



**UNIVERSITATEA DE MEDICINĂ ȘI FARMACIE
„CAROL DAVILA“ DIN BUCUREȘTI**



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**UNIVERSITY OF MEDICINE AND PHARMACY
"CAROL DAVILA", BUCHAREST
DOCTORAL SCHOOL
OF MEDICINE**

**DOCTORAL THESIS
SUMMARY**

PhD supervisor:

PROF. UNIV. DR. PETRU ARMEAN

PhD student:

GRASU CRISTIAN VASILE

2024



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DOCTORAL SCHOOL

Field OF MEDICINE

**THE IMPACT OF VOLUNTEER ACTIVITIES - COMMUNITY
SUPPORT ON THE CAPACITY TO INTERVENTION AND RESULTS
OF PRE-HOSPITAL INTERVENTION SERVICES**

SUMMARY

PhD supervisor:

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Y 2024

Motto:

„The best way to find yourself is to lose yourself in the service of others.” – Mahatma Gandhi

Traslation : „Cea mai bună cale de a te regăsi este să te pierzi în slujba celorlalți.” – Mahatma Gandhi

The content of the doctoral thesis

Published scientific papers

List of abbreviations and symbols

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General part

Medical volunteering in Romania: In Romania, medical volunteering followed a similar route to the European one, starting with philanthropic initiatives in the medieval period and continuing with the involvement of religious and secular organizations. In the 19th century, amid the struggle for independence and modernization, the first associations that include medical volunteering as part of their efforts appear, such as the Romanian Red Cross Society, founded in 1876.

Volunteering in the Romanian ambulance has a history of 118 years, starting in 1906 when the Rescue Society was founded in Bucharest, under the leadership of doctor Nicolaie Minovici.

The regulation of the organization of volunteering in Romania is an important topic that reflects society's commitment to recognize and value the work of volunteers. In Romania, the main legislative framework that currently regulates volunteering is Law no. 78/2014 on the regulation of voluntary activity in Romania.

The present research showed that, in Romania, volunteering is regulated by several normative acts, government decisions, rules and strategies, issued by various ministries, which ensure the legal framework for the conduct and organization of volunteering activities specific to various fields of activity.

It should be noted that both IGSU, DSU, IGAv within the MAI, have developed and published the consolidation and development STRATEGIES for the period 2016-2025, containing numerous references, actions and programs regarding volunteer activity for emergency situations (fires, rescues, landslides terrain, weather phenomena, etc.), including persons trained in first aid, having as host organizations structures of the MAI.

Until the date of this paper, for the specific volunteering activity hosted by institutions from the Ministry of Health, including public ambulance services, no other legal provision (Law, HG, Ordinance of the Ministry of Health) has been issued stipulating: mode of organization and functioning of the volunteer activity in public health, the composition and wearing of the protective equipment and distinctive insignia of the volunteers who work together with the medical crews, the professional training courses, calendars and coherent programs regarding the volunteer actions carried out under the auspices of the host organizations-subordinate institutions Ministry of Health.

The role of volunteers in ambulance services: Volunteers in ambulance services are trained to provide first aid and manage a variety of medical emergencies, as defined by

Health Reform Law No. 95/2006. Volunteers have knowledge of emergency medical care and are equipped with the necessary tools to assess the patient's condition and keep patients stabilized until the arrival of professional medical personnel or until they reach a medical facility.

The special part. Personal contributions

In the special part, analyzes are carried out on the current state of volunteering in ambulance services in Romania and on the specific legislation in order to identify the legislative and organizational needs of volunteering for the development of ambulance services in Romania. At the same time, the development and implementation of a pilot program for the integration of volunteers in the activity of the Bucharest - Ilfov Ambulance Service is presented in order to increase the response capacity.

Head. 3. Analysis of the current state of volunteering in ambulance services in Romania

The objectives of the research regarding the activity of volunteers working in the ambulance services:

Quantitative and qualitative analysis of the activity of volunteers working within the ambulance services by: determining the number of active volunteers in different regions of Romania, evaluating the levels of training and specialization that the volunteers received, evaluating the integration of volunteers in the ambulance crews,

Analysis of how volunteers are integrated into emergency medical response operations and collaboration between volunteers and medical professionals.

Evaluation of the impact of volunteers on emergency response times and the quality of assistance provided and the role of public policies and community initiatives that could increase the effectiveness and attractiveness of volunteering in this sector.

These objectives can contribute to a deeper understanding of the role and impact of volunteering in ambulance services in Romania, providing valuable information for decision-makers in the field of public health and emergency.

At the national level, at the end of 2023, a number of 1352 active volunteers were registered in public ambulance services, according to the Situation below:

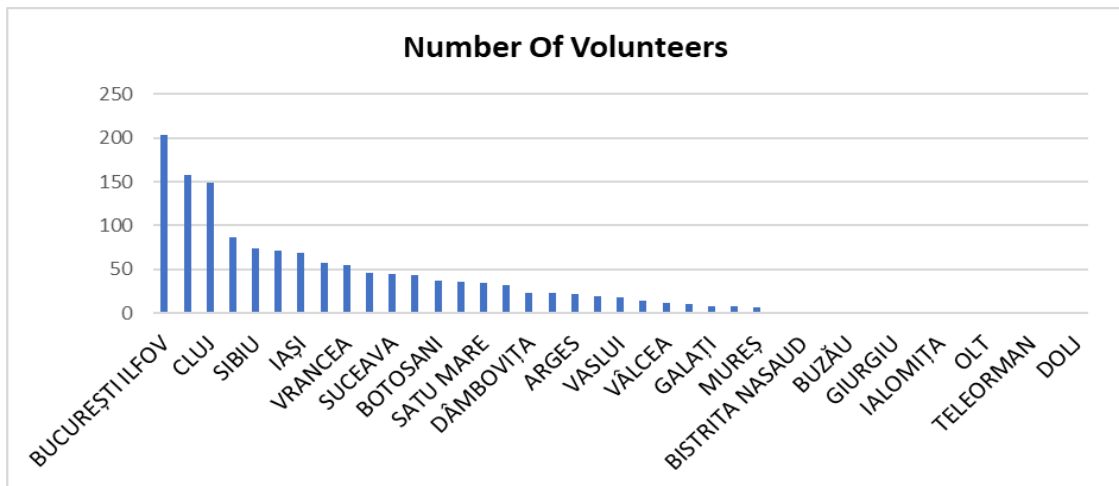


Chart 3.4.1. number of volunteers in Romania's counties

I see, in particular, that the small number of medical personnel employed at the public ambulance and the limited funds allocated for personnel expenses imply the urgent need for trained personnel, voluntarily involved in the emergency medical assistance activity in the pre-hospital, a fact that makes even more the participation of volunteers is useful.

