



ANALYSIS OF MAIN DEMOGRAPHIC AND PROFESSIONAL INDICATORS RELATED TO THE ACTIVITIES OF MEDICAL ASSISTANTS WORKING IN THE CENTERS FOR EMERGENCY MEDICAL ASSISTANCE IN THE REPUBLIC OF BULGARIA

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SUMMARY

PURPOSE: The presented article aims to determine the main demographic and professional indicators related to the activities of medical assistants working in emergency medical care in the Republic of Bulgaria.

MATERIAL AND METHODS: In this regard, scientific developments, reports and publications of researchers and experts in this field were studied and analyzed. A survey was conducted through an interview and a direct anonymous survey in the first quarter of 2019 with 325 respondents.

RESULTS: The problems and the current state of the work of the medical assistants working in emergency medical care are the subject of lively discussions on a global and national scale. This emphasized interest and attention stems from the global issues that are the subject of their work.

CONCLUSIONS: Urgent measures are needed to attract young medical assistants to work in emergency medical centers, to provide a sufficient number of medical specialists in the teams, to increase salaries, to provide modern medical equipment, to introduce telemedicine, etc.

Keywords: Center for Emergency Medical Care (CEMC), demographic indicators, analysis, medical assistants, professional indicators,

INTRODUCTION

Emergency medical care in the modern world is perceived as one of the main factors in providing quality medical care to the population. The fight against the COVID-19 pandemic in recent years has confirmed its exceptional role in healthcare.

All this, as a set of facts, gave us reason to analyze the main demographic and professional indicators related to the activities of medical assistants working in emergency care centers, which is the subject of this scientific work.

Emergency medical care centers are medical establishments with continuous round-the-clock operation within the meaning of the Medical Establishments Act. The work schedule is prepared on the basis of 12-hour shifts and team work organization. They consist of an administrative and economic sector, a regional coordination center and branches for emergency medical care, which are located in the district.

The activities of EMCC are:

- providing emergency medical care to sick and injured persons;
- provision of specialized emergency transport to patients, donors and organs, blood, blood components and equipment, national consultants for emergency medical care;
- implementation of training of specialists in emergency medicine and continuous qualification as a basis for training and providing the necessary training of the staff of the centers for emergency medical care.

The above activities of EMCC are carried out by:

1. Stationary teams:
 - a) stationary dispatch teams in the regional coordination centers;
 - b) stationary emergency teams in the branches for emergency medical care.
2. Mobile emergency teams:
 - (a) resuscitation teams (doctor, nurse and driver).In small settlements, due to a lack of staff, resuscitation teams are formed by a medical assistant, a nurse and a driver;

- b) medical teams (doctor and driver);
- c) pre-medical teams (medical assistant and driver);
- d) medical teams (paramedic and driver).

Medical assistants can provide qualified or competent medical care individually or in a team under the guidance of a doctor in all conditions.

The medical assistant can work in the emergency medical units as an assistant to the doctor in the emergency team or an independent team. Assistant to the general practitioner, the doctor in the specialized teams and the anesthesiologist. In the establishments for hematology and transfusiology, for social care, social homes, dispensaries, sports halls, school health centers, medical insurance of summer camps, green schools, excursions and tourist vacations and as a medical specialist in the health services of enterprises.

The organization of the work of the medical assistants working in the system of emergency medical care in the Republic of Bulgaria needs changes. The issues of structure, organization of labor, staffing and material security, the introduction of innovations and methods of management are becoming more and more acute. These changes will increase the efficiency and quality of emergency medical care in order to adequately meet the expectations of the population.

After the accession of the Republic of Bulgaria to the EU, the need to apply uniform high standards in emergency medical care became imperative. As a result of the changes, the requirements for the organizational aspects of medical assistants working in emergency medical care in the Republic of Bulgaria to be placed on a scientific basis have increased significantly. At this stage and in this dynamic progress of the world, the most pressing problems in the field of emergency medical care cannot be solved without a preliminary and comprehensive study of all its interconnected elements.

PURPOSE AND TASKS

The presented article aims to:

- to determine the main demographic and professional indicators related to the activity of medical assistants working in emergency medical care in the Republic of Bulgaria and
- to make recommendations that will ensure the proper functioning of emergency medical care based on analysis.

MATERIALS AND METHODS

In order to achieve the set goals, scientific developments, reports and publications of researchers and experts in the field of emergency medical care were studied and analyzed. A survey was conducted through an interview and a direct anonymous survey in the first quarter of 2019 with 325 respondents working in emergency care centers on the structure, organization and motivation for work of medical assistants and problems in emergency care.

