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**Education on the faculty of medical emergency and perspectives of professional career in the opinion of medical rescuers working in the public
Emergency Medical System in Poland**

Abstract

In reference to other medical professions like nurse or doctor medical rescuer is in Poland a new profession. It was defined by the act about Emergency Medical Services signed in August the 8 2006. Till the 1 of march 2013 a medical rescuer could be a person who:

- accomplished postsecondary school or 2 year college; or
- accomplished 3 year studies of the university.

Quantity of study hours in different schools on the Medical Rescue faculty was different dependently on an academy typology, which lead to a differentiation of the knowledge level and of practical skills among the medical rescuers.

Purpose

The main purpose of the research is to evaluate the background of the medical rescuers who graduated from different kinds of academies and perspectives of their career.

Material

The research was conducted in three stages.

Stage I: qualitative research - interviews with 6 managers who hire medical rescuers.

Stage II: qualitative research - interviews with 5 medical rescuers.

Stage III: quantitative research - questionnaires taken in group of 472 medical rescuers working in EMS in which 36% graduated medical university, 10% graduated non-medical university, 55% graduated postsecondary school or 2 year college.

Methods

There were 3 different questionnaires prepared to conduct each stage of research. The information collected during the first and second stage were used to create the questionnaire for the stage III. Results were analyzed using 2000 simulations Monte Carlo to calculate p-value. The map of correspondence from the ca package of R environment was used to show appearing reliance in the table of contingency. All calculations were made in Excel and the R package.

Results

During the individual interviews respondent pointed that there is a big difference in possessed knowledge and skills among the medical rescuers which were educated in different education systems, that is between those who graduated university and those who graduated postsecondary school or 2 year college. Responders proposed to introduce a national exam, identical for all kinds of entities. They also suggested to implement the training period and to change the units where medical rescuers would take practice. Among the propositions appeared such units as: ambulances, fire department, E.R., admission room, I.C.U., C.I.C.U., neurosurgery department, vascular surgery department, orthopedic department, O.R., N.I.C.U., operation center of HEMS, dialysis room, search and rescue unit, volunteer water emergency unit (*WOPR*), crisis center, trauma center, EMS dispatch. In the opinion of the respondents the competence of medical rescuers' should be expanded by the ability to call the death, to intubate the patient using sedation, to make cardioversion and electro-stimulation, to put in a central line, and also giving the additional medicines like: clopidogrel, norepinephrine, heparin, fentanyl, betaloc, paracetamol, pyralgin, atrovent.

Analysis of the data assembled during the quantitative research has proved that there are differences in knowledge and skills between medical rescuers educated in different educational systems. Those who graduated from postsecondary school or 2 year college more

often than the others evaluated positively the quality and usefulness of the materials given during the lectures ($p=0,03$) and the quality of lectures ($p=0,007$). They also consider that the theoretical knowledge gained during the education period has prepared them to perform their profession on satisfactory level ($p=0,01$). The largest group of graduate who gave the negative opinion in this subject were those who graduated from a non-medical university (35,6%).

Depending on which subject was evaluated among qualified first aid, techniques of medical procedures, advanced life support, medical procedures in the E.R., catastrophe medicine, internal diseases - physical examination, internal diseases - emergency conditions in internal medicine, internal diseases - emergency conditions in cardiology, surgery, from 30% to 85% of the respondents considered increasing hours of the study necessary.

Respondents who graduated from postsecondary schools or 2 year colleges more often than others believed that hours of the practical classes were appropriate ($p=0,0001$), although medical rescuers who studied on non-medical and medical universities considered them to be insufficient ($p=0,03$). Opinions concerning the quality of those classes were divided. Similar groups of graduates from non-medical and medical universities evaluated them as good or sufficient, where respondents from the other group of graduates considered them mostly to be on a good level ($p=2e-06$). The same group believed more often than the others, that the instructors were well prepared for the classes ($p=0,002$) as well as given materials ($p=0,0001$).

A large group of graduates from no-medical and medical universities considered the level of preparation of both instructors and materials as very good ($p=0,02$). Respondents who graduated from postsecondary school or 2 year college more often then the others gave a positive answer about the quality of the scripts ($p=0,046$). The number of positive and negative opinions about the quality of the scripts was similar among the graduates from non-medical and medical universities. The important difference was noticed between opinions

about practices in E.R. ($p=0,003$) and practical classes during the year ($p=0,003$). More positive opinions were given by the graduates from postsecondary school or 2 year college.

Less than a half of the respondents have given an positive opinion about the middle year practice. The most common reasons of dissatisfaction are: lack off attention of staff to students, insufficient contact with patients, assigning students to activities which are not connected to studies and insufficient opportunity to help during rescue activities.

Respondents who graduated from postsecondary school or 2 year college more often than others admitted that the manual skills acquired during the education period prepared them to perform their profession on a satisfactory level ($p=0,001$). Although the same group of respondents more often then others gave the positive opinion about the studies itself ($p=0,04848$).

Analysis of the data assembled during the quantitative research showed no differences between answers given by the medical rescuers who graduated before entering into effect of the act about EMS and those who graduated after. It means that despite defining medical rescuers' competencies, the education system hasn't been changed.

Results show that there is no correlation between graduating postsecondary school or 2 year college or university and the salary level. However there is a correlation between the salary level and the total years of service as a medical rescuer, and also years of service in a current place of work as a medical rescuer. The most numerous group are medical rescuers who earn between 2001 PLN and 3000 PLN a net.

Conclusions

Lack of standardized education program in rescue medicine studies caused many differences between two year education system and three year studies. Graduates from postsecondary school or 2 year college appear to have better manual skills than the others. Results show that

there is a problem with salary among medical rescuers. Despite many years of service their payment is low.