At the national level, in the year 2023, a total number of 656 doctors and 4690 medical assistants were employed in the 41 public ambulance services, representing 0.03 doctors per thousand inhabitants, respectively 0.24 medical assistants per thousand inhabitants, taking into account calculation a population of 19.4 million inhabitants declared statistically for the reference year.

The situation regarding human resources – medical (operative) staff, at the national level, working in ambulance services, at the end of 2023 is presented below:

	Total operative staff:	ER Doctors	Nurses	Ambulance Drivers	Ec Operator
Now	10.809	656	4.690	4.975	488
Normative	20.171	1.582	8.079	9.693	817
Labour shortage	9.362	926	3.389	4.718	329
nr / %	46,5%	58,5%	41,9%	48,7%	40,3 %

Chart nr. 3.4.2. The situation regarding human resources – medical personnel (operative), in the public ambulance services in Romania at 31.12.2023

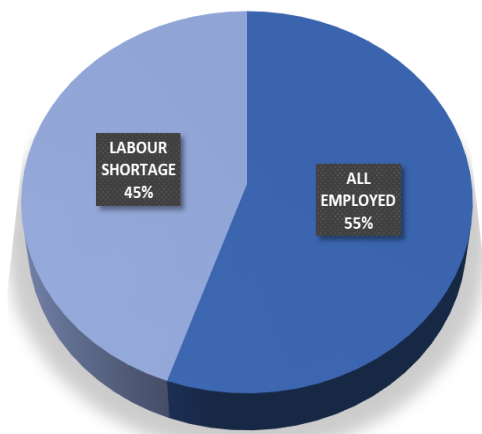


Chart nr 3.4.3. The situation regarding the shortage of personnel in the public ambulance services in Romania at 31.12.2023

In 2023, at the national level, a total number of 3,399,788 interventions for emergency medical assistance in pre-hospital provided by SAJ/SABIf (2,933,367= 86% of the total) with MEDICAL and SMURD crews (466,421=14 % of the total) with paramedics / integrated crews - firefighters and medical personnel from the UPU/CPU wards of public hospitals. It should be noted that the data on the activity of SMURD were taken from the Activity Report prepared by the DSU for the year 2023, page 82.

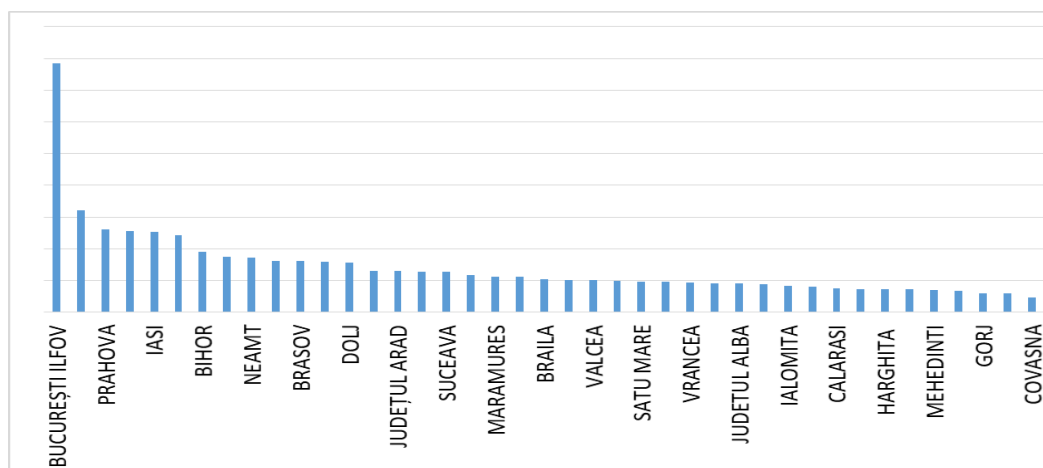


Chart 3.4.4. The situation of emergency medical interventions performed by public ambulance services in 2023

In fact, volunteering within the Ambulance Services is an important help for the pre-hospital emergency system because it represents "extra hands" that can lead to the rescue of some people, which represents a help for crews in preparing the equipment necessary to perform medical maneuvers or even performing medical maneuvers according to BLS and ALS protocols.

Partial conclusions resulting from the analysis of the activity of volunteers working within the ambulance services:

1. Most of the county ambulance services and SABIF carry out and develop volunteer programs in which volunteers go alongside emergency medical crews in 12-hour shifts and participate in medical support actions at social events.

2. The significant shortage of personnel in the ambulance services in Romania, with a general percentage of 46.5%, more pronounced in the Bucharest-Ilfov Region, where it exceeds 64%, can and is compensated, in part, by the involvement of public ambulance volunteers.

3. The shortage of personnel in the public ambulance services reflects an extensive problem at the level of the entire national health system, as also highlighted in the Report "State of health in the EU-Romania - Country profile from 2023", where it is highlighted that, the number of doctors and medical assistants per 1,000 inhabitants in Romania remains below the European Union average, which indicates an additional pressure on the health system and on the quality of the medical services offered.

4. Staff shortages and high job demands contribute to high levels of stress and fatigue for medical staff, affecting their quality of life and effectiveness in providing medical care.

5. In the context of scarce resources, volunteering plays a crucial role in supporting ambulance services. Volunteer programs, such as those organized by SABIF, SAJ Arad, SAJ Bihor, and many others, contribute not only to supplementing the workforce, but also to the professional and personal training of volunteers.

6. Volunteering in ambulance services provides opportunities for learning and professional development, contributing to increasing social solidarity and improving the training of the general public in providing first aid.

7. Volunteers often prove to be valuable candidates for vacancies in ambulance services, having the advantage of first-hand experience and knowledge gained through training programmes.

8. To mitigate the effects of staff shortages and improve emergency response, it is essential to continue and expand volunteer initiatives, while ensuring adequate support and ongoing training for volunteers.

As a first conclusion, volunteering in ambulance services not only helps to manage the shortage of personnel, but also brings significant benefits in the training and social integration of volunteers, contributing to a better preparedness of the community in the face

of emergency situations. Continued support and formal recognition of the role of volunteers in improving emergency health services is vital.

