NINO AGLADZE

AWARENESS, KNOWLEDGE AND ATTITUDES TO CARDIOPULMONARY RESUSCITATION (CPR) IN GEORGIAN POPULATION

Ivane Javakhishvili Tbilisi State University, faculty of medicine,
department of clinical and research skills, Tbilisi, Georgia

Doi: https://doi.org/10.52340/jecm.2025.06.15

ნინო აგლაძე

ცნობიერება, ცოდნა და დამოკიდებულება გულ-ფილტვისმიერი რეანიმაციის (CPR) მიმართ საქართველოს მოსახლეობაში

ივანე ჯავახიშვილის სახელობის თბილისის სახელმწიფო უნივერსიტეტი, მედიცინის ფაკულტეტი,
კლინიკური და კვლევითი უნარების განყოფილება, თბილისი, საქართველო

რეზიუმე

შესავალი: გულის გაჩერება პრეჰოსპიტალურ ეტაპზე (OHCA) სიკვდილის ერთ-ერთი წამყვანი მიზეზია. თვითმხილველის მიერ დროულად დაწყებული გულ-ფილტვის რეანიმაცია (გფრ) მნიშვნელოვანად ზრდის გადარჩენის შანსს.

მიზანი: კვლევის მიზანს წარმოადგენდა გფრ-ს შესახებ ცნობადობის, ცოდნისა და დამოკიდებულების შესწავლა და ასევე მათი კორელაციის შეფასება რეგულარულ პირველადი დახმარების ტრენინგებთან საქართველოს მოსახლეობაში.

მეთოდები: მონაცემების შესაგროვებლად გამოიკითხა თბილისში მცხოვრები 572 მოხალისე. ანალიზისთვის გამოყენებული იქნა SPSS 16.0 (სტატისტიკური პაკეტი სოციალური მეცნიერებებისთვის) და სტატისტიკური მაჩვენებლების სარწმუნოების შესაფასებლად - Pearson's $\chi 2$ ტესტი (p-მნიშვნელობა).

შედეგები: გამოკვლეულთაგან 301 (52.6%) გამოკითხულს ჰქონდა და 271 (47.4%) არ ჰქონდა ინფორმაცია გფრ-ს შესახებ. მოხალისეთა უმეტესობამ - 215/301-დან (71.4%) გულ-ფილტვის რეანიმაციის შესახებ ცოდნა პირველადი დახმარების ტრენინგის მეშვეობით მიიღო, ხოლო 86-მა/301-დან (28.6%) - სხვა წყაროებიდან (ტელევიზია, სოციალური მედია, საგანმანათლებლო ბუკლეტები, მედია და ა.შ.). მათ შორის, ვინც რეგულარულად გადის პირველადი დახმარების ტრენინგებს (124/215 ან 57.7%) 92%-მა დაადასტურა მზაობა საჭიროების შემთხვევაში გფრ-ს ჩასატარებლად. საპირისპიროდ, მათ შორის, ვინც ერთხელ გაიარა პირველადი დახმარების ტრენინგი (91/215 ან 42.3%), მხოლოდ 43%-მა დაადასტურა მზადყოფნა გულ-ფილტვის რეანიმაციის ჩასატარებლად.

დასკვნები: საქართველოს მოსახლეობაში გულ-ფილტვის რეანიმაციის შესახებ ცნობადობა დაბალია. საჭიროების შემთხვევაში გფრ-ს ჩასატარებლად ცნობადობისა და მზაობის გაზრდის ყველაზე ეფექტური გზაა პირველადი დახმარების სასწავლო კურსების რეგულარული ჩატარება საზოგადოების სხვადასხვა წრეებში.

Introduction. Out-of-hospital cardiac arrest (OHCA) is a serious public health issue [1,11]. There are more than 356,000 out-of-hospital cardiac arrests (OHCA) annually in the U.S. [1] and approximately 275,000 in Europe [2,19]. Out-of-hospital cardiac arrest (OHCA) is a leading cause of death, [3,19] and the number of OHCA patients is increasing every year in Japan, and cardiac OHCAs are estimated to exceed 80,000 per year in 2021 [3]. In the United States people experienced nontraumatic out-of-hospital cardiac arrest (OHCA) about 60% to 80% of them die before reaching the hospital [1]. Bystander cardiopulmonary resuscitation (CPR) is critical to increasing survival from out-of-hospital cardiac arrest (OHCA) [3,12]. An individual experiencing OHCA is almost twice as likely to survive when witnesses perform CPR while emergency personnel are in route [3].

