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Occupational preparation of paramedics in Poland for the implementation of contemporary objectives of health education

Przygotowanie zawodowe ratowników medycznych w Polsce do realizacji współczesnych celów edukacji zdrowotnej

Key words: health education, paramedic, health.

Słowa kluczowe: edukacja zdrowotna, ratownik medyczny, zdrowie.

Streszczenie: Dzięki wiedzy z zakresu nauk medycznych i zdrowotnych wynikającej z wykształcenia i doświadczenia zawodowego ratownicy medyczni mają możliwość angażowania się w działania edukacyjne mające na celu poprawę stanu zdrowia społeczeństwa. Celem pracy była ocena profesjonalnego przygotowania ratowników medycznych pracujących w zespołach ratownictwa medycznego do realizacji nowoczesnych założeń edukacji zdrowotnej. Badania skierowane były do ratowników medycznych pracujących w zespołach ratownictwa medycznego na terenie Radomia. Zastosowano w nich ankietę diagnostyczną jako metodę badawczą z wykorzystaniem anonimowego kwestionariusza przygotowanego przez autorów. Badanie ujawniło istotne braki i dysproporcje w profesjonalnym przygotowaniu ratowników medycznych pracujących w zespołach ratownictwa medycznego do realizacji edukacji zdrowotnej, zwłaszcza w odniesieniu do poziomu wykształcenia. Chociaż edukacja zdrowotna została wymieniona jako jedno z ustawowych zadań zawodowych ratowników medycznych w Polsce, zawodu tego nie można obecnie zdefiniować jako edukatora zdrowia w ścisłym znaczeniu tego terminu. Zwiększenie kompetencji w zakresie edukacji zdrowotnej wśród członków tej grupy zawodowej wymaga podjęcia odpowiednich środków organizacyjnych, przede wszystkim dotyczących modyfikacji programów nauczania w dziedzinie „ratownictwa medycznego".

Introduction. A growing number of scientific, social, economic and political communities are now working to improve public health. They are guided by the idea of

changing the approach to health care, which consists in strengthening the implementation of prevention and health education among the society.

In the era of civilisational and cultural progress, the idea of education of the society as well as direct or indirect (through educated persons) propagation of health behaviours among all individuals, even those who are sceptical about educational activities directed at them, seems to be valid. It should be concluded that systematic and continuous action to promote health can lead to the acquisition of knowledge and skills of the right lifestyle. A person who has acquired adequate health competences may at certain point become an educator of the surrounding environment [1,2].

The analysis of the available literature shows that despite the existence of numerous publications on health education carried out by doctors, nurses, nutritionists or pedagogues, there is insufficient interest of scientific circles in this area with regard to the professional group of paramedics. Underestimating the educational potential of paramedics is quite surprising, because this profession has been functioning in the Polish health care system for over two decades and is now the basis for the functioning of the State Emergency Medical Services in Poland. Currently, paramedics employed within this system constitute a majority of medical rescue teams in Poland. According to data of the Central Statistical Office (Statistics Poland), 21.6 thousand medical personnel worked in medical rescue teams in 2016, of whom paramedics constituted almost two-thirds of the total number of the employed (64.7%), whereas system doctors – 20.6%, system nurses – 9.8%, and other – 4.9% [3].

Occupational tasks being a part of the profession of a paramedic are specified in the Act of 8 September 2006 on State Emergency Medical Services. Under the Article 11(1) of the Act, they include: performing medical rescue operations, securing persons on the scene of the incident, taking measures to prevent escalation in the number of victims, transporting individuals being in a health threatening condition, communicating with them and providing them with mental support, health promotion and health education [4]. Implementation of the above activities may be autonomous (in basic medical rescue teams - without a doctor) or may take place under the supervision of a system doctor (in the case of specialist medical rescue teams) [5,6].

Considering the above, it should be emphasized that medical rescuers in their professional work are obliged not only to undertake activities directly related to saving human health and life, but also to carry out activities in the field of health education. Providing assistance to haemodynamically and respiratory stable patients, in a situation where there is no time pressure (caused, among others, by the patient's severe health condition) creates an opportunity to undertake educational activities, which, especially in the case of chronic diseases, are one of the basic elements of therapeutic management.