Chapter. 4. Identifying the legislative and organizational needs of volunteering for the development of Ambulance Services in Romania and other countries

The results of the research regarding the analysis of specific legislation in order to identify the legislative and organizational needs of volunteering for the development of ambulance services in Romania:

The legal authorities (Parliament, Government, Ministry of Health) have not adopted normative acts regarding volunteering carried out as a specific activity in the field of public emergency medical assistance in the pre-hospital phase, provided by the county ambulance services and the Bucharest-Ilfov Ambulance Service, the only ones regulations being those arising from Law no. 78/2014 and from art. 113 Law no. 95/2006 - strictly regarding the possibility of including a volunteer, specially trained, in emergency medical crews.

This results in major differences in approach, from the point of view of the adoption of specific normative acts regarding volunteering in general and volunteering in the provision of first aid within the institutions of the MAI/IGSU structure compared to the volunteering organized in the emergency medical assistance activity in the pre-hospital carried out by the territorial ambulance services subordinated to the Ministry of Health, for which no specific normative act has been issued for these medical institutions.

There are also differences in the approach to volunteering between county ambulance services, and the own rules adopted by some public ambulance services contain only part of the provisions of Law no. 78/2014 on the regulation of volunteering in Romania.

Following the examination of the current legal framework in Romania and its comparison with the legislation of the United States of America, Germany and the Republic of Moldova, we have carried out a comparative analysis of the legislation on volunteering in health and ambulance services between Romania and other countries with exemplary practices in the field, . These countries were chosen because of their health volunteer management systems.

The result of the comparative analysis:

Similarities: All four countries recognize the importance of volunteers including in health and medical emergencies. Training programs are in place to ensure volunteers are well trained.

Differences:

The USA and Germany have more structured and funded systems for the integration and support of volunteers compared to Romania.

Accessibility and recognition of training programs are more advanced in the US and Germany.

The Republic of Moldova has adopted normative acts regarding volunteering in emergency medical assistance in pre-hospitals and confers important rights on volunteers, unlike Romania.

This comparative analysis highlights the need for a more structured and sustained approach to volunteering in ambulance services in Romania, learning from the positive examples of other countries.

Partial conclusions

The following can be concluded from a brief analysis of the way volunteering is organized and carried out in the public ambulance services in our country:

1. The organization and regulation of volunteering activities by the public ambulance services, as host organizations, which administer volunteering activities is not unitary.
2. There are significant differences regarding the promotion and adoption of normative acts to regulate the voluntary activity carried out by the institutions subordinate to the Ministry of Health, respectively volunteering in the ambulance services, compared to other ministries and, in particular, compared to the Ministry of Internal Affairs.
3. No legal provisions have been issued (Laws, HG, Ordinance of the Ministry of Health) stipulating: the way of organizing and functioning of the voluntary activity in public health, the composition and wearing of the protective equipment and distinctive insignia of the volunteers who work together with the crews medical, the framework models for the volunteer contract, the professional career of the volunteer in health institutions, respectively in the ambulance services, the volunteer nominal certificate model, the volunteer ID model, the structure responsible for the volunteer record register, provisions regarding professional training internships , coherent calendars and programs regarding volunteer actions carried out under the auspices of host organizations-institutions subordinate to the Ministry of Health.

Chapter 5. Development and implementation of a pilot program for the integration of volunteers in the activity of the Bucharest-Ilfov Ambulance Service in order to increase the response capacity

In order to fully understand the activity of SABIF (the institution where the pilot program "There is a hero in each of you" was carried out), we briefly mention the following aspects regarding the organization of this institution:

Organizational structure and resources

In 2023 alone, SABIF registered a number of 392,005 emergency medical interventions. This figure means 2.4 times more than the achievements of SAJ Timiș (161,136), the next ranked nationally, after SABIF, respectively 3.2 times more than the "leading" counties: Prahova, Cluj, Iași, Constanța and more than 17 times more than the last ranked SAJ Covasna.

The population density (statistically declared residents) in the Bucharest-Ilfov Region is 15 times higher than the density recorded at the national level. The Bucharest-Ilfov region is one of the most densely populated regions in Romania. Thus, the population density at the national level is 84.4 inhabitants/square km, compared to the Bucharest-Ilfov Region which registers a density of 1,262 inhabitants/square km (1,262 inhabitants/km² x 1,811 square km=2.28 million resident inhabitants according INS), in the Municipality of Bucharest the population density is even higher, namely 8,261 inhabitants/km², i.e. 97.9% higher than the national average.

This high density increases the likelihood that health incidents will occur frequently, and rapid access to help in the event of a medical emergency will be crucial. The Bucharest-Ilfov region is the most populated region in Romania, with a resident population of 2,286,434 inhabitants, of which 1,731,132 in the municipality of Bucharest and 555,302 in the county of Ilfov - according to the National Institute of Statistics.

According to specialized studies, in fact, during working days, there are, on average, 3 million people in Bucharest, due to the influx of citizens residing in the neighboring counties, who have a job at entities in the Capital. Thus, almost half of the active population of Giurgiu County, for example, found a job in institutions in the Municipality of Bucharest, for example, more than a third of this category of the population having a stable domicile in Călărași County and a quarter of the same category, persons domiciled in Ialomița, Teleorman or Dâmbovița, counties where most localities are about an hour - an hour and a half away by personal car, within a radius of about 100 kilometers.

The lack of resources and the shortage of personnel compared to the approved norms. According to the regulations (Ministry Order no. 1778/2006), SABIF should have a total of 3165 employees, but currently it operates with only 1134 employees, having a significant deficit. The operative medical staff employed, at the end of 2023, includes: 103 active doctors, 337 medical assistants, 469 ambulance drivers (ambulance drivers) and 85 emergency registrar operators (dispatchers). The deficit of active operative personnel is currently approximately 65%.

SABIF has organized ambulance substations in sectors 1, 3, 4, 5 and 6 of Bucharest, as well as in the localities of Bragadiru, Brănești, Buftea, Chiajna, Chitila, Măgurele, Otopeni, Pantelimon, Popești-Leordeni, Săftica, Snagov, Vidra and Volunteers from Ilfov County. The head office also functions as a substation for sector 2.

The SABIF dispatch center is fully computerized, operating 24/7. The DISPEC system, used for handling requests, is integrated with the 112 emergency call receiving system and the STS system.

The architecture of the DISPEC computer system, within which the computer application used in the "There is a hero in each of you" Program is integrated.

The integration is based on (There is a hero in each of you) There is a hero platform, which is interconnected with SABIF's emergency management application. There is a hero platform consists of a component running on a central server and a mobile application, installed on the volunteers' phones. Through the mobile app, volunteers can transmit their location to the central server.