The following statistical methods were used:

I. Descriptive statistics

Univariate frequency tables for the categorical variables with calculation of:

- absolute frequency – number of valid answers for each category of the variable;
- relative frequency – percentage of valid answers for each category of the variable from the total number;
- percentage of valid answers – percentage of valid answers for each category of the variable from the number of valid answers;
- cumulative percentage – cumulative percentage of all categories of the variable.

2. Two-dimensional frequency tables for the categorical variables (Cross tables 2x2 and nxn - depending on the categories of the variables) with calculation of number and percentage of the total number.

II. Graphical Analysis:

- pie and bar charts of the distribution for the categorical variables.

III. Statistical methods for dependencies:

1. Statistical hypothesis testing for dependencies between two categorical variables:

- coefficient χ^2 (Pearson's method) – used in 2x2 Cross-Table when the expected frequencies in each cell of the table is > 5 ;
- Fisher's exact method - used in 2x2 Crosstab when the expected frequencies in some cells of the table is < 5 ;
- linear coefficient χ^2 – used for non Crosstab when the expected frequencies in each cell of the table is > 5 ;
- coefficient χ^2 (Kruskal-Wallis method) – used in non Crosstab when the expected frequencies in some cells of the table is < 5 .

A significance level of the null hypothesis $p < 0.05$ is considered a statistically significant result.

Statistical processing of the empirical data was carried out using a statistical analysis package - SPSS 20 statistical program designed for research in the social sciences and Microsoft Office Excel 2016.

RESULTS

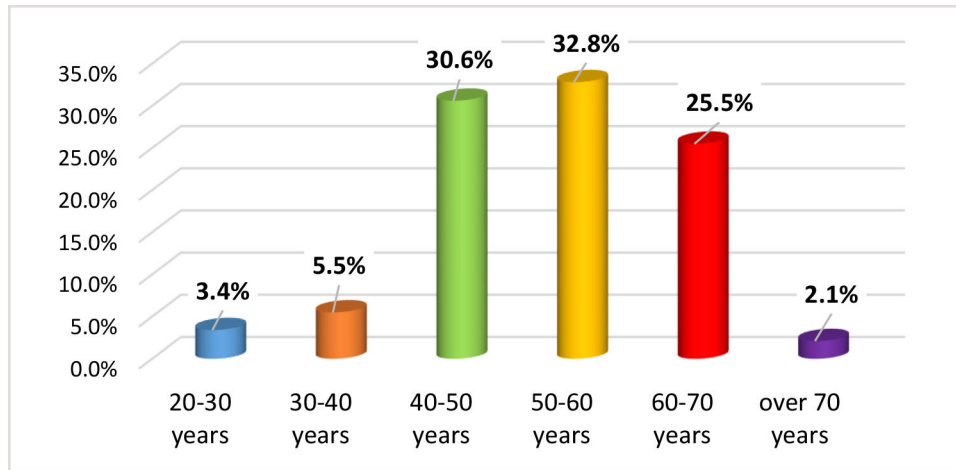
The study showed that in terms of age among the emergency medical assistants, the most representative is the group of those aged 50 to 60 years - 32.8%, followed by those aged 40 to 50 years with 30.6%, almost as many are from 60 to 70 years - 25.5%.

Only 5.5% of respondents are between 30 and 40 years old, and 3.4% are between 20 and 30 years old. It should be noted that 2.1% of emergency medical assistants are over 70 years old.

The age structure of emergency care workers shows an aging trend. In some units, those who have reached retirement age reach 80% of the staff. The group of aging medical assistants is the most numerous (57.9%).

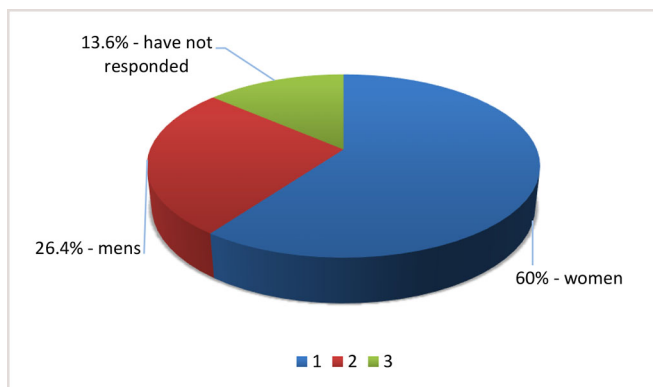
The data are graphically visualized in Figure 1.