Until now, no detailed scientific research has been conducted with regard to the knowledge level in health education of the paramedics working in medical rescue teams. Given the above facts, it is justified to make an attempt and analyze this important subject matter in this paper.

Material and methods. he study was carried out between 1 August and 30 November 2017. The target group consisted of paramedics working in medical rescue teams in Poland, in the Radom operational area, including the Radom Medical Emergency Station and subcontractors to this unit. According to the data obtained from the Health Department of the Mazowieckie Voivodeship Office in Warsaw, 336 medical rescuers were employed in medical rescue teams in this area during the research period. The study was addressed to all 336 paramedics and participation in it was voluntary. The number of returned and completed questionnaires was 234.

The study employed the method of a diagnostic survey and the tool used for carrying out the research was the anonymous questionnaire, developed by the authors. Statistical analyses were carried out using the Statistica 8.0 software and Microsoft Office Excel 2010 spreadsheet. Dependencies between individual variables were found using linear regression analysis. The level of $p<0.05$ was assumed to be statistically significant.

Results. The characteristics of the paramedics participating in the study include such variables as: gender, age, education and years of professional experience in the medical rescue profession (Table 1).

Table 1. Demographics of research participants

	n	%
Gender		
male	222	94.9
female	12	5.1
Education		
post-secondary	111	47.5
bachelor's degree	78	33.3
master's degree	45	19.2
Age (years)		
23–29	48	20.5
30–39	95	40.6
40–49	49	20.9
50–62	42	18
Years of work		
2 years and less	28	12.2
3–5	57	24.8
6–10	71	30.8
over 10 years	74	32.2

The analysis of 234 questionnaires (n=234) received in the course of the study shows that the vast majority of paramedics working in medical rescue teams were men (94.9%). The highest percentage of the respondents were the medical rescuers aged 30–39 years (40.6%), while the lowest percentage were people aged 50–62 years (18%). The majority of the respondents had post-secondary education and they constituted

almost half of the study participants (47.5%). One third of the respondents (33.3%) stated that they had a bachelor's degree, and only one fifth (19.2%) declared a master's degree. The highest percentage of the respondents had more than 10 years of work experience in their profession (32.2%), the lowest – 2 years or less (12.2%). The average work experience of the paramedics who took part in the study was 9.33 years. Due to an overwhelming predominance of men (over 18 times higher) in the surveyed group, further analyses do not take into account the gender differentiation of the respondents.

Respondents were asked to express their opinions on the effectiveness of the education system of paramedics in Poland in the context of their substantive preparation for the implementation of health education (Table 2).

Table 2. Does the current education system of paramedics prepare them for the implementation of health education?

	definitely yes		rather yes		rather no		definitely no		p-value/ chi-squared
	n	%	n	%	n	%	n	%	
Total	34	14.5	127	54.3	58	24.8	15	6.4	-
Education									0.0139/15.9786
post-secondary	21	18.9	65	58.6	20	18	5	4.5	
bachelor's degree	11	14.2	43	55.1	19	24.3	5	6.4	
master's degree	2	4.5	19	42.2	19	42.2	5	11.1	
Age (years)									0.0217/19.4364
23–29	7	14.6	20	41.6	15	31.3	6	12.5	
30–39	6	6.3	56	58.9	28	29.5	5	5.3	
40–49	11	22.4	26	53.1	10	20.4	2	4.1	
50–62	10	23.8	25	59.5	5	11.9	2	4.8	
Years of work									>0.05
2 years and less	3	10.7	19	67.9	4	14.3	2	7.1	
3–5	8	14	31	54.4	11	19.3	7	12.3	
6–10	9	12.7	36	50.7	23	32.4	3	4.2	
over 10 years	14	18.9	39	52.7	18	24.3	3	4.1	

The vast majority of the respondents (68.8%) expressed their conviction that the current system of education of paramedics in Poland (first degree studies) allows them to be prepared optimally for the implementation of tasks in the field of health education. The opposite opinion was expressed by 73 persons (31.2%) Statistically significant differences were found between the respondents' opinion on the possibility of acquiring appropriate competences to carry out educational activities through the vocational training of paramedics and their education and age. People with lower education and in older age categories were more likely to be positive about this issue. Over 3/4 of the respondents with post-secondary education (77.5%) and over 4/5 of the respondents aged 50–62 (83.3%) expressed their conviction that the current system of education of paramedics allows or rather allows them to prepare themselves for health education. On the other hand, among the respondents with master's degree and in the youngest

age group, the share of respondents presenting such a view was 47.7% and 56.2% respectively.