When the operator registers a case in a public place, with a red or yellow code, the identification of possible volunteers within a radius of one kilometer from the emergency site is automatically initiated, volunteers to whom an SMS alert is automatically sent to their mobile phone.

Personal data of patients is not transmitted to the There is a hero platform. These are usually not available to the caller either. Age reported is approximate. The name is not transmitted even if it was provided in the call.

There are at least 300 permanently active volunteers in Bucharest and Ilfov. On average, 20 interventions are performed every day, of which at least 4-5 are code red emergencies (imminent life-threatening).

Brief presentation of the Program "there is a hero in each of you" pilot program for the integration of volunteers in the activity of SABIF - the only ambulance service organized at the level of a development region - Bucharest-Ilfov Region.

The mobile application can be installed on a smartphone and constitutes an alert system in cases where medical emergencies are reported in public places, being interconnected to the platform on which medical emergency calls are managed.

The integration is based on ASSB's "There's a hero in each of you" platform, which is interconnected with SABIF's emergency management application. The platform consists of a component running on a central server and a mobile application installed on the volunteers' phones. Through the mobile app, volunteers can transmit their location to the central server.

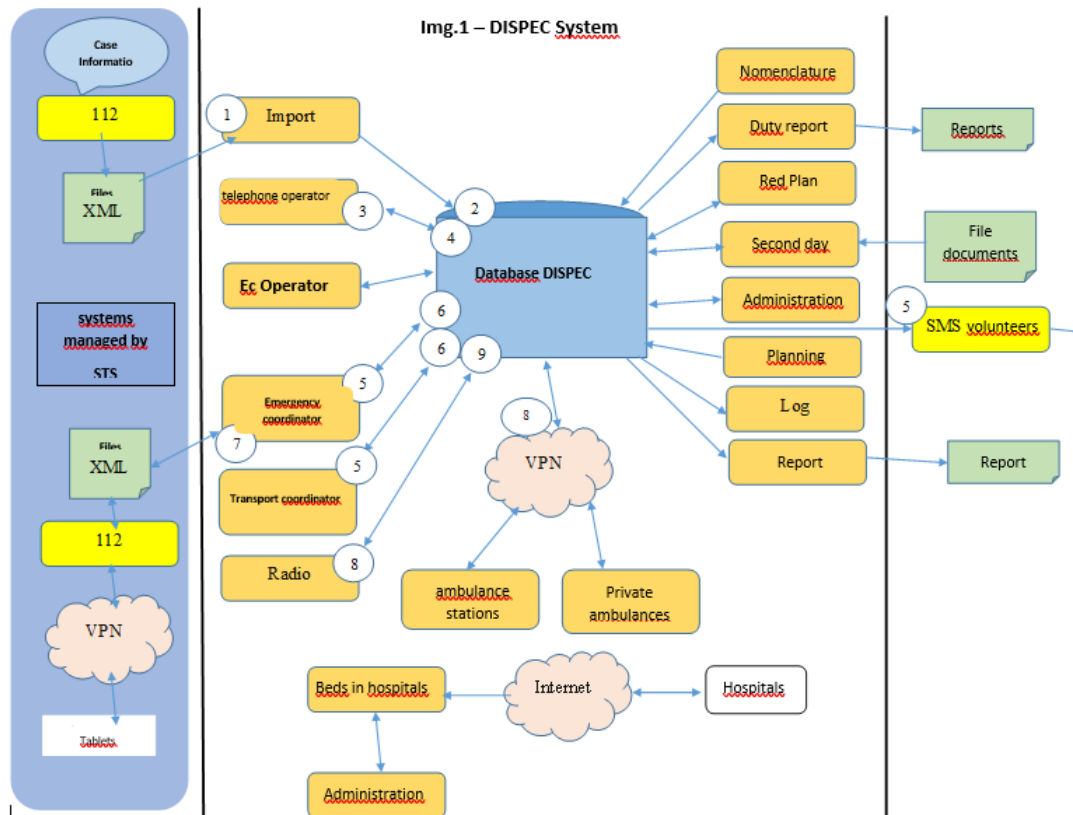
The alert mode, as it can be displayed on the volunteer's phone, for example, is presented as follows:



Img. 5.1. regarding Volunteer alerting mode and interaction with the SABIF medical dispatcher (via SMS)

Returning to the volunteers of the "There is a hero in each of you" program, in the situation where a person called 112 and reported the case of a person falling in a public place, and one of the volunteers, a graduate of a first aid course, registered in the platform and having installed the application, is within a radius of 1,000 meters from the point where the medical emergency is signaled, as soon as the respective person has received the alert on the phone, according to the conditions of the program, he confirms the registration of the alert and must arrive at the place specified in alert in the next five minutes. When the volunteer arrives at the scene of the incident, he assesses the person's condition. In cases of cardiorespiratory arrest, the volunteer starts the basic resuscitation maneuvers and tries, directly or with the support of another person present at the incident, to call 112, to convey the fact that the volunteer from "There is a hero" is present in the respective place, that the

person suffered a cardiac arrest and any other details that may be useful to the medical staff at the ambulance.



Img. 5.2. Architecture of the IT System DISPEC-included SMS VOLUNTEERS Program "There is a hero in each of you"

The DISPEC system is also integrated with the system that transmits, on the mobile phones belonging to the volunteers, code red or yellow emergencies in public places. The integration is done with a Java server installed on a virtual machine (voluntari-pr) configured on one of the SABIF servers (Fujitsu RX2530 M4). The operating system of the virtual machine is Oracle Linux 6 Update 10 and the Java version is 1.8.0_202. The integration scheme is represented in Figure 5.3.

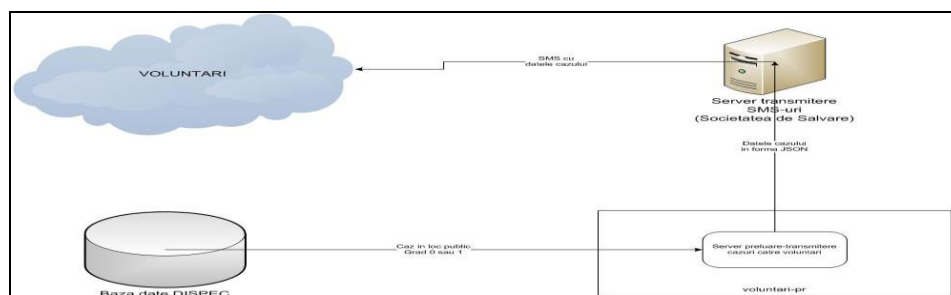


Fig. 5.3 – DISPEC integration – Volunteers

The integration is based on the EXISTŪ UN ERO platform, which is interconnected with SABIF's emergency management application. The EXISTĂ UN ERO platform consists of a component running on a central server and a mobile application, installed on the volunteers' phones. Through the mobile app, volunteers can transmit their location to the central server.