Fig. 1. Age of medical assistants working in emergency care centers



The results of the study on the gender of the medical assistants working in emergency medical centers deserve attention.

Fig. 2. Gender of the medical assistants working in the emergency medical centers



The data show that 60% of the total number of surveyed medical assistants are women, only 26.4% are men, and the remaining 13.6% did not answer this question. The profession is largely feminized. This is an extremely unfavorable fact, especially against the background of the shocking manifestations of violence against emergency medical professionals and the ambiguous assessments of public opinion.

In all cases, however, the feminization of medical assistants, as well as many other professions, should not be an occasion to underestimate the qualities and capabilities of

women, but quite the opposite.

The indicator of the number of inhabitants of the area served by the emergency medical assistants who participated in the study varies between 4,000 and 200,000 inhabitants.

The study included emergency medical centers from different municipalities - larger and smaller, as well as different districts of the country in order to obtain a representative sample of more emergency centers. We covered emergency centers with different coverage areas so that we could analyze, summarize and draw conclusions. From the received information related to the structure, organization of work, problems of emergency medical assistants, it turned out that they are almost the same, regardless of the area and the number of residents they serve, the number of general practitioners and whether it is an Emergency Center. Medical care or Emergency Medical Affiliate.

The analysis of the data shows that 43.8% of the medical assistants have a total work experience of up to 30 years, 33.2% up to 40 years, 10.6% over 40 years.

We find this high relative share to be an emanation of the “shortage” of medical assistants and the lack of alternatives for other types of professional employment, resp. the narrow labor market for this age group. The age structure of medical assistants shows extremely negative trends. Only 3.8% of the working emergency medical assistants are in the age category up to 15 years. More than half of them have between 3 and 8 years of work experience.

Table 1 presents the results of the study of the length of service of medical assistants.

Table 1. Duration of work experience in the specialty

Indicator	Years						
	up 5 years	up to 10 years	up to 15 years	up to 30 years	up to 40 years	over 40 years	no answered
%	%	%	%	%	%	%	%
Work experience in the specialty	4,3	2,6	3,8	43,8	33,2	10,6	1,7
Work experience in pre-medical care	8,5	9,8	8,5	37,1	15,7	4,7	15,7

The high relative share of adult medical assistants and the lack of staff is also explained by the facts that describe the main problems in the system - low wages, poor working conditions, stress, psycho-emotional and physical stress, overload, aggression and safety. of the doctors in the emergency medical care in our country. The low relative share of emergency medical assistants with up to 15 years of experience can be assumed to be due to the professional employment of young colleagues in other areas of professional realization - for example, in the system of private medical centers that offer more flexible working conditions.

Regarding the length of service only in pre-medical care (EMCC), the results of the study are similar to those described above. Again, the largest relative share is of emergency medical assistants with up to 30 years of service - 37.1% and 15.7% up to 40 years. It can be assumed that these data are an expression of adequacy to the most basic problems in the health care system in our country.

Fig. 3. Do you encounter aggression at work?

