

## Competence of the Nurse in Emergencies of Burn Injuries

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### Abstract.

Burn injuries cover a wide range of injuries to the health and lives of victims. They can cause severe general illness caused by local body damage, affecting all organs and systems. The provision of medical care to burn victims is subject to life-saving actions in all emergencies, regardless of the type of injury, must ensure that the victims maintain vital functions (breathing and circulation). The transportation time of the victim from the moment of the accident to the hospital is essential, as the place of treatment is determined by a number of factors. The aim of the study is to establish the competence of the nurses from the emergency rooms for professional behavior in emergency conditions of burn victims. The research used a documentary method, sociological and graphic methods. The sociological survey was conducted in the period 2018/2019 among 355 nurses working in the emergency departments in nine settlements within the country. Regarding the practical training of the respondents, it is found that 26.49% partly have skills in burns care, 20.56% are those who cannot judge or said no. 38.80% have some preparation for providing first/emergency medical care to victims, 20.20% of them cannot judge, 18.30% indicated negative answers. The timely, adequate and professional behavior of nurses in providing first aid is important for the outcome of the trauma. Increasing their professional training will allow to improve the knowledge and practical skills to perform on indications and in full emergency care in fires, or other causes.

**Keywords:** burns; nurse; professional training; behavior; emergency.

## 1. Introduction

Burn injuries cover a wide range of injuries to the health and lives of victims. They can cause severe general illness caused by local damage to the body, affecting all organs and systems of the body.

The principles of providing medical care to burn victims are subject to the general rules for life-saving actions in all emergencies, regardless of the type of injury, ie they must ensure the maintenance of vital functions of the body (respiration and circulation). The term for transportation of the victim from the moment of the accident to the hospital is essential, as the place of treatment is determined by a number of factors.

Medical specialists from all structures and areas of health care need to be competent in providing emergency care in occupational accidents, emergencies, accidents, incl. burns or other accidental injuries.

In the case of burns, the first action at the scene of the accident involves terminating the agent and preventing it from spreading further. Ways to deal with it depend on several factors, such as the location of the lesion, clothing, available resources and materials to help.

Pre-hospital behavior and first aid at the scene of the accident are essential for the life of the victim, the upcoming treatment process and the consequences of the trauma. In global practice, care for burn victims includes updating and using existing WHO guidelines - for example, the Guidelines for the provision of medical care contained in the Integrated Emergency and Basic Surgery Management Toolkit (IMEESC) and the resource guidelines contained therein in Guidelines for Basic Trauma Care (Димитрова, 2019).

The clinical manifestation of the trauma is easy to diagnose, but the treatment of the trauma is extremely difficult with the highly specialized competencies of medical teams of diverse specialists - plastic surgeons, anesthesiologists and resuscitators, pediatricians, microbiologists, nurses with different professional qualifications (surgical, anesthesiological and resuscitation), rehabilitators, psychologists. In most cases it is a severe general disease caused by local lesions affecting all organs and systems of the body. Local changes in wounds depend on a number of factors: the type of agent, the extent of the burn, and the severity of the injury. The specifics of these conditions require continuous medical care and monitoring by doctors and nurses, using highly specialized approaches and methods of treatment. The level of competence determines a mandatory volume of general medical, surgical and therapeutic diagnostic and treatment activities, providing a multidisciplinary approach in the treatment of patients with burns (Наредба № 6 от 24.08.2015 г.).

In Bulgaria, the nurse works in cooperation and partnership with members of medical teams in all areas of the health system. When carrying out the medical-diagnostic process in case of burns, the nurses (health care specialists) perform general medical and specific activities, according to the specifics of the structure in which they work, supporting the doctor's activity and performing the manipulations assigned by him independently or under his control, according to their competence (Наредба № 1 от 8 февруари 2011).

Modern conditions require nurses to update and expand their knowledge and skills to respond to the challenges of medical practice (Александрова, 2007). The ability to assess the patient's condition and make informed decisions about emergency actions are related to certain responsibilities of the profession, on which the good results in treatment depend (Богданова, 2019).

## 2. Methods

The research used a documentary method related to the study of literature sources on the studied phenomenon, sociological and graphic methods. The sociological survey was conducted in 2018/2019 and covers 355 nurses working in the emergency departments of hospital care, medical centers, diagnostic and consulting centers and branches of emergency medical care in Sofia, Vratsa, Blagoevgrad, Sandanski, Kardzhali, Devin, Smolyan, Chepelare, Varna.