The volunteer submits details regarding the maneuvers undertaken, their effects/results and, depending on the circumstances, asks for additional guidance.

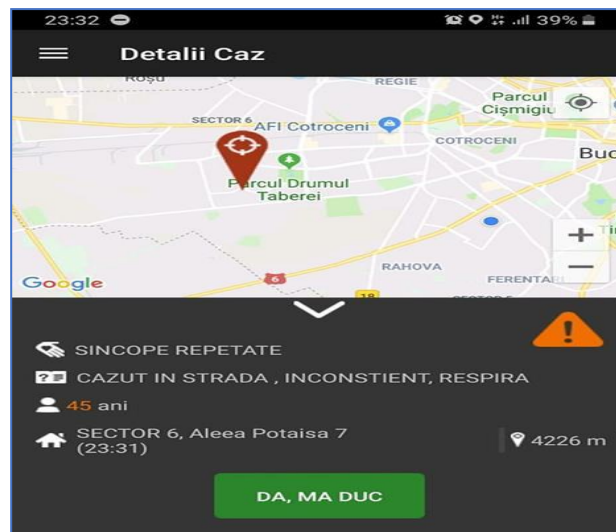


Fig. 5.4.– Details of the case, forwarded to the volunteers

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Img. 5.5. presents the virtualized servers within the DISPEC system, including Volunteers

The resources involved: human, financial, additional equipment, etc

For the Bucharest-Ilfov Ambulance Service, the number of positions allocated ensures staffing with operative personnel at the level of 35.8% of the personnel norm.

The steps taken by the governors in order to increase the number of posts in the structure of public ambulance services, is the fact that, at the central level, there is a notorious shortage of personnel in terms of emergency medicine mentioned in the National Health Strategies 2014-2030 approved by GD no. 1028 /08.12.2014 and HG no. 1004/2023, among the deficient specialties where specific measures are needed.

At the same time, it must be pointed out that dysfunctions in the field of personnel policy have an impact, both on the (deficit) number of doctors and specialized medical personnel, as well as on the health status of the respective employees, exposed to a high level of fatigue and stress, but, more chosen in the qualitative level of emergency public medical assistance.

The work and research that are the subject of this paper aim to propose complementary measures aimed at mitigating the effects due to the shortage of personnel faced by the public ambulance services, without involving other, additional expenses from the state budget.

Thus, the personal concern, supported by continuous efforts, undertaken at the level of the communities in several counties of the country, was directed towards the development of volunteering as a support of the community to support the activity of the ambulance services.

Using the IT application THERE IS A HERO to mobilize volunteers demonstrates how technology can be effectively integrated into medical emergency response systems. Smartphones and location technologies are already widespread, making efficient and large-scale implementation of the project possible.

The material endowments and the specific resources necessary for the implementation of the "There is a hero in each of you" program were realized in the acquisition of: servers, Unique Domain Name, OSIM Brand, PCs and printers, their value being supported by voluntary contributions, as a result of the Program's media campaigns.

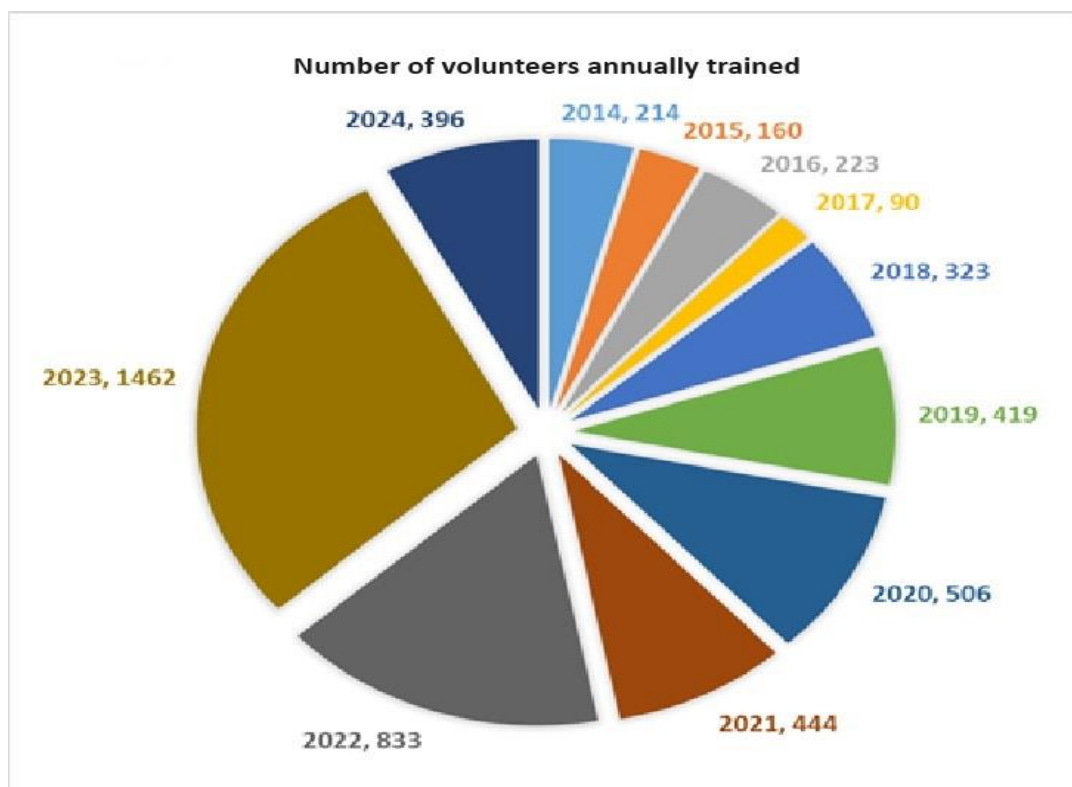
Annually, through the Volunteers Department, after consulting the departments within the Bucharest-Ilfov Ambulance Service, in order to identify the necessary activities in which SABIF volunteers must be trained and to analyze these requests, the "Professional training plan for volunteers enrolled in the Program" is established a hero in each of you " .