CPR is a collection of interventions performed to provide oxygenation and circulation to the body during cardiac arrest. To improve survival with favorable neurological outcomes after OHCAs, the 2020 American Heart Association guidelines emphasize the important concept of the “Chain of Survival” [3,10],

which includes lay rescuers. In adult cardiac arrest, the primary focus is on rapid recognition and rapid cardiopulmonary resuscitation (CPR). Individuals experiencing cardiac arrest who receive CPR from a lay responder are more likely to have an initial shockable rhythm when the AED (automated external defibrillator) or EMS (emergency medical service) arrives and to survive to hospital discharge compared with those who do not receive CPR before EMS arrival. This is attributed to CPR pumping blood to vital organs such as the heart and brain and forestalling deterioration of ventricular fibrillation to asystole [3]. Despite advances in emergency medical services, the survival rate remains low [19]. Because general citizens play a main and important role in bystander CPR, it is important to regularly inform them that active participation in CPR training can improve both the acute survival and survival with favorable neurological outcomes of patients with OHCAs [3]. There is no exact statistics about OHCA and survival rates, especially there is lack of data regarding awareness and preparedness for CPR performance, sources of CPR knowledge for Georgian population. Therefore, the aim of the present study was to assess CPR awareness, knowledge, and willingness for CPR performance [5, 12, 14] as well as their relationship with regular first aid training [13, 16, 17] among Georgian population.

Methods. A cross-sectional survey was conducted for data collection involving 572 volunteers residing in Tbilisi from September 2022 to April 2023. Participants were selected randomly using a simple random method, with no restrictions based on age, gender, educational background, or occupation. A specific questionnaire was designed and used for gathering the required information. Each participant provided details on their age, gender, education, occupation, knowledge about OHCA, importance and technique of early CPR, source of knowledge as well as willingness for CPR performance.

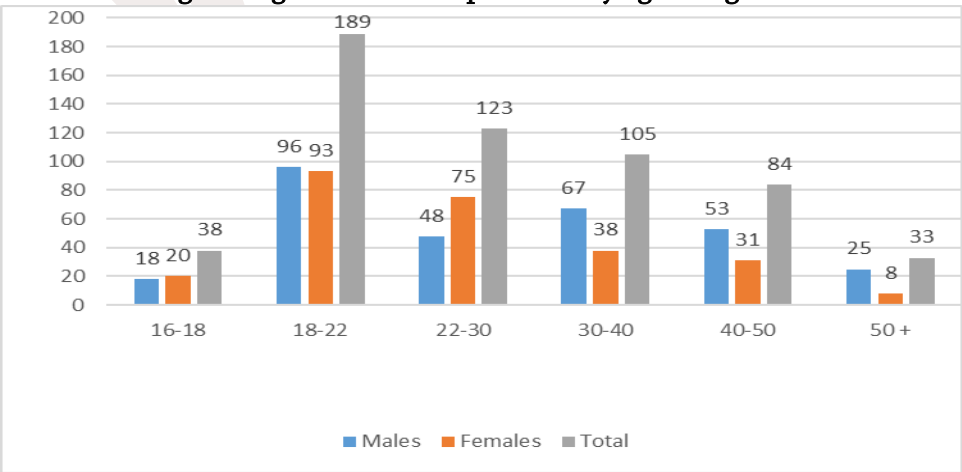
Ethical issues.

- Informed consent: Obtained informed consent from participants, ensuring they understand the purpose of the study and how their data will be used.
- Anonymity: Ensured confidentiality and anonymity of participants by assigning unique identifiers to survey responses and interview transcripts.

Data Analysis. SPSS (Statistical Package for the Social Sciences) 16.0 for analysis and X2 - Pearson's chi-squared test (p-value) for statistical significance were used. The p-value of the test statistic was computed numerically and usually $p < 0.05$ by convention was considered statistically significant. The results were presented with confidence intervals and a 95% confidence level.

Results. Based on a cross sectional survey of 572 volunteers aged 16 to 60, 307/572 (53.7%) were males and 265/572 (46.3%) were females (Fig. 1). Out of 572 respondents 301 (52.6%) were familiar with OHCA and CPR, while 271 (47.4%) had no information about it.