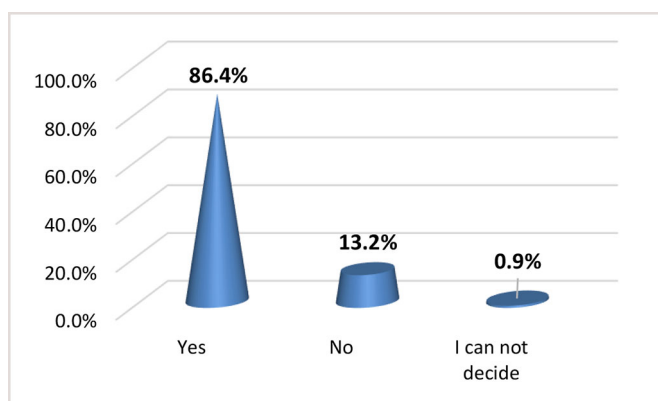
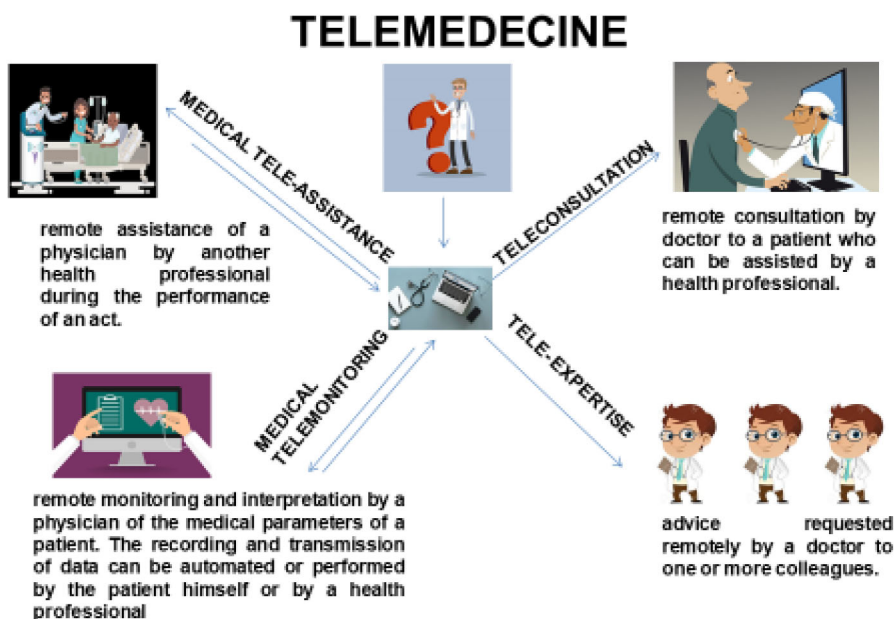


Fig. 4. Essence of telemedicine



Aggression at the workplace is a very difficult factor for professional activity, and as such, it is assessed by the majority of the total number of emergency physicians - 86.4%. Our preliminary expectations were for a minor manifestation of the difficulty in this factor, but medical practitioners believe that aggression greatly limits and hinders their professional activities.

The data from this study are visualized in Figure 3.

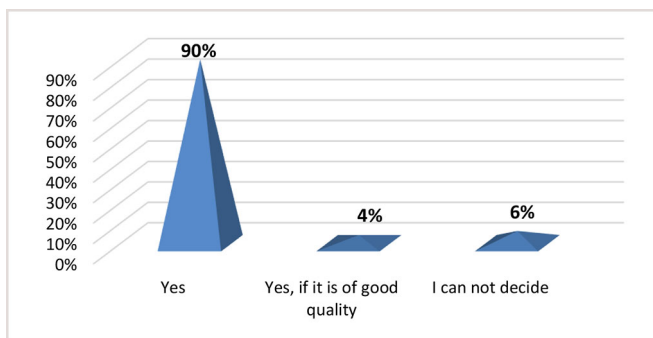
Figure 4 and Figure 5 present the data from the study on the nature of telemedicine and the attitudes expressed for the introduction of telemedicine in pre-hospital emergency medical care in the Republic of Bulgaria.

Telemedicine allows medical assistants to assess, diagnose and treat patients remotely using information and telecommunication technologies. Telemedicine is an evolutionary discovery that can become a very important part of medical science and practice around the world.

In order to effectively apply telemedicine in practice, it is necessary to include work with virtual reality applications in the student's training. Thus, through 3-dimensionality, better visualization of specific medical conditions will be achieved, and potential future errors will be prevented. [1]

90% of the surveyed medics answered positively to the question, "Will the introduction of telemedicine in pre-hospital emergency medical care in the Republic of Bulgaria be beneficial". It is noteworthy that none of the respondents answered in the negative. This gives us reason to conclude that the introduction of telemedicine in pre-hospital emergency medical care in the Republic of Bulgaria will be only for the benefit of medical professionals and patients.

Fig. 5. Will the introduction of telemedicine in pre-hospital emergency medical care in the Republic of Bulgaria be beneficial?



DISCUSSION

The systematic underfunding of the health system has led to an outflow of those wishing to train in medical specialties and the migration of young professionals. Our healthcare system is currently hampered by the palpable shortage of physicians of all specialties and the small number of workers, most of whom are in pre-retirement and retirement age. The problem with a small number of absent medics is vast in small settlements. Another problem is that over 500,000 Bulgarian citizens have no health insurance, and their only free access to medical care is in medical care centers. [2, 3]

After Bulgaria's accession to the European Union, a process of labor migration of medics to Western Europe began, attracted by decent pay, good working conditions and professional development.