Thus, based on the annual professional training plans of the volunteers enrolled in the "There is a hero in each of you" program, 387 professional training sessions were held in:

Basic life support (BLS) - Cardio-respiratory resuscitation (CPR) , in which a total of 5,805 volunteers participated.

At the same time, during the study period, 45 Advanced First Aid Courses (ALS) were held - the complete approach to the management of cardiac arrest and post-resuscitation emergencies, in which a total of 675 volunteers participated.

In the "There is a hero in each of you" Program, volunteers are trained to apply rescue techniques, provide basic life support, know how to provide first aid, use an automatic defibrillator, etc. , the techniques and maneuvers performed by the volunteer requiring minimal skills, which the entire population should know.



Img. 5.6. Situation regarding the training courses attended by the volunteers included in the "There is a hero in each of you" Program

Steps to expand the Romanian Program "There is a hero in each of you":

During the year 2022 (June, July, August) meetings were organized between working groups in Bucharest and Bistrița-Năsăud, in order to document the methods of implementation in order to expand the number of citizens benefiting from the implementation of the project in question. At the same time, with volunteers residing in Bistrița Năsăud county, first aid courses and how to use the dedicated computer application were organized, so that interested Bistrița residents can intervene on the street in case of a medical emergency,

starting in September 2022. An agreement was also signed protocol in this sense between local authorities, SAJ Bistrita and ASSB.

At the same time, starting from December 2022 and until now, the representatives of SABIF, ASSB and authorities from the public ambulance of the Republic of Moldova (Public Medical-Sanitary Institution National Center for Emergency Medical Care) participated in a series of joint meetings where it was presented the program "There is a hero in each of you", the partners from the Republic of Moldova showing a special interest in the implementation of the Project in the Republic of Moldova as well, appreciating the use of advanced information technologies in the activity of the public ambulance from the neighboring country, a fact revealed in publications from the Republic of Moldova.

Similar initiative - in France - on the integration of volunteers in support of emergency medical assistance services in the pre-hospital:

An initiative similar to the Romanian program "There is a hero in each of you" - launched in Romania in 2014, began to apply in France, 4 years later, starting in March 2018, under the name SAUV Life.

Even the slogan, present on the opening page of the SAUV Life application <https://sauvlife.org/>, is similar to the name of the Romanian program There is a hero in each of you: "On Peut Tous Être Un Héro" - We Can All Be A Hero "

According to the SAUVLife website, the introduction of this program is a French civil society initiative in partnership with SAMU (Service d'Aide Médicale Urgente). This program aims to strengthen the cardiac arrest emergency chain, providing citizens with the tools and knowledge to act quickly and effectively.

French SAUV app. Life was launched on March 13, 2018 across France, after being tested since February 23 of the same year by SAMU in Lille, in the north of the country. This is a geo-located application to enable rapid intervention by citizen rescuers while waiting for emergency medical help to arrive. In practice, the computer application is installed on the phone of volunteers who agree to be geolocated, and in the event of a medical emergency response alert, for example: when someone calls for help in a cardiac arrest, as usual, the emergency services will be triggered and, in parallel, the SAUV application will also be triggered. Life.

A notable result of the implementation of the "There is a hero in each of you" Program is the decrease in the number of street deaths. Thus, only in 2023 was this number reduced by 17%, a fact explained by the success of the resuscitations performed by the volunteers of the

"There's a hero in each of you" program, maneuvers performed until the arrival of the medical crews.

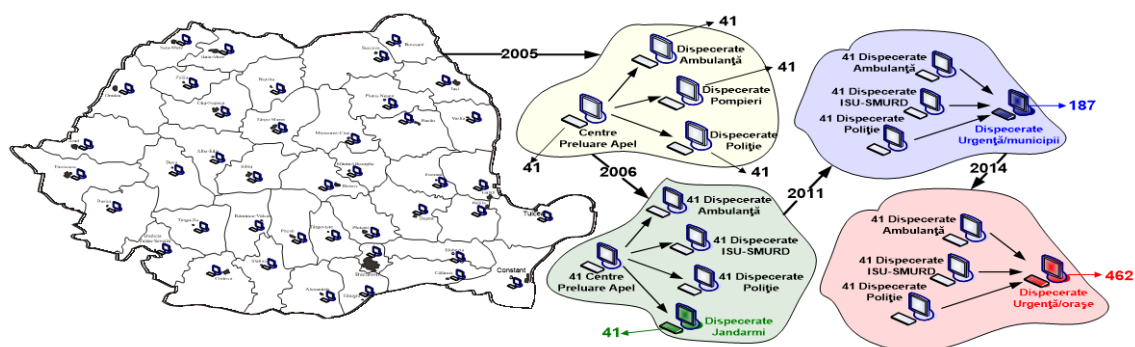
The development and implementation of the pilot program "There is a hero in each of you", a program that meant the integration of volunteers into the activity of the Bucharest-Ilfov Ambulance Service, during the research period (2017-2023), revealed the following achievements:



Graph 5.7. regarding the evolution of the total number of alerts accepted by the volunteers of the "There is a hero in each of you" Program

A visible increase in the number of cases of cases in public places where the volunteers of the "There is a hero in each of you" program intervened, compared to the beginning period, when the "There is a hero in each of you" pilot program was initiated you", at the level of the Bucharest-Ilfov Development Region. It should be noted that the results highlighted in 2024 concern only the first 5 months of that period.

The national expansion of the "There is a hero in each of you" program through integration into SNUAU