Fig.1. Diagram for the respondents by age and gender



As indicated in table 1, most research participants with knowledge about OHCA and CPR were in the mid age group of 30+ years- 189/222 (85.1%). In contrast, a very small number of pupils and students have information about the importance and technique of early CPR 41/227 (18.1%), (Fig. 2).

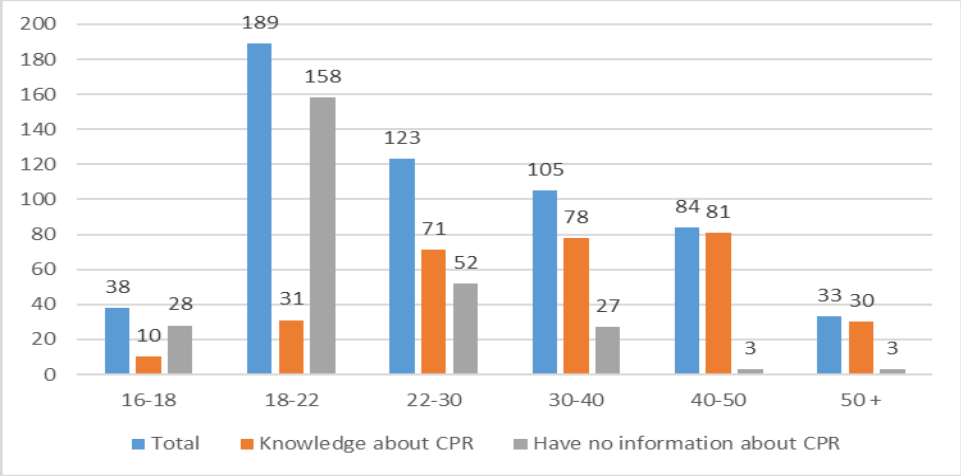
Table 1. Distribution of the respondents by age, gender, and CPR knowledge backgrounds

Age	Males	Females	Total	Knowledge about CPR	No information about CPR
16-18	18	20	38	10	28
18-22	96	93	189	31	158
22-30	48	75	123	71	52
30-40	67	38	105	78	27
40-50	53	31	84	81	3
50 +	25	8	33	30	3

Table 2. Distribution of the study population by age and source of information about CPR

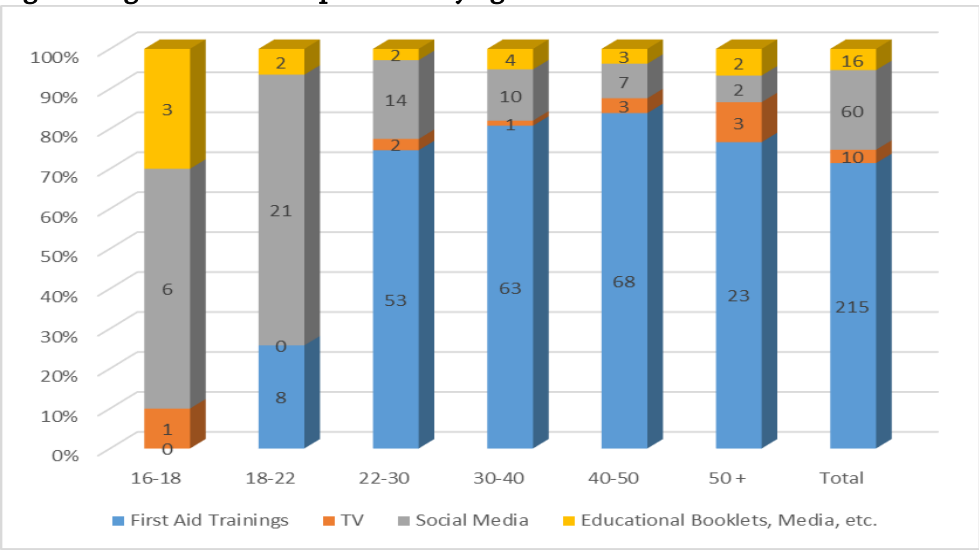
Age	First Aid Trainings	TV	Social Media	Educational Booklets, Media, etc.
16-18	-	1	6	3
18-22	8	-	21	2
22-30	53	2	14	2
30-40	63	1	10	4
40-50	68	3	7	3
50 +	23	3	2	2
Total	215	10	60	16

Fig. 2. Diagram for the study population by age and CPR knowledge backgrounds



As given in table 2, the most common source of information about OHCA and CPR was first aid training courses - 215/301(71.4%) followed by social media- 60/301(19.9%), educational booklets and media- 16/301(5.3%), TV- 10/301(3.3%). In ages 16-22 the most common source of information about CPR was social media (27/41or 65.85%). In contrast, in age 30-50+ years the most common source for CPR awareness was first aid training courses (154/189 or 81.5%), (Fig. 3).

