



A SURVEY ON CONTINUOUS POSTGRADUATE DISASTER MEDICINE EDUCATION NEEDS IN THE PLOVDIV REGION

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ABSTRACT:

Introduction: Disasters, regardless of their origin, have a direct negative impact on the physical and psychological wellbeing of the population. Medical support for the casualties necessitates specific organization and training of medical personnel. Knowledge and skills in the field are considered to be essential for the execution of a rapid response.

Purpose: The aim of this research was to study the need for postgraduate disaster medicine education for different categories of medical professionals in the Plovdiv region.

Materials and methods: A cross-sectional study was conducted in 2020 through an anonymous inquiry among medical professionals from pre-hospital healthcare, hospital care and the centers for emergency medical aid in the Plovdiv region.

Results: The survey was held among 160 medical professionals. They were interviewed regarding their participation in medical support for disasters or mass casualty incidents. 50,3% of them had such experience. 65% of the respondents evaluated their knowledge of disaster medicine as moderate, while only 18,7% reported high self-assessment. Most interviewees knew the knowledge and skills needed for disaster medical support, but half had never trained in these skills. Almost all respondents - 93,1%, considered disaster medicine knowledge useful for medical practice. 89,4% share the opinion that postgraduate courses were necessary. 93,2% preferred to be trained and educated on the subject by the Medical University.

Conclusions: The results from our survey highlight the lower than expected self-confidence among medical professionals regarding their disaster medical support knowledge and skills. Postgraduate training could improve disaster resilience by increasing skill and confidence.

Keywords: Healthcare Education, Disaster Medical Support, Preparedness,

INTRODUCTION

Disasters, regardless of their origin, have a direct negative impact on the physical and psychological wellbeing of the population.[1] Medical support for the casualties necessitates specific organization and training of medical personnel. This requirement originates from the disaster particularities – the disparity between available and required medical means and capabilities and limited time for reaction, to name just a few. Every country has established and implemented different approaches to disaster medicine training. Knowledge and skills in the field are considered to be essential for maintaining readiness for reaction.

As disasters are rare events and disaster medical support principles and organization are not experienced on an everyday basis, the knowledge acquired during university study slowly fades throughout the years. A logical solution to this problem seems to be the conducting of postgraduate disaster medicine training. The topics have to be precisely chosen with regard to the identified hazards and potential disasters in the region and have to be related to the specific needs of the medical specialists.

PURPOSE

The aim of this research was to study the need for postgraduate disaster medicine education for different categories of medical professionals.

MATERIALS AND METHODS

A cross-sectional study was conducted in 2020 through an anonymous inquiry among medical professionals from pre-hospital healthcare, hospital workers and medics from the centers for emergency medical aid in the Plovdiv region. The questionnaire for the survey consists of three parts. The first is social-demographic. The second includes questions regarding readiness for disaster medical support, practical experience and self-assessment of knowledge and skills. The third part surveys preferences regarding disaster medicine training course and perceived benefits from it. The questionnaire comprises standard mul-

multiple choice questions as well as several 5-point Likert scale type questions.

Analysis, processing and systematization of initial data as quantitative and qualitative variables were performed on the statistics software package IBM SPSS Statistics v.21. For all tests, the level of significance was set at $\alpha=0.05$.

Descriptive analysis was used to describe the structure of analyzed variables. Analysis of variance was used for quantitative variables and frequency distributions for qualitative data. Testing of the statistical hypothesis was made with a Two Samples T-Test and Chi-squared analysis (χ^2).

RESULTS

The survey was held among 160 medical professionals, of which 64,4% (103) are women and 35,6% (57) are men. The majority of respondents (45%) work in pre-hospital healthcare services. 44,4% work in the Center for Emergency Medical Aid (CEMA). 63,1% of all participants are doctors, 28,8% are nursing specialists, and 8,1 are medical college graduates. Table 1.

Table 1. Distribution of respondents according to workplace and occupation.

		No.	%
Workplace	Hospital	17	10,6%
	Pre-hospital care	72	45,0%
	CEMA	71	44,4%
Occupation	Medical Doctor	101	63,1%
	Nursing specialist	46	28,8%
	Med. College graduate	13	8,1%

Median age of the respondents is $49,04 \pm 0,810$ years, in the interval of 22-67 years. The largest group is those 41-50 years of age, followed by 51-60 years. There is no statistical difference in age between the sexes $p=0,356$ ($u=0,926$).

