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Social reactions to emergencies and illnesses: identifying the validity of EMS calls.

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ABSTRACT

INTRODUCTION: Poland's healthcare systems is based on insurance and universal and equal access. The first component of the system is primary healthcare. At night and on holidays, the medical help can be obtained by means of After Hours Medical Services. Private paid visits can also be arranged. In emergencies, and cases of risk to health or life, emergency medical team can be called at 112 or 999, or a patient can go to the hospital emergency department (ED) on their own. There are also pharmacies where selected over-the-counter medicines can be bought.

MATERIALS AND METHODS: The study was conducted in the first quarter of 2023 using a proprietary questionnaire with 5 sociodemographic questions and 20 case descriptions for which the participants indicated the type of medical help which they would use. The expert panel prepared a set of cases (accidents and illnesses), taking into account patient's age and gender, time of day and working days and holidays when the incident occurred. The group of participants was selected using the snowball sampling method. The results were subjected to statistical analysis using nonparametric tests, the Spearman's rho test and the Wilcoxon test. The used significance level was $p < 0.05$.

RESULTS: The study comprised 233 participants (166 females and 66 males). The mean age was 25 years (SD \pm 9.50). A significant correlation was showed between the decision made and the gender in case of stroke occurring on a weekday ($p=0.042$); stroke symptoms on a holiday ($p=0.024$); head injury in a child ($p=0.024$); chest pain in an adult ($p=0.009$), and also the place of residence in case of an infection in a child ($p=0.008$). The decision was also influenced by education in case of chest pain in an adult ($p=0.048$); stroke ($p=0.046$) and sudden weakness ($p=0.009$). Also performing a medical profession correlated with the decision in case of arterial hypertension ($p=0.028$) and chest pain ($p=0.010$) in adults. The type of day (working/holiday) and the time of day were also analysed, revealing statistical differences depending on the type and time of day for infection in a child ($p < 0.000$ in each comparison); working day and holiday for abdominal pain ($p=0.000$), stroke ($p=0.023$), diarrhea ($p < 0.000$) and weakness ($p < 0.000$), and also depending on the time of day in arterial hypertension ($p < 0.000$); however, no differences were found in case of chest pain depending on the time of day ($p=0.073$).

CONCLUSIONS: Emergency medical teams are called both in urgent cases, such as stroke or chest pain, and also in cases that do not require an immediate responses, such as diarrhea or weakness. Solutions need to be sought which would provide information what healthcare system units should be used in specific situations. The EMTs are called more often during the day on weekdays than at night or on holidays. The ambulance service responds most often in emergency cases such as convulsions, stroke or chest pain, but a significant number of calls is related to cases of weakness or arterial hypertension where the medical help should be sought in other healthcare units.

KEY WORDS: Healthcare, emergency medical service, healthcare, calls.

INTRODUCTION

Poland has a system of universal and equal access to public healthcare. The healthcare is supervised by the Ministry of Health headed by the Minister of Health [1]. Polish healthcare system is insurance-based and its main source is medical insurance financed from the National Healthcare Fund and the state budget, and also the Minister of Health budget. The healthcare is regulated by acts passed by Sejm and Senate. Every citizen has the right to healthcare under Art. 68 Par. 1 of the Constitution of the Republic of Poland [2]. The body supervising the observance of human rights is the Patient Ombudsman [3].

The first component of the Polish healthcare system is the primary healthcare (PHC) which provides medical services at the place of patient's residence. The PHC is responsible for early diagnosing of an illness (organism function disorder), treatment and health prophylaxis of patients who are not in a situation of a direct threat to life [4-5]. A PHC physician can give a referral to a specialist or to the hospital and prescribe prescription drugs. The obligation to have a referral is excluded in case of specialist outpatient services: gynaecology, obstetrics, oncology, psychiatry, dentistry and venerology. The PHC functions based on the right to choose the physician, nurse and midwife [1]. On weekdays between 18:00 and 8:00 on the following day, and on Saturdays, Sundays and holidays the patients can get an emergency outpatient help within the After Hours Medical Services (AHMS). The AHMS help can be obtained during a visit or by telephone [6-7]. Patients also have an option of paid (private) medical appointments. Many use that option, as it often involves less waiting time for the visit, more convenient time of appointment, more commitment on the part of the physician, more competence of the specialist, modern medical equipment or nicer atmosphere during the visit [8-9]. Costs of obtaining a medical service in the form of a private appointment can be high. The laboratory and imaging tests issued during for which referrals were given during a private visit are payable. Poland also has the so-called national Emergency Medical Service (EMS), comprising Emergency Medical Teams (EMT), Air Ambulance Service (AAS) and Hospital Emergency Departments (ED) [10-11].