The study interest was also focused on the ability of respondents to define the term "health education" (Table 3). In the open question "What is health education", 181 out of 234 respondents (77.3%) attempted to define the concept of health education. The remaining persons (22.6%) have not provided any answer in this respect. This may indicate a lack of knowledge of the respondents about health education or inability to formulate a definition of this term.

Table 3. The definitions of the term "health education" proposed by the surveyed paramedics

	health education is the transmission of knowledge about improving health		**health education aims to raise awareness on the role of lifestyle and develop healthy attitudes**		**health education is to disseminate knowledge about the health prophylaxis and disease prevention**		**incorrect definitions**		**p-value/ chi-squared**
	n	%	n	%	n	%	n	%	
Total	59	32.6	96	53	17	9.3	9	5	-
Education									0.0414/ 13.1068
post-secondary	32	40	33	41.2	9	11.3	6	7.5	
bachelor's degree	21	31.3	37	55.3	7	10.4	2	3	
master's degree	6	17.6	26	76.6	1	2.9	1	2.9	
Age (years)									>0.05
23–29	11	31.4	20	57.2	4	11.4	0	-	
30–39	21	28.8	43	58.9	6	8.2	3	4.1	
40–49	17	41.5	15	36.6	6	14.6	3	7.3	
50–62	10	31.2	18	56.2	1	3.2	3	9.4	
Years of work									>0.05
2 years and less	4	18.2	15	68.2	3	13.6	0	-	
3–5	10	22.7	29	65.9	4	9.1	1	2.3	
6–10	17	29.8	30	52.7	6	10.5	4	7	
over 10 years	28	47.5	22	37.3	4	6.8	5	8.4	

The analysis of the replies and their content (n=181) shows that every second respondent (53%) associated health education with its contemporary definitions. While describing the notion of health education, these persons pointed not only to the passing on of information concerning the way of improving human health, but also to activities aimed at raising awareness of the role of a healthy lifestyle and shaping pro-health attitudes. On the other hand, every third respondent (32.6%) associated this concept exclusively with the transfer of knowledge about human health. According to 9.3% of the respondents, health education was understood as all kinds of activities aimed at pro-health prophylaxis and disease prevention. The participants in this group also pointed to

the avoidance of risk factors (reference to disease-oriented health education models and risk factors). Among those who attempted to formulate the meaning of health education, 5% did so incorrectly, associating it only with developing their own knowledge about the profession of a paramedic (in particular with regard to first aid and medical rescue activities) or postgraduate improvement of this professional group. In the course of the conducted research it was observed that the level of education of the respondents significantly differentiated (p=0.0414) their answers with respect to the correct definition of the term "health education". The higher the level of the respondents' education, the more of them associated health education with its contemporary definitions. The highest percentage has been found in the higher education group, amounting to 76,6%, whereas the lowest one was in the group of post-secondary education – 41.2%. Statistical analyses also showed that the age and work experience of the respondents did not significantly differ in the content of the formulated definitions. Nevertheless, it is worth noting that in the categories of respondents with shorter work experience, the percentage of the paramedics correctly defining the term "health education" was higher (referring to its contemporary scientific views).

The respondents were asked to assess the level of their predispositions to carry out educational activities. The data obtained are presented in Table 4.