Fig. 3. Diagram for the respondents by age and source of information about CPR



According to table 3, a first aid training course served as the source for CPR awareness mainly for employees and in small cases for self-employed individuals. In contrast, pupils and students obtained information mainly from social media, in small cases from educational booklets and media (Fig. 4).

Table 3. Distribution of the study population by occupation and source of information about CPR

Occupation	First aid trainings	TV	Social media	Educational booklets, media, etc.
School	-	1	6	3
Students	-	-	21	2
Employees	206	1	8	1
Self-employed	6	3	16	7
Unemployed	3	5	9	3
Total	215	10	60	16

Fig. 4. Diagram for the study population by occupation and source of information about

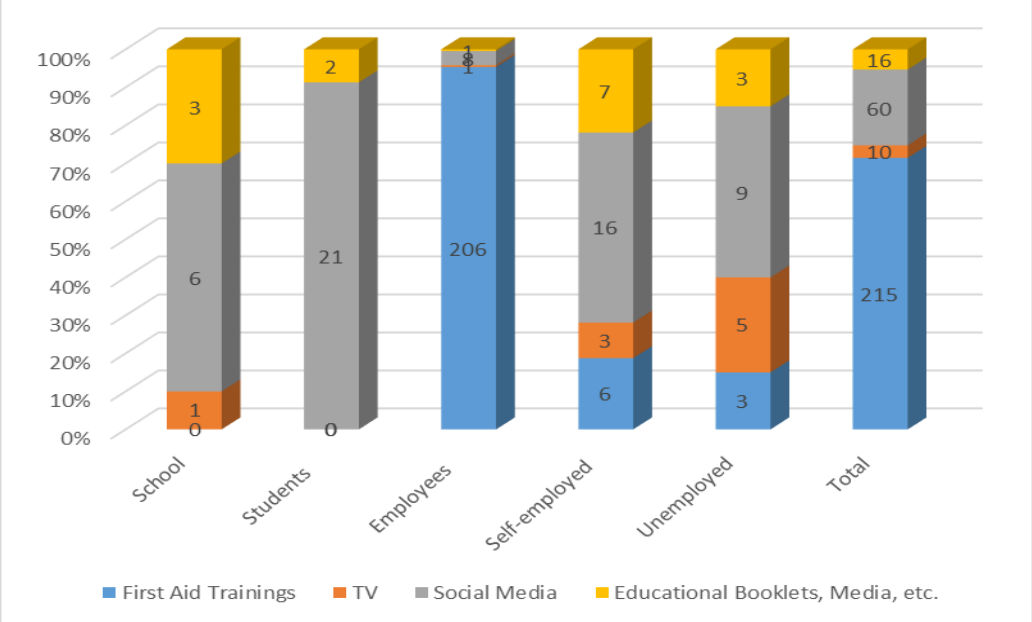
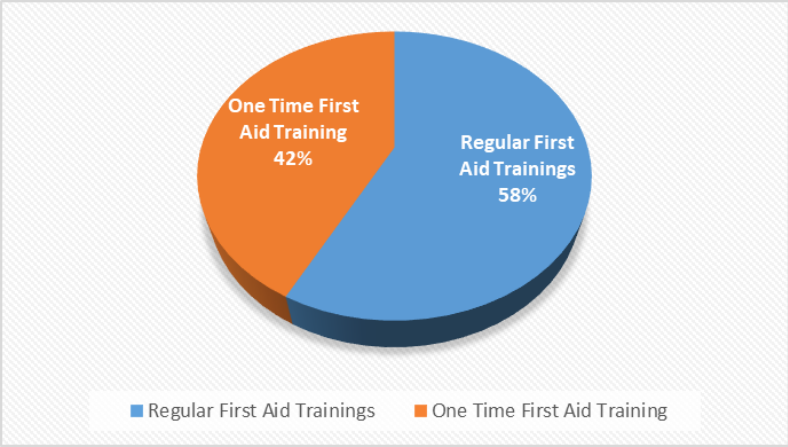