In case of an emergency with a threat to health or life, the patients can obtain the medical rescue operations (MRO) administered by the Emergency Medical Team, which can be summoned by contacting the Emergency Call Centre (ECC) or directly the medical dispatcher by calling the emergency number 112 or 999 [12]. The emergency teams are divided into basic teams comprising at least two people authorized to perform medical rescue operations, and specialist teams comprising at least three people authorized to perform medical rescue operations, including a system physician [13]. In some cases, a team of Air Ambulance Service can be sent to a patient; such team comprises two people authorized to perform the MRO and a helicopter pilot. The basic task of the EMT and the AAS is to provide medical rescue operations in case of e.g. a traffic accident, acute coronary syndrome, stroke, sudden cardiac arrest and other sudden conditions threatening the health or life of the patient at the location of the incident and then to transport the patient to the proper treatment centre – the ED or directly to the specialist unit (e.g. hemodynamic unit, stroke ward, injury centre) [10].

Patients under the condition of a sudden health threat can also go to the hospital Emergency Department (ED) on their own; no referral to the hospital is required in such case. The EDs provide health services, including preliminary diagnostics and actions necessary to stabilize the patients' life functions and, if necessary, quick preparation of the patient to the specialist necessary treatment at other hospital departments [11, 14-15]. The last pillar of the Polish healthcare system is pharmacies where pharmacists issue drugs and medical products and provide information about them [16]. In pharmacies, the patients have an opportunity of self-treatment and can buy a wide array of OTC (Over-the-Counter) drugs [17]. The largest number of OTCs bought is analgesics [18].

The authors of the study have made an attempt to analyse the impact of sociodemographic factors and type of emergencies in home environment on the choice of medical help by the witnesses to the incident. The purpose of the study was to evaluate the validity of EMT calls and the EMS system load based on the decisions made by the witnesses to the incident.

MATERIALS AND METHODS

The study was conducted in the first quarter of 2023 in central Poland, using a proprietary questionnaire with 5 sociodemographic questions and 20 case descriptions for which the participants indicated the type of emergency medical help (ED, AHMS, EMT, PHC, private appointment with the doctor, self-treatment at home) which they would seek in individual cases of threat to health of life. The panel of experts with minimum 10 years of experience in the EMS system developed a set of twenty accidents and sudden illnesses, both in children and adults. Life-threatening and non-life-threatening cases were included. The cases were divided based on the time of day and type of day (weekday, holiday) when the incident occurred. The number of EMT calls and visits to the ED was analysed in detail as an EMS load factor. The participants in the study were selected using the snowball sampling method to obtain the group of 233 people. The inclusion criteria included coming-of-age, consent to participate in the study and answering all questions in the questionnaire. The obtained results were subjected to statistical analysis using the SPSS statistical software. The variables did not have a normal distribution, so consequently nonparametric tests were used: the Shapiro-Wilk test $p < 0.000$. The Spearman's rho test was used to determine correlation, while the Wilcoxon test was applied to indicate statistical differences. The used significance level was $p < 0.05$.

RESULTS

The study comprised 233 participants (166 females and 66 males); one person did not specify their gender. The mean age was 25 years ($SD \pm 9.50$). Fifty-six (24%) people declared living in a city above 100 thousand population, fifty-seven (24.5%) in a city below 100 thousand population, and one hundred and twenty (51.5%) in rural areas. Among the participants, 15 people (6.4%) had elementary education, 6 people (2.6%) – junior high school, 124 people (53.2%) – high school, 22 people (9.5%) – vocational, and 66 people (28.3%) – college. Thirty-six (15.5%) participants declared having a medical education.

A number of Spearman's rho tests were performed in order to determine the correlation between the decision made and the place of residence and level of education and medical profession. The results of significant correlations and number of the EMT calls are presented in tables 1-4 which include data comparing the decisions about the type of emergency help in specific cases and their significant correlations with sociodemographic factors.

Table 1. Correlation between gender and the decision made.