Table 4. Self-assessment of respondents regarding the level of their predisposition to implement health education

	high		rather high		medium		rather low		low		p-value/ chi-squared
	n	%	n	%	n	%	n	%	n	%	
Total	11	4.7	82	35	126	53.8	13	5.6	2	0.9	-
Education											0,0483/15,6138
post-secondary	2	1.8	31	27.9	66	59.4	10	9.1	2	1.8	
bachelor's degree	4	5.1	31	39.7	41	52.6	2	2.6	0	-	
master's degree	5	11.1	20	44.5	19	42.2	1	2.2	0	-	
Age (years)											>0,05
23–29	1	2.1	17	35.4	24	50	5	10.4	1	2.1	
30–39	7	7.4	42	44.2	43	45.2	2	2.1	1	1.1	
40–49	2	4.1	14	28.5	31	63.3	2	4.1	0	-	
50–62	1	2.4	9	21.4	28	66.7	4	9.5	0	-	
Years of work											>0,05
2 years and less	0	-	10	35.7	17	60.7	1	3.6	0	-	
3–5	3	5.3	24	42.1	22	38.6	6	10.5	2	3.5	
6–10	3	4.2	23	32.4	43	60.6	2	2.8	0	-	
over 10 years	4	5.4	24	32.4	43	58.1	3	4.1	0	-	

Slightly more than half of the respondents (53.8%) defined the level of their predispositions to health education as moderate. The share of the respondents assessing it positively was 39.7%. Only 6.5% of the respondents considered the level of their

educational predispositions to be rather low or low. Moreover, the analysis shows that this self-esteem correlates with the respondents' education. The largest percentage of the respondents who assessed positively the level of their educational competences in health (indicating replies "high" or "rather high") was among the paramedics with higher education – such assessment was made by more than half of them (55.6%). On the other hand, the lowest percentage of people with positive self-assessment was found among the graduates of post-secondary schools, with 29.7% of them making positive evaluation in this scope. Age and work experience of the paramedics did not cause a statistically relevant differentiation in terms of their self-assessment of being predisposed for carrying out health education.

In the Polish system of emergency medical services, health education is one of the tasks of professional paramedics [7]. However, until now, no rules have been defined which, in the context of this professional group, would precisely regulate its implementation.

Given the above, the respondents were asked about the awareness of the paramedics being obliged to educate patients while providing them with health services (Table 5) as well as about the existence of clearly defined rules for the implementation of activities in this area (Table 6).

Table 5. Opinion of paramedics regarding their obligation to educate patients

	they are obliged		they rather are obliged		they are rather not obliged		they are not obliged		p-value/ chi-squared
	n	%	n	%	n	%	n	%	
Total	76	32.5	86	36.7	50	21.4	22	9.4	-
Education									>0.05
post-secondary	35	31.5	41	36.9	24	21.6	11	9.9	
bachelor's degree	27	34.6	29	37.2	18	23.1	4	5.1	
master's degree	14	31.1	16	35.6	9	20	6	13.3	
Age (years)									>0.05
23–29	13	27.1	21	43.7	10	20.8	4	8.3	
30–39	27	28.4	36	37.9	26	27.4	6	6.3	
40–49	20	40.8	15	30.6	7	14.3	7	14.3	
50–62	16	38.1	14	33.3	7	16.7	5	11.9	
Years of work									>0.05
2 years and less	8	28.6	13	46.4	5	17.9	2	7.1	
3–5	16	28.1	17	29.8	17	29.8	7	12.3	
6–10	21	29.6	26	36.6	20	28.2	4	5.6	
over 10 years	31	41.9	28	37.8	8	10.8	7	9.5	

Over two-thirds of the respondents said that paramedics are obliged to conduct activities in the field of health education when in contact with a patient; the remaining individuals (30.8%) denied the existence of such obligation. The conducted analyses did not show the presence of statistically significant differences between the respondents'

age, education level or work experience and their opinions on the existence of the obligation to undertake educational activities while working in medical rescue teams.

Being aware of the absence of clearly defined rules for conducting health education by paramedics in the Polish medical rescue system was reported by 41.5% of the respondents, while over a third of them were of the opposite opinion (Table 6).