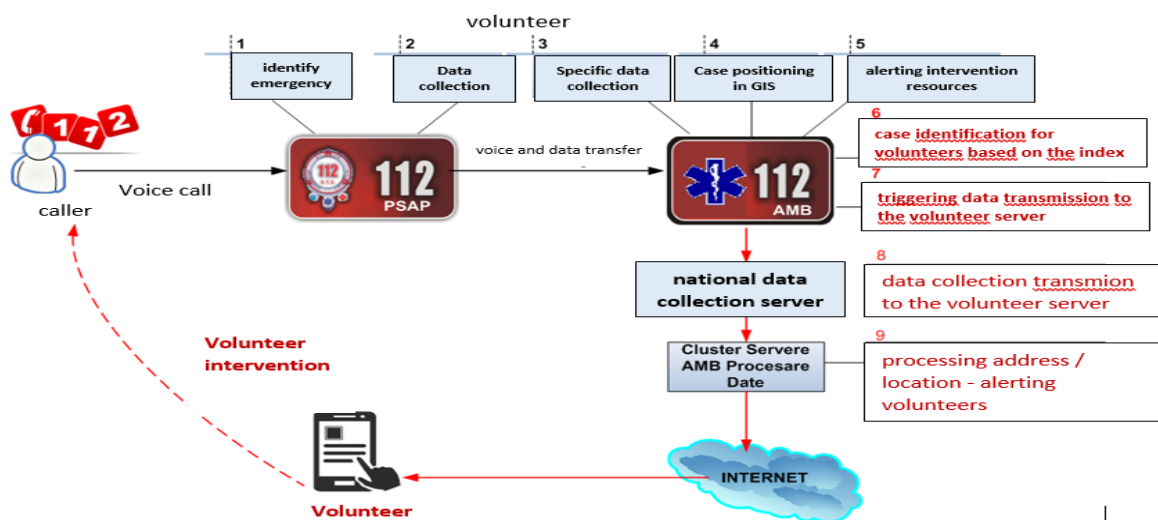


Img. 5.8. CURRENT ARCHITECTURE OF THE SNUAU-112 SYSTEM at the national level

Actions for integration

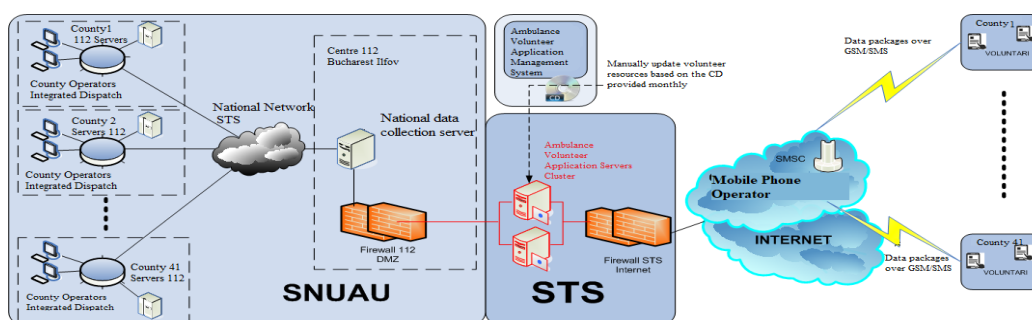
For the Bucharest - Ilfov Region, as part of the "There is a hero in each of you" pilot program, a smartphone alerting application was implemented and developed for volunteers enrolled in the program, people who are in the vicinity of the place where the emergency was reported medical;

Following the request of the initiator of the pilot program "There is a hero in each of you" in order to determine a solution for the expansion, at national level, of that program, STS identified a technical solution for integration and generalization, at national level, in the architecture of the national system SNUAU-112, in the (existing) client-server computer



system and for the "There is a hero" computer application.

Img. 5.9. Presentation of VOLUNTEER ALERT WORKFLOW



Img. 5.10. VOLUNTEER ALERT SOLUTION ARCHITECTURE

5.5. Partial conclusions

1. Expanding the "There's a Hero in Each of You" volunteering program nationally is an opportunity to strengthen ambulance services, educate and mobilize communities, and create a robust and effective support system. By carefully monitoring the indicators and achieving the expected results, this program can become a successful model in managing and improving the quality of emergency medical services at the national level and the degree of patient satisfaction.

2. Considering the fact that one of the characteristics and conditions imposed even by Law no. 95/2006 concerns a limited duration/ a maximum time to reach the place of intervention, time measured in minutes, in order to win this battle "against the clock" for the rescue of human lives, in the situation where the number of crews and cars belonging to the ambulance services is limited and undersized compared to the situations we face every day, the implementation of the program and the launch of the mobile application There is a hero in each of you, in partnership with a mobile phone operator is a "breath of oxygen" for the system and a major opportunity for increasing the level of satisfaction of the population.

3. Although practical experience has proven that the program has good results, in Romania there is a tendency to delay the adoption and generalization of some positive initiatives. However, taking into account the successes achieved with this program, which has proven its effectiveness, over the years, at the level of the largest community in Romania, with reference to the population of the Bucharest-Ilfov Region, to which is added, a considerable number of citizens studying, at work or with other problems, in the country's capital, we are talking about an underserved population that represents a sixth of the entire country's population, the expansion of the "There is a hero in each of you" program at the national level can bring important benefits for population.

4. Comparing the way of implementing the two programs, one launched in Romania in 2014 and the other launched in France, 4 years later, both based on similar working techniques, a greater openness of the authorities in other countries can be observed for the generalization of the application of a volunteer program that supports emergency medical care specialists in pre-hospitals, unlike the Romanian authorities who have not yet given the "green light" to the generalization of the application "There is a hero in each of you", throughout Romania, even now after years of days in which the program proved its effectiveness at the level of the Bucharest-Ilfov Region.

Conclusions and recommendations

Conclusions: 1. The significant shortage of personnel in the Ambulance Services in Romania, which faces a major shortage of operative personnel, of approximately 46.5% at national level, with an even more pronounced crisis in the Bucharest-Ilfov Region, where the shortage exceeds 64%, it reveals the importance of volunteering in the activity of the public ambulance.

This situation reflects systemic problems in the entire pre-hospital emergency medical care sector managed by public ambulance services under the Ministry of Health, Romania having a number of doctors and nurses per 1,000 inhabitants below the EU average, which puts additional pressure on quality the medical services offered.

2. The shortage of personnel and the high demands of prehospital work contribute to high levels of stress and fatigue for medical personnel, affecting their quality of life and the effectiveness of providing medical care.

3. The crucial role of volunteering in supporting ambulance services in the context of scarce resources. Volunteering programs contribute to supplementing the workforce and to the professional and personal training of volunteers.

4. Opportunities for learning and professional development of ambulance service volunteers, contributing to increasing social solidarity and improving the training of the general public in providing first aid.

5. Volunteers are valuable candidates for vacancies in the ambulance services, having the advantage of direct experience and knowledge acquired through training programs.

6. The need to support and expand the volunteer programs, carried out within the public ambulance services, in order to mitigate the effects of staff shortages and to improve the prompt response to medical emergencies, while also ensuring adequate support and continuous training for volunteers .

7. Normative acts have not been adopted regarding volunteering carried out in public institutions subordinated to the Ministry of Health to regulate the way of organization, the training system, evaluation, equipment and specific insignia.

8. The Ministry of Health did not adopt a normative act regarding the generalization, at the national level, of the volunteer program "There is a hero in each of you"

Results obtained: During this doctoral internship, in the first semester of 2018, a protocol was signed to expand the "There is a hero" program at the national level, together with the Ministry of Health, and the mobile application will be connected to the emergency

management at the county ambulance services. It was also proposed that the training of volunteers be carried out by the Bucharest-Ilfov Ambulance Service, in collaboration with the Ministry of Health.