Sex	Total	Go to the emergency room (ED)	Go to/Call an afterhours medical services	Call 999 or 112 for an Ambulance	Make an appointment to visit a GP	Make a private medical appointment	Self-treatment at home	p-value
Stroke in an adult (weekday)								
Female	166 (71,2%)	25 (86,2%)	3 (75%)	129 (71%)	8 (61,5%)	1 (33,3%)	0 (0%)	0,042
Male	66 (28,4%)	4 (13,8%)	1 (25%)	53 (29%)	5 (38,5%)	2 (66,7%)	1 (50%)	
Other	1 (0,4%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (50%)	
Total	233 (100%)	29 (12,4%)	4 (1,7%)	182 (78,1%)	13 (5,6%)	3 (1,3%)	2 (0,9%)	
Head injury in a child								
Female	166 (71,2%)	89 (75,4%)	5 (71,4%)	19 (86,4%)	22 (75,9%)	1 (33,3%)	30 (55,6%)	0,024
Male	66 (28,4%)	29 (24,6%)	1 (14,2%)	3 (13,6%)	7 (24,1%)	2 (66,7%)	24 (44,4%)	
Other	1 (0,4%)	0 (0%)	1 (14,2%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
Total	233 (100%)	118 (51%)	7 (3%)	22 (9,4%)	29 (12,4%)	3 (1,3%)	54 (23,2%)	
Chest pain in an adult								
Female	166 (71,2%)	26 (86,7%)	43 (78,2%)	92 (67,6%)	4 (80%)	0 (0%)	1 (20%)	0,009
Male	66 (28,4%)	4 (13,3%)	12 (21,8%)	44 (32,4%)	1 (20%)	2 (100%)	3 (60%)	
Other	1 (0,4%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (20%)	
Total	233 (100%)	30 (12,9%)	55 (23,6%)	136 (58,4%)	5 (2,1%)	2 (0,9%)	5 (2,1%)	
Stroke in an adult (non-working day)								
Female	166 (71,2%)	16 (84,2%)	38 (80,9%)	108 (68,8%)	5 (83,3%)	0 (0%)	0 (0%)	0,024
Male	66 (28,4%)	3 (15,8%)	9 (19,1%)	49 (31,2%)	0 (0%)	2 (100%)	2 (100%)	
Other	1 (0,4%)	0 (0%)	0 (0%)	0 (0%)	1 (16,7%)	0 (0%)	0 (0%)	
Total	233 (100%)	19 (8,2%)	47 (20,2%)	157 (67,4%)	6 (2,6%)	2 (0,9%)	2 (0,9%)	

Table 2. Correlation between place of residence and the decision made.

Place of residence	Total	Go to the emergency room (ED)	Go to/Call an afterhours medical services	Call 999 or 112 for an Ambulance	Make an appointment to visit a GP	Make a private medical appointment	Self-treatment at home	p-value
Infection in a child (non-working day)								
A city with a population of over 100,000 people	56 (24%)	5 (17,2%)	31 (22%)	2 (33,3%)	9 (45%)	0 (0%)	9 (31%)	0,008
A city with a population than less 100,000 people	57 (24,5%)	5 (17,2%)	33 (23,4%)	1 (16,7%)	4 (20%)	3 (37,5%)	11 (38%)	
Countryside	120 (51,5%)	19 (65,6%)	77 (54,6%)	3 (50%)	7 (35%)	5 (62,5%)	9 (31%)	
Total	233 (100%)	29 (12,4%)	141 (60,5%)	6 (2,6%)	20 (8,6%)	8 (3,4%)	29 (12,4%)	

Table 3. Correlation between education and the decision made.