Table 4. Distribution of the respondents by occupation, first aid trainings and preparedness for performance of CPR

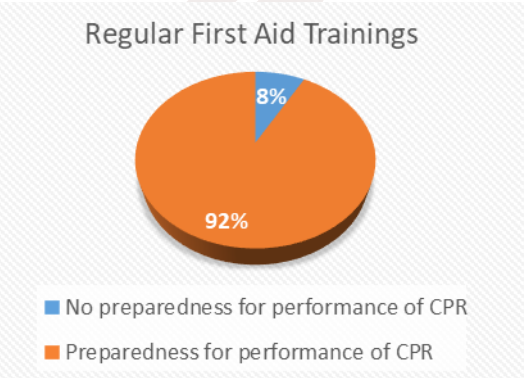
Occupation	Regular first aid trainings	One time first aid training
School	-	-
Students	-	-
Employees	124	82
Self-employed	-	6
Unemployed	-	3
Total	124	91
Preparedness for performance of CPR	114	39

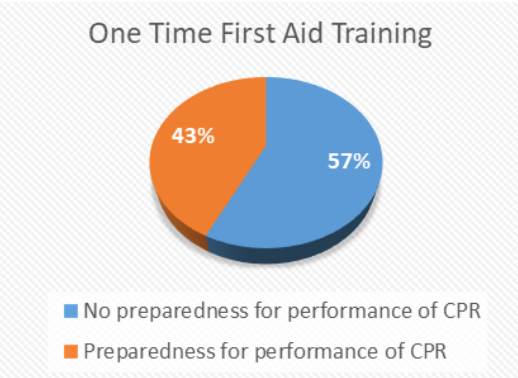
Fig. 5. Distribution of first aid trainings frequency



As shown in table 4. 124/215 employees take first aid trainings regularly, and 114 individuals (91.9%) among them confirm their preparedness for CPR performance, 7 respondents among this group have provided CPR on real victim - 4 for sudden cardiac arrest (with 1 successful outcome) and 3 for drowning (all of them resulted in successful outcomes); All these respondents completely agreed that regular first aid trainings made them more prepared for such situations. In contrast, 91/215 employees and self-employed who have taken first aid training once, only 39 individuals (42.9%) confirm willingness for CPR performance (Fig. 5, 6, 7).

Fig. 6, 7. Distribution of the respondents by first aid trainings frequency and willingness for performance of CPR





Discussion. Cardiopulmonary resuscitation (CPR) – is an emergency lifesaving procedure performed when the heart stops beating, and death can occur within minutes [20]. The brain can suffer damage in as few as three minutes without proper blood flow. After nine minutes without blood flow to the brain, there can be irreversible damage. CPR helps to keep blood flowing and may help minimize the damaging effects that can occur while waiting for emergency responders to arrive. Immediate CPR can double or triple the chances of survival after cardiac arrest [20]. Sudden cardiac arrest (SCA) can happen to people at any time or place. Victims of SCA must be treated immediately [20]. In some cases, the victim may return to life with minimal side effects after receiving high-quality CPR [20]. According to 2021 US data for adult OHCA only, survival to hospital discharge was 9.1% for all EMS-treated non-traumatic out-of-hospital cardiac arrests. This low survival rate can be explained by delayed bystander CPR, fear of causing harm, and difficulty performing this complex psychomotor task [4]. Regular first aid training made lay rescuers more prepared for the situation.

The presented study shows awareness and willingness for CPR performance as well as its relationship with regular first aid trainings among Georgian population. Most research participants with knowledge about OHCA and CPR were in mid age 30+ years (85.1%); The most common source of knowledge was first aid training courses (71.4%, 95% CI: 1.07 to 2.91; p = 0.027), which are available only for employees and in small cases for self-employed. The proportion of bystander awareness and preparedness for CPR performance was significantly higher in the trained rescuer group, who take training regularly, than in rescuer group, who take training only one time (91.9% and 42.9%; 95% CI: 0.40 to 0.73; p = 0.001). Good quality CPR achieved through regular hands-on training. CPR performed by trained individuals could lessen the likelihood of casualties such as rib fractures and internal injuries.

Conclusions. The level of CPR awareness and especially willingness for CPR performance in Georgian population, particularly in schools and students is low. The implementation of regular first aid training courses in all community settings is the most effective way for increasing both awareness and preparedness for CPR performance.