Table 6. Opinion of respondents on the existence of rules for the health education profession paramedic

	there are such rules		there are no such rules		"I don't know"		p-value/ chi-squared
	n	%	n	%	n	%	
Total	88	37.6	97	41.5	49	20.9	-
Education							0.0073/13.9743
post-secondary	49	44.2	34	30.6	28	25.2	
bachelor's degree	27	34.6	35	44.9	16	20.5	
master's degree	12	26.7	28	62.2	5	11.1	
Age (years)							0.0034/19.4602
23–29	9	18.8	30	62.4	9	18.8	
30–39	32	33.7	39	41.1	24	25.2	
40–49	24	49	17	34.7	8	16.3	
50–62	23	54.8	11	26.2	8	19	
Years of work							>0.05
2 years and less	9	32.1	13	46.4	6	21.4	
3–5	17	29.8	28	49.1	12	21.1	
6–10	26	36.6	30	42.3	15	21.1	
over 10 years	35	47.3	25	33.8	14	18.9	

The study showed the presence of statistically significant differences between the opinions expressed by the respondents on the existence of such principles and their level of education (p=00073) and age (p=0.0034). The awareness of such principles being non-existent in the profession of a paramedic was stronger among the respondents with higher education as well as among those from younger age categories. The highest percentage of people who were aware of the lack of such formal rules was among the respondents holding a master's degree and those under the age of thirty. In the case of respondents with a master's degree, it was almost one and a half times higher than in the group of people with a bachelor's degree – 62.2% vs. 44.9%, and more than twice as high as in the case of the paramedics who graduated from post-secondary school (62.2% vs. 30.6%). As for the age of the respondents, it was observed that almost two-thirds of the respondents aged 23–29 (62.4%) had knowledge about the lack of clearly defined rules on health education for the professional group of paramedics. In the case

of medical rescuers between 30 and 39 years of age, the percentage of people having a similar opinion was 41.1%, 34.7% among those aged between 40 and 49, and only 26.2% among those aged 50–62. There were no statistically significant differences between the opinion on the presence of the health education rules in the profession of a paramedic and the length of respondents' professional experience.

Discussion. Being a paramedic can be considered a profession of public trust, because it is connected with preserving a threatened good of the highest individual and social value - human life and health. In the era of growing demand of the society for knowledge on health issues and seeking new ways of optimizing educational activities in this area, it is necessary to include the professional group of paramedics to the ranks of medical personnel who can significantly affect the health welfare of the population. Such view is also supported in the literature [8–11], which shows that the subject extension of the professional role of paramedics with educational and therapeutic activities, going beyond the area of rescue operations, leads to using medical rescue capabilities to their full extent as well as to enlarging the potential of prehospital health care. An increased scope of emergency medical services may significantly contribute to the development of adequate health capacity of the population and to reducing the existing health inequalities between members of particular social groups (e.g. between rural and urban communities).

Undoubtedly, the fact that medical rescue teams carry out a large number of trips, thus reaching a wide range of potential recipients, speaks in favour of the educational possibilities of paramedics in the field of health. According to data from the Central Statistical Office, medical rescue teams in Poland provided assistance to almost 3.2 million people in 2016. [3]. A large number of interventions of medical rescue teams gives paramedics a wide range of opportunities to influence the health of the society, thus contributing to the improvement of patients' health satisfaction, as well as to the patients being satisfied with health services provided to them. Particular emphasis is put on this by Iphtikhar Ahmad and Sirajud Din, who stress that patient satisfaction with health services is a benchmark for the functioning of the health care system, and it determines the need for possible organisational changes aimed at improving it [12].

The studies carried out by the authors indicate that the importance of health education provided by members of medical rescue teams is marginalised. Despite such education being listed as one of the statutory tasks of professional paramedics in Poland, almost every third respondent (30.8%) believed that there was no obligation to perform educational activities in their professional work. Moreover, only 41.5% of the surveyed paramedics had knowledge about the lack of clearly defined rules for the implementation of health education in this professional group. The fact that one in five respondents (22.6%) did not attempt to define this concept at all may indicate that the level of the respondents' knowledge on health education is insufficient. Only half of the study participants (53%) did it correctly, referring to contemporary definitions of health

education, based on the idea of increasing people's awareness of the need to modify their lifestyle and shaping pro-health attitudes.