Education	Total	Go to the emergency room (ED)	Call an/Go to afterhours medical services	Call 999 or 112 for an Ambulance	Make an appointment to visit a GP	Make a private medical appointment	Self-treatment at home	p-value
Chest pain in an adult (non-working day)								
Primary education	15 (6,4%)	2 (6,7%)	3 (5,5%)	9 (6,6%)	1 (20%)	0 (0%)	0 (0%)	0,048
Lower secondary education	6 (2,6%)	0 (0%)	6 (10,9%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
Secondary education	124 (53,2%)	18 (60%)	30 (54,5%)	73 (53,7%)	0 (0%)	1 (50%)	2 (40%)	
Vocational education	22 (9,5%)	4 (13,3%)	1 (1,8%)	15 (11%)	1 (20%)	0 (0%)	1 (20%)	
Higher education	66 (28,3%)	6 (20%)	15 (27,3%)	39 (28,7%)	3 (60%)	1 (50%)	2 (40%)	
Total	233 (100%)	30 (12,9%)	55 (23,6%)	136 (58,4%)	5 (2,1%)	2 (0,9%)	5 (2,1%)	
Stroke in an adult (weekday)								
Primary education	15 (6,4%)	2 (6,9%)	0 (0%)	11 (6%)	2 (15,4%)	0 (0%)	0 (0%)	0,046
Lower secondary education	6 (2,6%)	5 (17,2%)	0 (0%)	1 (0,5%)	0 (0%)	0 (0%)	0 (0%)	
Secondary education	124 (53,2%)	15 (51,7%)	3 (75%)	98 (53,8%)	6 (46,2%)	1 (33,3%)	1 (50%)	
Vocational education	22 (9,5%)	2 (6,9%)	0 (0%)	18 (9,9%)	1 (7,7%)	1 (33,3%)	0 (0%)	
Higher education	66 (28,3%)	5 (17,2%)	1 (25%)	54 (29,7%)	4 (30,8%)	1 (33,3%)	1 (50%)	
Total	233 (100%)	29 (12,4%)	4 (1,7%)	182 (78,1%)	13 (5,6%)	3 (1,3%)	2 (0,9%)	
Body weakness in an adult								
Primary education	15 (6,4%)	3 (9,1%)	1 (9,1%)	4 (5,7%)	5 (6,1%)	2 (6,5%)	0 (0%)	0,009
Lower secondary education	6 (2,6%)	3 (9,1%)	1 (9,1%)	2 (2,9%)	0 (0%)	0 (0%)	0 (0%)	
Secondary education	124 (53,2%)	20 (61%)	4 (36,4%)	39 (55,7%)	39 (47,6%)	17 (54,8%)	5 (83,3%)	
Vocational education	22 (9,5%)	7 (21%)	1 (9,1%)	8 (11,4%)	1 (1,2%)	5 (16,1%)	0 (0%)	
Higher education	66 (28,3%)	0 (0%)	4 (36,4%)	17 (24,3%)	37 (45,1%)	7 (22,6%)	1 (16,7%)	
Total	233 (100%)	33 (14,2%)	11 (4,7%)	70 (30%)	82 (35,2%)	31 (13,3%)	6 (2,6%)	

Table 4. Correlation between having a medical profession and the decision made.

Medical profession	Total	Go to the emergency room (ED)	Call an/Go to afterhours medical services	Call 999 or 112 for an Ambulance	Make an appointment/ Go to Primary Health Care	Make a private medical appointment	Self-treatment at home	p-value
Chest pain in an adult (non-working day)								
Medical profession	36 (15,5%)	3 (10%)	8 (14,5%)	23 (16,9%)	1 (20%)	1 (50%)	0 (0%)	0,010
No medical profession	197 (84,5%)	27 (90%)	47 (85,5%)	113 (83,1%)	4 (80%)	1 (50%)	5 (100%)	
Total	233 (100%)	30 (12,9%)	55 (23,6%)	136 (58,4%)	5 (2,1%)	2 (0,9%)	5 (2,1%)	
High blood pressure in an adult (weekday)								
Medical profession	36 (15,5%)	6 (10,7%)	2 (33,3%)	4 (6,2%)	18 (21,7%)	4 (21,1%)	2 (50%)	0,028
No medical profession	197 (84,5%)	50 (89,3%)	4 (66,7%)	61 (93,8%)	65 (78,3%)	15 (78,9%)	2 (50%)	
Total	233 (100%)	56 (24%)	6 (2,6%)	65 (27,9%)	83 (35,6%)	19 (8,2%)	4 (1,7%)	

Series of Wilcoxon tests were performed in order to analyse the incidents based on the type of day (weekday or holiday) and time of day (day or night). Statistically significant differences were obtained in case of:

- **child infection**, depending on the time of weekday (day max.=121 [52%] making appointment with/going to PHC; night max.=86 [37%] going to/calling AHMS) (**p<0,000**) and comparing a weekday (max. mean=77,5 [33%] making appointment with/going to PHC) with a holiday (max.=141 [61%] going to/calling AHMS) (**p<0,000**),