Recommendations:

1. Implementation of a robust legislative framework for volunteering carried out within public institutions subordinate to the Ministry of Health, as host organizations:

It is necessary for the competent authorities (Parliament, Government, Ministry of Health) to issue precise and detailed normative acts for the regulation of volunteering organized and managed by public medical institutions. These normative acts should include institutional coordination, performance criteria, professional training and description of the conditions for the award and use of uniforms and equipment.

Standardization of activities and documents related to volunteering:

Through an agreement of the legal representatives of the public ambulance services or through the involvement of the Ministry of Health, the activities and documents related to volunteering must be standardized. This includes recruitment notices, volunteering contracts, activity regulations, continuing professional training programs, etc.

2. Extension of the "There is a hero in each of you" volunteering program at the national level, within all public ambulance services:

It is imperative to initiate a normative act that provides for the expansion of the program and the mobile application at the national level. This program has demonstrated success in the Bucharest-Ilfov Region and can bring significant benefits at the national level, including in partnership with private companies-mobile phone operators.

3. Mediatization and recognition of the role of volunteers: Supported mediatization campaigns are needed on the activity carried out by volunteers within the public ambulance services, so that both the population and the governors understand the importance and impact of this volunteering.

4.Improving training and professional training systems: Training of volunteers should be carried out through accredited centres, such as ambulance services, in collaboration with the Ministry of Health, to ensure a high level of training and skills.

5. Promoting and encouraging civic involvement: It is necessary to develop a national strategy to encourage citizens to get involved in voluntary activities. This could include information campaigns, collaborations with NGOs and religious institutions, and the development of a well-defined legislative framework for carrying out these activities.

6. Continuous monitoring and evaluation of volunteering programs carried out in public institutions subordinate to the Ministry of Health: Implementation of monitoring and evaluation mechanisms of volunteering programs to ensure the achievement of the proposed objectives and to identify and solve possible problems.

By applying these recommendations, expanding and supporting volunteer programs in ambulance services can significantly contribute to improving the response to medical emergencies and increasing the quality of medical services offered to the population.

Indicators and results that will improve after the expansion of the "There is a hero in each of you" Program at the national level:

The volunteer program "There is a hero in each of you" was initiated with the aim of supporting ambulance services by actively involving volunteers in providing first aid to people in public places, victims of heart ailments. Expanding this program nationally has the potential to bring significant benefits in improving emergency medical services, increasing response capacity, and improving public first aid education.

The effectiveness of the expansion of the "There is a hero in each of you" volunteering program can be evaluated by following the following indicators:

Volunteer hours provided

Number of interventions assisted by volunteers:

Staff and patient satisfaction rate:

Expected results:

Improving responsiveness:

Saving more lives

Reducing response times through logistical and administrative support provided by volunteers.

Increasing the effectiveness of interventions by involving trained volunteers in support activities.

Developing the skills of volunteers:

Acquiring relevant skills and abilities for the volunteers involved, contributing to their personal and professional development.

Increasing the employability of volunteers due to the experience gained.

Improving staff morale and satisfaction:

Reducing stress and workload for ambulance service staff through volunteer support.

Creating a more positive and collaborative work environment.

Increasing the quality of ambulance services:

Improving the patient experience through increased attention and more structured support.

Increasing the level of confidence of the population in emergency services.

Research Limits and Research Prospects

Sustained media coverage of the activity carried out by the volunteers who work within the public ambulance services, alongside the medical crews, acting in the field of emergency medicine in the pre-hospital, is necessary, so that both the population and the governors become aware of the extent and importance of this movement , and, above all, to be aware of the fact that, in Romania, volunteering in emergency medical assistance exists and works, legally and effectively, an activity that should not be confused with interventions caused by emergency situations or calamities, interventions that have as their main purpose saving and protecting assets belonging to communities and individuals.

A telling example is the GUIDE on optimizing the partnership between public authorities and the associative environment for volunteering issued by the General Secretariat of the Government, as part of the Volunteering Promoters Program on the occasion of the International Day of Volunteering.

Research may encounter challenges, including responses, due to self-selection of volunteers who choose to participate, as well as difficulties in accessing geographically isolated areas. We will address these issues by diversifying our data collection methodology and adjusting our sampling techniques.

By applying these methods, the research aims to provide a clear and substantiated picture of the current state of volunteering in ambulance services in Romania, thus contributing to the development and improvement of this vital sector.

Unfortunately, only 5% of Romanians are constantly involved in volunteer actions, although 92% of the participants in the opinion survey consider volunteering as a beneficial activity, although they have not participated in volunteer actions. The above-mentioned data are revealed by a study carried out, between April 29 and May 14, 2024, on a sample of 1005 people, over 18 years old, published by the University of Bucharest - Faculty of Sociology and Social Work, on 23 May 2024.

"Almost half (43%) of Romanians have not yet participated in volunteer activities in an official and organized setting, and emotion remains the main factor that motivates volunteers. Associating volunteering with positive labels such as kindness (90%), responsibility (86%) or civic involvement (82%) meets very high degrees of agreement";

More than half of the respondents do not volunteer due to lack of time or other obligations (55%), some do not want to get involved in this activity (52%) and others believe that the state and other institutions should solve society's problems (51 %).

Regarding the institutionalized framework for volunteering, two-thirds (64%) of the respondents do not know that there is a volunteering law, and a similar number (74%) expressed their desire to have a well-defined legislative framework for conducting these activităţi. This indicates the need to mature the concept, to transition from "good deeds" and civic sense to an organized activity, carried out according to legitimate norms and in accordance with strategic objectives that respond to the current needs of society.

“In terms of sources of information on volunteer opportunities and mobilization for such causes, social networks (32%) and friends/acquaintances (24%) are the main ones. Moreover, the most credible sources of organizing volunteering for Romanians are citizens' groups (29%), churches (27%), NGOs (25%).

"The fact that the first place is occupied by groups of citizens, without institutional/formal support, shows an image of civic involvement not so much as a result of a culture of volunteerism, but rather of a culture of good, built on spontaneity, causes that impress and not on long-term projects, institutional support and trust in institutions", indicate the research results.

Likewise, the level of involvement in volunteer actions increases with the level of education.

Comparative analyzes within the sample showed that volunteering is more widespread among people from the urban environment, with higher age, income and level of education. However, the positive attitude towards volunteering is widespread in all socio-demographic categories.

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