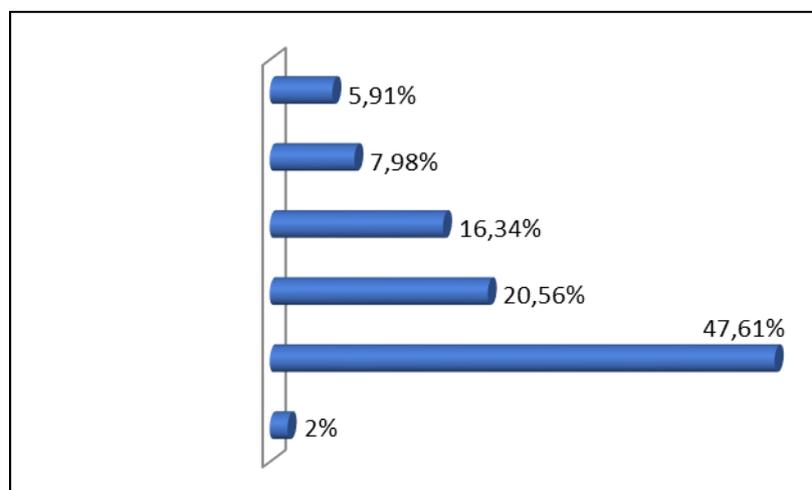
## 3. Results

The age characteristic shows that the largest relative share are the specialists in the age group from 51 to 60 years (38.96%), on second place are the persons between 41-50 years (32.47%), followed by those between 31-40 years (27.32%). The group of persons under 30 has the lowest relative share (2.25%).

Regarding the length of service, it is established that 39.15% of the respondents have the longest length of service in the range between 11-20 years, followed by those between 21-30 years of length of service (30.14%), and persons up to 10 years of experience are 22.25%. 5.07% are specialists with experience between 31-40 years and 3.38% of respondents over 40 years.

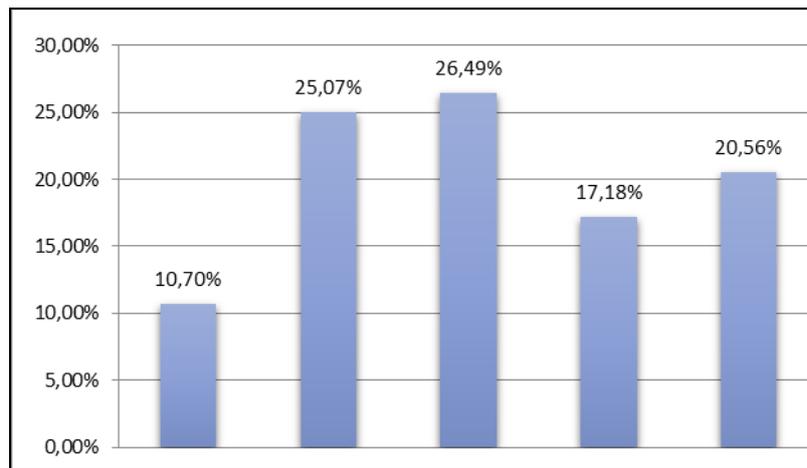
The results of the research regarding the educational degree show a great variety. The respondents with higher education have the largest relative share (47.61%), followed by the persons with a specialist degree (20.56%) and 16.34% of the respondents have a bachelor's degree in health care. The respondents with secondary special education have the lowest relative share (2%) (Fig. 1).

Figure 1: Distribution of respondents by educational degree



In a survey of the respondents' self-assessment in terms of practical training, it was found that 26.49% partly have skills in caring for burns, 25.07% give a positive answer, and 10.70% of them give a "yes" answer. Not a small relative share (20.56%) are the persons who cannot judge and those who indicated a negative answer (Fig. 2).

*Figure 2: Self-assessment in terms of practical care preparation*

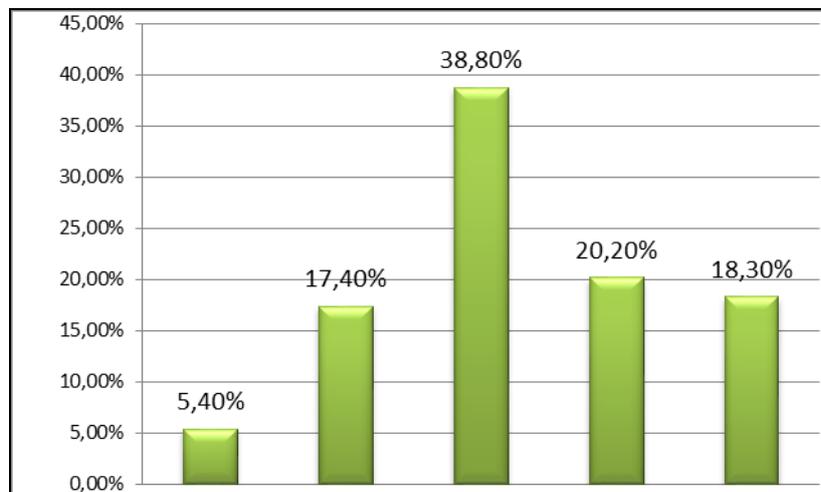


Medical professionals from all healthcare structures and areas need to be competent in emergency care in the event of a fire, which may be due to emergencies or other causes. However, the results of the study show that the training of healthcare professionals is significantly insufficient.

The principles of first aid are subject to the general rules for such actions, i.e. they must ensure that the victim maintains the vital functions of the body (respiration and circulation). After the life-saving activities are undertaken, attention is focused on wound care and includes only covering with clean, dry and, if possible, sterile materials. The time for transporting the victim to a hospital is within 30 to 60 minutes from the moment of the accident, and the place of treatment is determined by a number of factors.