Analysis of the composition of emergency workers is found in a number of official documents:

As of 01.01.2014, 6380 medics work in the EMCC, of which 1457 doctors and 2652 medical specialists - paramedics, medical assistants, nurses, midwives and 2 271 drivers.

There are significant differences in the total number of staff in the individual EMCCs. They cannot be objectively argued with the area of the service area in the district, population, etc. [4]

The number of staff in the EMCC as of June 30, 2019, is 7,113 full-time positions. [5]

The Concept for Development of the Emergency Medical Care System in the Republic of Bulgaria 2014 - 2020 states that in areas with approximately similar indicators, emergency care structures have different structure and number of staff, formed on historical and often lobbying principles. The difference in the number of staff is directly related to the lack of precise mechanisms for determining the number and type, as well as the distribution of emergency teams in the individual EMCCs.

The age structure of the staff also points to negative trends. Every fourth employee is between 55 and 65 years old. Only 8% of working medical professionals are under the age of 35 at the same time. [4]

According to Katelieva (2017), doctors from the hospital, who are narrow specialists or specialists, are usually

on duty in the emergency departments. The reason for the turnover is the high workload of the emergency portals, the low pay, as well as the constant conflicts during the hospitalizations with the medics from the hospital or with the emergency teams. In emergency portals, the doctor is pressured by his colleagues from both inpatient and outpatient care, and on the other hand - by the patient who is waiting to receive free and unfailing emergency care. It is also important to put an emphasis on the pharmacological vigilance of emergency physicians for drug effects when administering medication in their work. [6, 7]

Atanasova (2010) focuses on the analysis of the current state of the training needs of the staff in emergency medical care and the practical introduction to the treatment of emergency conditions. According to her and other official sources, outpatient emergency care has traditionally suffered from a shortage of staff, with about 80% employment in the state. The available teams in most places do it but at the expense of overtime and overload. Many workers are of pre-retirement and retirement age and those on a second employment contract, and these compensatory mechanisms allow to maintain the way of providing emergency medical care but are increasingly exhausted. [8, 6, 4]

According to Atanasova (2010) and the Concept for development of the emergency medical care system in the Republic of Bulgaria 2014 - 2020, in emergency conditions, paramedics have relative independence and currently, 40 of the 198 branches of emergency care are served only by medical paramedics due to shortage of doctors. In outpatient emergencies, they are more than doctors, but for 17 years, there has been no entry of new paramedics in the system. [8, 4]

According to the national legislation of 2011 and in particular Ordinance No. February 1, 8 2011 on the professional activities that nurses, midwives, associate medical professionals and health assistants may perform by appointment or independently, paramedics are part of the associate medical professionals, and as such, activities are scheduled that they can perform independently or under the supervision of a physician. [9]

Katelieva (2017) traces that medical assistants (which to some extent can be equated to the American model of medical assistants) practice in all areas of health care, performing the functions of nurses or medical assistants despite the differences in regulations of the Ministry of Health and the Ministry of Labor and Social Policy. According to the Ministry of Health, they are medical specialists, and for this reason, their training in medical colleges has started, and according to the classification of the Ministry of Labor and Social Policy, they are in paramedical specialties. [6]

The analysis of the current state of the training needs of emergency personnel describes that in 2014, the training of medical assistants began at the Medical University - Sofia and the Medical Faculty at the Thracian University - Stara Zagora. The legislation allows medical colleges to start training medical assistants, despite the

fact that in 2014, there are still no adopted state educational requirements for this. Over the next 3 years, while training the first batch of medical assistants, the system will be eliminated due to age or voluntarily indispensable for small branches of medical paramedics, and it will become increasingly difficult to provide teams for graphic shifts [1].

The Ordinance on Uniform State Requirements for Acquiring Higher Education in the Specialties of Nurse, Midwife and Medical Assistant, adopted in April 2016, sets out the competencies of nurses for the bachelor's degree to acquire during their training, the competencies of midwives are updated, and uniform state requirements for the profession of medical assistant are introduced. Katelieva also notes these facts. [6, 10]

CONCLUSION

The study allows us to draw the following conclusion:

Urgent measures are needed to attract young medical assistants to work in emergency medical centers, to provide a sufficient number of medical specialists in the teams, to increase salaries, to provide modern medical equipment and to introduce telemedicine, etc.

Raising the prestige of the profession in society is possible only by improving the quality of emergency medical care, and this will lead to the consolidation of the profession and will attract young medical professionals.

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