The participants were interviewed regarding their participation in medical support for disasters or mass casualty incidents. 50,3% of them had such experience. The highest percentage was recorded for CEMA employees $P=0,001$ ($\chi^2=36,79$). Table 2.

Table 2. Distribution of disaster medical support experience according to workplace

Workplace		Yes	No	Not sure	Total
Hospital	Number	6	9	2	17
	Percentage	35,3%	52,9%	11,8%	100,0%
Pre-hospital care	Number	20	46	6	72
	Percentage	27,8%	63,9%	8,3%	100,0%
CEMA	Number	54	14	2	70
	Percentage	77,1%	20,0%	2,9%	100,0%
Total	Number	80	69	10	159
	Percentage	50,3%	43,4%	6,3%	100,0%

When asked if they have applied disaster medicine knowledge in practice, 35% answered that they have done so. CEMA employees gave a higher number of positive answers $P=0,001$ ($\chi^2=20,97$).

On the question regarding self-assessment, 65% of

respondents evaluated their knowledge of disaster medicine as moderate. 18,7% consider they are highly knowledgeable. The low self-assessment grade was recorded only in the hospital and pre-hospital care groups $P=0,001$ ($\chi^2=26,40$). Table 3.

Table 3. Distribution of self-assessment grade according to the workplace.

Workplace		Low	Moderate	High	Total
Hospital	Number	5	11	1	17
	Percentage	29,4%	64,7%	5,9%	100,0%
Pre-hospital care	Number	21	41	10	72
	Percentage	29,2%	56,9%	13,9%	100,0%
CEMA	Number	0	52	19	71
	Percentage	-	73,2%	26,8%	100,0%
Total	Number	26	104	30	160
	Percentage	16,3%	65,0%	18,7%	100,0%

Most of the interviewed (73,6%) are aware of the knowledge and skills needed for disaster medical support. Fig. 1. Half of the respondents have never trained in these skills - fig. 2.

Fig. 1. Awareness about knowledge and skills for DMS.

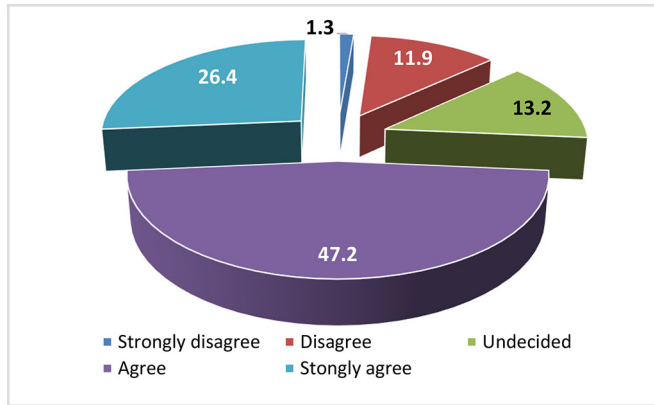
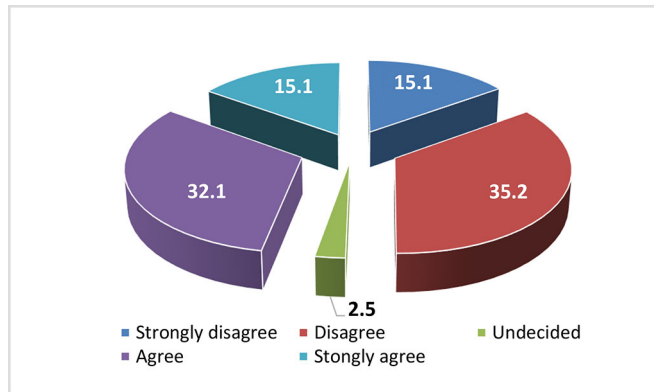


Fig. 2. Participation in skill training.



Almost all respondents (93,1%) consider knowledge of disaster medicine to be useful for medical practice. Fig. 3. 89,4% share the opinion that revision courses are necessary. Fig. 4. A Large part (93,2%) prefer to be trained and educated on the subject by a medical university.

Fig. 3. Opinions regarding the usefulness of DM knowledge.