Regarding the self-assessment of the specialists regarding their practical preparation for first / emergency combustion, it is established that 38.80% have some preparation for first aid in case of combustion, 20.20% are those who cannot judge, and the negative answers are 18.30%. A positive answer "yes" was indicated by 17.40%, and an answer "definitely yes" by only 5.40% (Fig. 3).

*Figure 3: Willingness to provide first / emergency aid to victims in case of combustion*



In the course of the study, we examined the desire of medical professionals to participate in training on the topic of burns. A significant part of the respondents (88.31%) have a desire to learn and improve their professional knowledge and skills, as 57.14% of them give a definite answer, and 31.17% indicate the answer "yes, in part". With the smallest relative share (2.60%) are the specialists for whom this is not necessary and 4.54% of them indicate the answers "partly not" and "I cannot judge". These results correspond inversely to the frequency of assistance provided in the event of burns. 41.60% of the respondents did not have a case to provide assistance to victims, and 41.60% of them very rarely had such a case to provide medical assistance (Table 1).

Table 1. Frequency of cases of burn assistance and willingness to train

			Willingness to participate in postgraduate training courses on the causes and behavior of wound surfaces					Total
			Yes, completely	Yes, partly	Partly No	No	I can not decide	
Frequency of burn care / care provided	Yes, often	Number	12	4	0	0	2	<b>18</b>
		% in the group	7.8	2.6	0.0	0.0	1.3	<b>11.7</b>
	Rarely	Number	50	19	2	1	0	<b>72</b>
		% in the group	32.5	12.3	1.3	0.6	0.0	<b>46.8</b>
	No	Number	26	25	5	3	5	<b>64</b>
		% in the group	16.9	16.2	3.2	1.9	3.2	<b>41.6</b>
<b>Total</b>		Number	88	48	7	4	7	<b>154</b>
		% in the group	<b>57.1</b>	<b>31.2</b>	<b>4.5</b>	<b>2.6</b>	<b>4.5</b>	<b>100</b>

## 4. Discussion

The distribution of the respondents by age groups is wide, as the youngest participant in the survey (n = 355) is 26 years old and the oldest is 63 years old. Regarding the length of service, it is established that with the largest 39.15% of the respondents work experience in the range between 11-20 years, followed by those between 21-30 years of experience

(30.14%) and over 30 years with 2.25%. The results show a tendency to increase the age of nurses in outpatient and inpatient care facilities.

In terms of work experience, the results show that 39.15% of respondents have experience in the range between 11-20 years, followed by those between 21-30 years of experience (30.14%), 5.07% are people with experience between 31-40 years, and 3.38% of respondents over 40 years. The results correspond to the age characteristics of the subjects.

There is a great diversity in the education of the surveyed nurses, which is a result of the reforms in the field of vocational and university education in the country in recent years. The respondents with semi-higher education have the largest relative share (47.61%), followed by those with a specialist degree (20.56%), and those with secondary special education have the smallest share (2%). The results show that there are still nurses with secondary special education in the medical establishments, who are mostly working specialists of retirement age. The specialty Health Care Management is required for those holding senior positions in outpatient and inpatient care facilities.

Various researchers (A global review of burn research, 2008), (Corso et al., 2015), (Tay et al., 2013) point out that burns are among the most devastating of all injuries and represent a major global public health problem. In Bulgaria, burns are commonplace in the home, professional and school environment, but information on the extent of trauma and research on the etiology and characteristics of burns in different age groups are insufficient (Заякова et al., 2014), (Каишева et al., 2018), (Хаджийски, 2008).

The study confirms the results of studies by some researchers (Заякова et al., 2014), (Каишева et al., 2018), (Jordan & Harrington, 1997), (Kohn, 2000), (Meschial & Oliveira, 2014) that the practical training of nurses in terms of medical care for burns is significantly insufficient. A self-assessment of the respondents found that 26.49% had some practical training for burn care, 20.56% were those who could not judge and those who said no were 17.18%.

It is found that 38.80% have some preparation for first aid in case of burns, 20.20% are those who cannot judge, and 18.30% of them have given a negative answer. Only 5.40% gave a definite answer, and 17.40% of the respondents answered "yes". The results demonstrate that additional training courses are needed to fill the gap in nurses' basic knowledge and skills.

A significant part of the respondents (88.31%) have a desire to learn and improve their professional knowledge and skills, as 57.14% of them give a definite answer, and 31.17% indicate the answer "yes, in part". 41.60% of the respondents did not have a case to provide emergency assistance to victims, and the cases for 41.60% of them were very rare.

## 5. Conclusion

Increasing the professional competencies of nurses is a necessary condition for achieving high standards in providing emergency medical care in case of burns. In our country, the practical training and education of health care specialists from all structures in the health system in this direction is difficult due to the limited number of specialized structures for the treatment of burns.

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The timely, adequate and professional behavior of nurses in providing first / emergency medical care is important for the outcome of the trauma. This does not take away or replace the actions of the doctor, but increases the chances of recovery of the victims, whether it is a single person or a mass accident. Increasing their professional training will allow to improve the knowledge and practical skills to perform on indications and in full emergency care in emergencies, fires or other causes.

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