the assessment. In addition, the use of technological tools (radiography, ultrasound, etc.) in the diagnosis and treatment of these patients is seen to affect this situation. In the study, it was determined that the frequency of application of the skills with a high mean of knowledge-skills in FMSQ of nurses was also high, and the frequency of application of items with a low mean of knowledge-skills was also found to be low, which is consistent with the literature. There are studies showing that having good knowledge increases the practice of physical assessment skill. [27][29]

Nurses use inspection, auscultation, palpation and percussion skills while performing the physical assessment. In the study, it was observed that the knowledge-skill levels of the emergency room nurses about multiple methods and inspection were high, but their knowledge and skills levels about auscultation were very low. With nurses working in internal, surgical, intensive care and emergency departments, determined that nurses felt the least competent in auscultation of heart and lung sounds and spine assessment.[4] In other it was stated that most of the routinely applied skills were skin assessment and general observation (inspection), and spinal assessment, auscultation (heart, abdominal and lung sounds) skills were not considered as a part of nurses' practice and were considered advanced skills that should be practiced by physicians.[30] The necessity of nurses to perform physical assessment, whether they have a nursing role and the content of their education programs are still controversial in the literature. [10][27]

Application Frequency

The frequency of practice of physical assessment skills by nurses is very important in early detection of changes in the condition of patients in the emergency department and in providing the necessary care. In our study, the frequency of application of physical assessment skills was highest in body systems vital signs, skin evaluation and neurological assessment. In addition, it was determined in the study that the frequency of application of auscultation skills was very

low. A study had similar findings. [31] Registered nurses reported feeling less competent when performing auscultation of heart and lung sounds and examining the spine. Their perceived lack of competence also led to a decrease in the frequency of performing these skills.

It has been observed that nurses evaluate patients' vital signs, skin evaluation, mental status/consciousness level using physical assessment skills, especially inspection and palpation methods [15][16][17][18][27][30] besides, it is understood that they do not use complex palpation, percussion or auscultation skills. More importantly, there are studies showing that even basic vital signs are missed or not performed. [32][33]

In a study nurses' physical assessment performance levels were compared, it was determined that the skills frequently practiced by nurses were mental state, consciousness level and speech evaluation, facial movements and sensory evaluation, and skin evaluation based on general observation and inspection. [34] On the other hand, it was determined that nurses working in Japan used auscultation skills more than inspection in the physical evaluation of the chest. It can be said that the differences in education programs are effective. The inconsistencies between what is taught in educational programs and physical assessment skills performed in practice are still a controversial issue in the literature. [10]

In our study, it was identified that only 15 of the 56 physical assessment skills of the nurses had a high frequency of application (frequently or rarely), and the frequency of application of the other 41 skills was very little (never or very rarely). Similarly, in a study 193 nurses, it was observed that only 30 of the 126 physical assessment skills evaluated were routinely practiced by nurses, 22% were done occasionally or rarely, and 54% were never used. [24] Physical assessment skills that nurses routinely use include assessment and general observation, which are related to cardiovascular and respiratory assessment. A study found that 10 skills such as musculoskeletal, gastrointestinal assessment, and auditory assessment were performed occasionally, while 12 skills such as auscultation of lung sounds, assessment of jugular venous pressure, and abdominal palpation were rarely performed. However, it was determined that the skills that could never be learned and never done were percussion, auscultation and skills that require special techniques or special equipment. [16] Especially basic and advanced life support training is given to emergency room nurses in in-service training programs, and since the content of these trainings covers vital signs, respiratory, circulation and neurological evaluation, it is thought that the frequency of physical assessments in these areas has increased. In a study conducted to determine the learning needs of nurses regarding physical assessment, it was stated that perceived competence was positively related to the frequency of skill use. [4] Competence is defined as a performance level that demonstrates the effective application of knowledge, skill and decision-making. In our study, it was observed that the knowledge-skill levels of the body systems where the frequency of application of nurses was low, was

also low. In this context, it is thought that nurses' frequency of practice may be related to their knowledge-skill levels and their feeling of competence. Institutional requirements change the expectations of nurses in practice. Since institutions determine the physical assessment skills required for various units, there may be unit-specific expectations within health services. [35] The frequency of using physical examination skills of nurses may vary according to the clinics they work. There are sources stating that this may be due to the fact that nurses are competent in the field they work in. [30][34].

When the literature is examined, it is stated that the fact that nurses do not see physical assessment as their role is a hindering factor in the use of physical assessment skills. [29] [36-37] It is important to clearly define the nurse's role and the benefits of practicing these skills in the successful implementation of physical assessment by nurses. In our country, it is stated that in the duties, authorities and responsibilities of emergency nurses, especially the emergency nurse should perform a quick physical assessment of the patient. In particular, determining patient triage, following current and potential problems related to fluid-electrolyte balance, participating in advanced/basic life support practices, etc. In their duties and responsibilities, it is seen that it is necessary to perform a comprehensive physical assessment. [38]

Educational Requirement

In nursing programs, theoretical education is given in undergraduate and graduate education curricula to perform many physical assessment skills. However, very few of these skills are practiced by nurses in the clinic. [1][15][17][24] In the study, the physical assessment skills that emergency nurses need the most training in were determined as heart-PVS, thorax-lungs and neurological system evaluation, respectively. It was stated by the nurses that the fields they needed the least training were vital signs and gastrointestinal evaluation. [4] Respiratory system and abdominal system evaluation of Korean nurses were determined as the two systems that they need training the most. Although the body system with the lowest knowledge-skill levels of the nurses in the study was the gastrointestinal evaluation, the education requirement in this area is quite low.

Study Limitations

Our study had several limitations. A university located within the provincial borders of Antalya is limited to the emergency nurses working in the adult emergency departments of three public hospitals, and the sample may not be representative of Turkish nurses. Since the study was on a voluntary basis, self-reported data may cause bias, as volunteer nurses may be more interested in the subject and may be more likely to perform physical assessments. Therefore, the frequency of performing physical assessments is lower than those indicated in the scale and there may be a need for training on different body systems.

CONCLUSION

The results show that emergency nurses do not use a significant part of their physical assessment skills. It was determined that the knowledge-skill levels and application frequency of multiple methods and inspection of emergency nurses were high, but their knowledge-skill levels and application frequency regarding auscultation were very low. Nurses mostly need training in the fields of heart-PVS, thorax-lungs and neurological system evaluation. It is clear that training on physical assessment needs a continuity that starts with basic nursing education and should continue throughout their professional life. It is seen that it is necessary to integrate physical assessment training into both certificate training and in-service training programs of emergency nurses. In addition, it will be important to conduct studies to determine the effect of physical assessment on patient outcomes in the clinical setting.

Emphasis should be placed on areas where the level of knowledge and skills of emergency nurses is low and the need for education is higher. Therefore, we believe that effective physical examination will contribute to assuring the quality of patient care and to nurses' perception of physical examination as their role.

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