The studies conducted by Anna Włoszak-Szubzda, Mirosław J. Jarosz et al. prove that the level of paramedics' communication competences is low. The authors proved that the attitude of 93.5% of active medical rescuers demonstrated shortcomings in the scope of accepting and understanding a patient, while 71% of the respondents had insufficient knowledge about the role of feedback during communication with recipients. [13]. At this point, it should be noted that there is a clear diversity in education among the paramedics currently working in their profession in Poland. It results mainly from the fact that until 1 March 2013 there were two alternative training paths for this occupational group. These were higher education studies in the field of or in the specialisation of "medical rescue" and the education in post-secondary schools. Despite the latter path being discontinued at present, medical rescue teams in Poland still employ paramedics with various degrees of professional education. This is perfectly illustrated by the conducted research, which shows that almost half of the respondents (47.5%) obtained the professional title of a paramedic as a result of completing a two-year post-secondary school, while only one third of the respondents (33.3%) have a bachelor's degree and only one fifth (19.2%) have a master's degree.

In the course of the study it was observed that the education of paramedics had an impact on their knowledge in the field of health education. Respondents with higher education were more accurate in defining the term "health education", referring to its contemporary definitions, and were better informed about the existence of clearly established principles for the implementation of health education in the context of the professional group of paramedics.

The vast majority of the respondents (as much as 68.8%) expressed their conviction that the current education system of paramedics allows for optimal preparation for implementing the tasks in the scope of health education. Moreover, 85.5% of the paramedics stated that the knowledge on health education acquired during their vocational training is useful while working in medical rescue teams. The obtained results are consistent with the data on the professional preparation of paramedics to undertake educational activities, presented by Piotr Leszczyński. While analysing the professional competence of medical rescuers in selected rescue units (ambulance stations, hospital ambulance units, State Fire Service units, Voluntary Water Rescue Service units), the author showed that 62% of the respondents, when assessing their own didactic predispositions, awarded themselves a value of 5 or 6 on a six-point scale (where 1 means bad and 6 very well). Nevertheless, the self-assessment of didactic abilities of paramedics was the lowest among all psychophysical abilities indicated in the questionnaire [14]. It is also confirmed by our own studies, which have proved that despite a relatively positive assessment by paramedics of the current education system in the subject of "medical rescue" in the context of their preparation for implementing health education, the respondents' self-assessment of their predispositions in this area is not very optimistic. Only 39.7% of the respondents believed that they had a high level of

predisposition to health education, and as much as 53.8% deemed it moderate. It should be stressed that the respondents with higher education assessed their qualifications in such scope much better. This may prove the higher competence in health education among the paramedics, who have acquired their qualifications by completing the current educational regime provided for this occupational group - bachelor's degree studies, and even higher educational competences in the group of the respondents holding a master's degree (in most cases in the field of public health).

In order to implement properly the modern assumptions of health education by paramedics, it is necessary to unify education in the field of "medical rescue", carried out on the basis of education standards. Adequate occupational preparation of paramedics must support the development of their communication and interpersonal skills. Acquiring appropriate qualifications in education and support for patients and their families requires the training based on coherent, clear and detailed information. [15, 16].

Conclusion. Although health education has been listed as one of the statutory professional tasks of paramedics in Poland, this profession cannot be currently considered as a health educator in the strict sense of this term.

The conducted studies indicated significant disproportions in scope of professional preparation of paramedics working in medical rescue teams for health education. Although the level of paramedics' knowledge about the essence of health education is related to their schooling, it does not affect their awareness of the obligation to provide health education. At the same time, the studies showed that the respondents declaring a higher level of education and from younger age categories (without significant differences with regard to length of professional experience) had better knowledge about the absence of clearly defined rules for implementing health education measures.

In order to increase the competence of paramedics in health education, appropriate organizational actions should be taken, especially those related to modification of training programs for this professional group by including the elements of knowledge related to the scope, forms and role of health education as well as the issues of forming the abilities to conduct proper therapeutic communication with patients and their families.

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