- **abdominal pain in an adult**, depending on the weekday (max=75 [32%] going to ED) and holiday (max.=97 [42%] going to/calling AHMS PL) (**p=0,000**),
- **stroke**, depending on the weekday (max.=182 [78%] calling EMT) holiday (max.=157 [67%] calling EMT) (**p=0,023**),
- **diarrhea**, depending on the weekday (max=87 [37%] making appointment with/going to PHC) and holiday (max=103 [44%] going to/calling AHMS) (**p<0,000**),
- **arterial hypertension**, depending on the time of weekday (day max.=83 [36%] making appointment with/going to PHC; night max.=85 [36%] going to/calling AHMS) (**p<0,000**),
- **weakness**, depending on the weekday (max=82 [35%] making appointment with/going to PHC) and holiday (max=74 [32%] going to/calling AHMS) (**p<0,000**).

No statistical difference was found in case of chest pain depending on the weekday and holiday ($p=0.073$). The detailed comparison of the number of decisions to call EMT, depending on the type and time of day is presented in Table 5.

Table 5. EMT calls, taking into account incident type and type and time of day.

Day and time of day	Go to the emergency room (ED)	Call an/Go to afterhours medical services	Call 999 or 112 for an Ambulance	Make an appointment to visit a GP	Make a private medical appointment	Self-treatment at home	Total
Infection in a child							
Weekday (Day)	32 (35,6%)	10 (4,2%)	6 (35,3%)	<u>121 (69,1%)</u>	21 (45,7%)	43 (32,1%)	233 (100%)
Weekday (Night)	29 (32,2%)	<u>86 (36,3%)</u>	5 (29,4%)	34 (19,4%)	17 (37%)	62 (46,3%)	233 (100%)
Non-working day	29 (32,2%)	<u>141 (59,5%)</u>	6 (35,3%)	20 (11,4%)	8 (3,4%)	29 (21,6%)	233 (100%)
Chest pain in an adult							
Weekday (Day)	57 (65,5%)	5 (8,3%)	<u>121 (47,1%)</u>	39 (88,6%)	7 (77,8%)	4 (66,7%)	233 (100%)
Non-working day	30 (34,5%)	55 (91,7%)	<u>136 (52,9%)</u>	5 (11,4%)	2 (22,2%)	2 (33,3%)	233 (100%)
Stomachache in an adult							
Weekday (Day)	<u>75 (61%)</u>	6 (5,8%)	27 (67,5%)	41 (71,9%)	32 (71,1%)	52 (53,1%)	233 (100%)
Non-working day	48 (39%)	<u>97 (94,2%)</u>	13 (32,5%)	16 (28,1%)	13 (28,9%)	46 (46,9%)	233 (100%)
Diarrhoea							
Weekday (Day)	34 (58,6%)	9 (8%)	7 (46,7%)	<u>87 (78,4%)</u>	13 (48,1%)	83 (58%)	233 (100%)
Non-working day	24 (41,4%)	<u>103 (92%)</u>	8 (53,3%)	24 (21,6%)	14 (51,9%)	60 (42%)	233 (100%)
Stroke in an adult							
Weekday (Day)	29 (60,4%)	4 (7,8%)	<u>182 (53,7%)</u>	13 (68,4%)	3 (60%)	2 (50%)	233 (100%)
Non-working day	9 (39,6%)	47 (92,2%)	<u>157 (46,3%)</u>	6 (31,6%)	2 (40%)	2 (50%)	233 (100%)
Body weakness in an adult							
Weekday (Day)	33 (56,9%)	11 (12,9%)	70 (54,7%)	<u>82 (67,2%)</u>	31 (57,4%)	6 (31,6%)	233 (100%)
Non-working day	25 (43,1%)	<u>74 (87,1%)</u>	58 (45,3%)	40 (32,8%)	23 (42,6%)	13 (68,4%)	233 (100%)
Hypertension							
Weekday (Day)	56 (55,4%)	6 (6,6%)	65 (53,7%)	<u>83 (70,3%)</u>	19 (86,4%)	4 (31%)	233 (100%)
Weekday (Night)	45 (44,6%)	<u>85 (93,4%)</u>	56 (46,3%)	35 (29,7%)	3 (13,6%)	9 (69%)	233 (100%)

The study did not show a statistical difference in case of convulsions depending on the patient gender (Wilcoxon test $p=0.225$; EMT call F=144 [62%] vs M=125 [54%]), and in case of head injury depending on the patient age (Wilcoxon test $p=0.981$; calling EMT to a child =22 [9,4%] vs adult =21 [9%]).