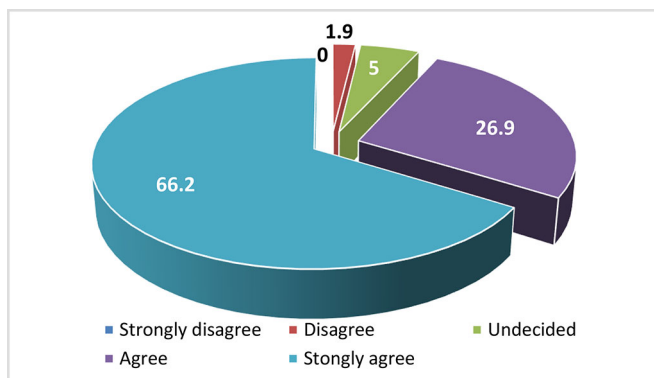
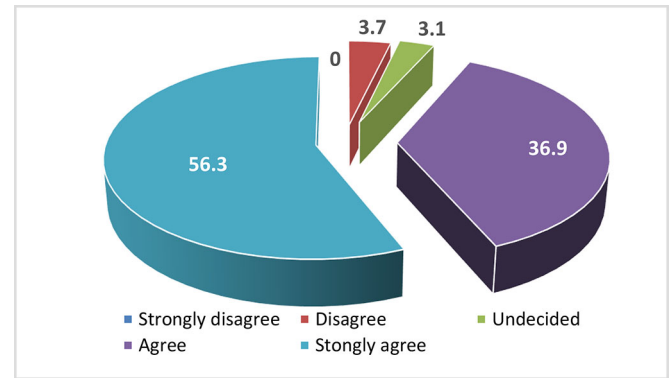


Fig. 4. Opinions regarding the need for revision courses.



DISCUSSION

In the survey, practical experience from disaster medical support was declared by 50,3% of the respondents. This result corresponds to the findings of South Korean researchers Uhm D, et al. [2]. In their study, 53,4% of the interviewed medical professionals have such experience.

Medical professionals working in CEMA declared the highest rates of practical experience. This is expected considering that CEMA is part of the Unified Rescue System of Bulgaria emergency medical teams are among the first responders to any disastrous event. Medical staff from pre-hospital and hospital care also face disaster casualties in their line of work. These results prove that disasters are a real challenge that is a part of medical practice for all medical professionals, and they need to be prepared for them.

Only 35% of the interviewed had used disaster medicine knowledge in their practice. This percentage is lower than those who participated in disaster medical support. A possible cause of this discrepancy could be the fading of knowledge with time if not refreshed or a mismatch between the knowledge that is taught and the needed knowledge.

CEMA employees applied their knowledge more frequently than other medical professionals. This result follows the tendency for CEMA medics to gain more experience and better preparedness.

Practical experience facilitates self-assessment by creating opportunities for self-observation. Knowledge and skills possessed by the individual are compared to those that are considered necessary and sufficient. The highest number of respondents evaluate their disaster medicine knowledge as moderate, while only 18,7% have high self-assessment. A study conducted in Canada found that 52,9% of medical professionals evaluate their knowledge highly. [3] A similar survey in China reported 62,9% moderate and 5,7% high self-assessment. [4] It is important to point out that all medical professionals in our survey had disaster medicine training, while only 4,6% of Chinese medics had such.

Disaster medical support is based on a defined organization, and every medical professional has a specific role and task. Most medical professionals know what skills

they need to have in order to perform their respective tasks. Half of all of the surveyed have never trained them. This is dissatisfying, considering that disasters mandate the activation of all available means and capabilities. Their preparedness is determinative for successful medical response.

Practical training is essential to the activities that build disaster medical support readiness. It is established that they are effective in improving knowledge regarding specific activities, organization and procedures. Also, they improve awareness and thrust, increase self-assessment, and improve understanding of the specific roles and respective tasks. Other frequently reported benefits are identifying shortcomings (in plans, procedures, resources, and communication) and exchanging lessons learned. [5]

In summary, our research has demonstrated that medical professionals realize the necessity of studying disaster medicine because they understand that they can be engaged in disaster medical support. That is why continuous education and training is important for maintaining and enriching knowledge to keep up to date with contemporary scientific achievements. Also, the topics that are discussed should be adapted to the new challenges of our dy-

namic world. [6, 7, 8]

CEMA employees showed the highest results on questions on disaster medicine knowledge and skills. Medics from hospitals and pre-hospital care showed lower self-assessment and a lower percentage of correct answers. Because of this, more efforts should be directed towards continuous disaster medicine training for this part of the medical community.

CONCLUSIONS

The results obtained in our survey highlight the lower than expected self-confidence among medical professionals regarding their disaster medical support knowledge and skills. Those who are participating more frequently in the medical management of disasters and crises are declaring higher readiness and confidence in their preparedness. Postgraduate training in disaster medicine could improve disaster resilience by increasing practical skills and self-confidence among medical professionals of different specialties and levels. The expectations are for initiative from medical universities for the organization and implementation of training program on the subject.

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