DISCUSSION

Everybody has the right to use medical services provided in case of threat to health or life. Such services are provided by many units of the Polish healthcare system, amongst others ED, AHMS, PHC, or ambulance service. There is, however, an issue which needs to be carefully considered, namely the abuse and overloading of already inefficient system with cases which do not require an emergency medical help [13,19]. The study showed the impact of a number of sociodemographic factors on the decision to use a specific type of emergency help, including calling the emergency medical team. The analysis of questionnaires indicates that males more often decided to call the EMT in case of an emergency (stroke and chest pain); on the other hand, females would call an ambulance more often to a child (head injury). It turns out that the place of residence also affects the decision to call an ambulance. Despite a wide access and an easier commuting to family doctors in cities, an ambulance is more often called to a child infection in cities than in rural areas.

The study also showed the impact of the level of education on the decision to choose the healthcare unit in specific cases. Regardless of the patient conditions, the EMTs are most often called by people with vocational education, and the least often by people with junior high school level of education. This is related to both, the cases requiring an emergency response: stroke or chest pain, but also to cases that do not require calling for an ambulance: weakness in an adult. People with high school or college education would decide to call an ambulance to a similar degree. Despite those differences, statistically an ambulance is called to an emergency more often than in cases that do not require it. Having a medical education means a broader knowledge on the symptoms which might suggest an emergency condition requiring a response by the ambulance service. The study showed that people declaring medical education much more frequently call the EMT to the chest pain (symptoms of acute coronary syndrome) and more rarely to arterial hypertension. The general population decides to call the ambulance service most often on weekdays (morning), both in cases requiring it such as stroke, and also in other conditions, e.g. abdominal pain, arterial hypertension, diarrhea, weakness or child infection; however in the same ailments on holidays the rate of EMT calls is reduced. The time of day is irrelevant for the decision to call an ambulance. Irrespective of the incident, both the patient's gender and age do not influence the decisions in terms of using a specific type of emergency help.

The study proved that there are cases of calling the EMT to incidents that do not require an emergency response of the ambulance service, such as diarrhea in an adult, where an ambulance would be called by 8 people on a holiday and 7 people on a weekday. In addition 24 people with the same condition would go to the ED on a holiday and 34 on a weekday. Visit to the PHC or the AHMS or self-treatment at home would suffice in such case. Decisions to call the EMS cause occupation of an ambulance which at that time could be urgently needed elsewhere, and going to the ED lengthens the queue, extends the waiting time and the treatment of other patients coming to the hospital. The available studies also indicate the problem of calling an ambulance to situations that do not require it [20-22], and going to the ED in the case of non-emergency conditions [23].

There are also cases when an ambulance is not called in life-threatening situations, such as convulsions or stroke. In the case of convulsions on weekdays, 3 people would opt for self-treatment at home and 23 would seek help in the PHC or the AHMS. In the case of stroke, 2 respondents would use self-treatment at home and as many as 53 would choose the PHC or the AHMS. These are conditions that require emergency medical interventions, absence of which may cause serious neurological consequences in patients that did not receive such medical help.

Limitations of the study - The study comprised a limited number of participants. The paper may be a pilot study, as it does not give a picture of the whole country. The questionnaire included only selected cases of threats to life, illnesses and injuries.

CONCLUSIONS

The study shows that medical emergency teams are called in various situations, both urgent and those that do not require such intervention. It seems reasonable that the state agencies should launch widespread information campaigns on the functioning of the Polish healthcare system. Polish citizens must know which medical facilities to go to with a specific health condition. Without it, the emergency medical services system will be inefficient and the patients requiring an emergency response will have to wait until an ambulance is free or the time for the help to arrive will be longer. Some behaviours of witnesses to the incident are disturbing: they are unable to recognize a threat to life in cases such as stroke or convulsions with loss of consciousness. Further studies are necessary to determine the scale of the problem and the social awareness.

SUPPLEMENTARY INFORMATION

Funding: No fund was received related to this study.

Institutional Review Statement: The study was conducted according to the guidelines of the Declaration of Helsinki.

Informed Consent Statement: Not applicable

Data Availability Statement: The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

Conflicts of Interest: The authors declare no conflicts of interest.

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