Acknowledgements. The author would like to thank all participants for their help in collecting the data for this study, as well as to Mariam Mikadze for considerable help in data collection and Salome Butskhrikidze for statistical analysis.

References:

1. Tsao CW, Aday AW, Almarzooq ZI, Alonso A, Beaton AZ, Bittencourt MS, Boehme AK, Buxton AE, Carson AP, Commodore-Mensah Y, Elkind MS. Heart disease and stroke statistics—2022 update: a report from the American Heart Association. Circulation. 2022 Feb 22;145(8):e153-639.
2. Strnad M, Borovnik Lesjak V, Jerot P, Esih M. Prehospital predictors of survival in patients with out-of-hospital cardiac arrest. Medicina. 2023 Sep 26;59(10):1717.
3. Matsunaga-Lee Y. Chain of Survival—Important Role of General Citizens as Lay Rescuers—. Circulation Journal. 2023 Nov 21:CJ-23.
4. Iwami T, Kawamura T, Hiraide A, Berg RA, Hayashi Y, Nishiuchi T, et al. Effectiveness of bystander-initiated cardiac-only resuscitation for patients with out-of-hospital cardiac arrest. Circulation. 2007 Dec 18;116(25):2900-7.
5. Andréll C, Christensson C, Rehn L, Friberg H, Dankiewicz J. Knowledge and attitudes to cardiopulmonary resuscitation (CPR)–a cross-sectional population survey in Sweden. Resuscitation Plus. 2021 Mar 1;5:100071.
6. Partyński B, Tokarek T, Dziewierz A, Dykla D, Januszek R, Dudek D. Impact of basic life support training on knowledge of cardiac patients about first aid for out-of-hospital cardiac arrest. Journal of Public Health. 2021:1-6.

7. Atkins DL. Bystander CPR: How to best increase the numbers. Resuscitation. 2012 Sep 1;83(9):1049-50.
8. Goniewicz M, Chemperek E, Mikuła A. Attitude of students of high schools in Lublin towards the problem of first aid. Wiadomosci Lekarskie (Warsaw, Poland: 1960). 2002 Jan 1;55(Pt 2):679-85.
9. Hawkes CA, Brown TP, Booth S, Fothergill RT, Siriwardena N et al. Attitudes to cardiopulmonary resuscitation and defibrillator use: a survey of UK adults in 2017. Journal of the American Heart Association. 2019 Apr 2;8(7):e008267.
10. Krammel M, Schnaubelt S, Weidenauer D, Winnisch M, Steininger M, Eichelter J et al. Gender and age-specific aspects of awareness and knowledge in basic life support. PloS one. 2018 Jun 12;13(6):e0198918.
11. Luc G, Baert V, Escutnaire J, Genin M et al. Epidemiology of out-of-hospital cardiac arrest: a French national incidence and mid-term survival rate study. Anaesthesia Critical Care & Pain Medicine. 2019 Apr 1;38(2):131-5.
12. Özbilgin Ş, Akan M, Hancı V et al. Evaluation of public awareness, knowledge and attitudes about cardiopulmonary resuscitation: report of İzmir. Turkish journal of anesthesiology and reanimation. 2015 Dec;43(6):396.
13. Pehlïvan M, Mercan NC, Çïnar İ, Elmali F, Soyöz M. The evaluation of laypersons awareness of basic life support at the university in Izmir. Turkish journal of emergency medicine. 2019 Jan 1;19(1):26-9.
14. Rajapakse R, Noč M, Kersnik J. Public knowledge of cardiopulmonary resuscitation in Republic of Slovenia. Wiener Klinische Wochenschrift. 2010 Dec 1;122.
15. Rasmus A, Czekajlo MS. A national survey of the Polish population's cardiopulmonary resuscitation knowledge. European journal of emergency medicine: official journal of the European Society for Emergency Medicine. 2000 Mar 1;7(1):39-43.
16. Tanigawa K, Iwami T, Nishiyama C, Nonogi H, Kawamura T. Are trained individuals more likely to perform bystander CPR? An observational study. Resuscitation. 2011 May 1;82(5):523-8.
17. Wingen S, Schroeder DC, Ecker H, Steinhauser S, Altin S. et al. Self-confidence and level of knowledge after cardiopulmonary resuscitation training in 14 to 18-year-old schoolchildren: A randomised-interventional controlled study in secondary schools in Germany. European Journal of Anaesthesiology EJA. 2018 Jul 1;35(7):519-26.
18. Rosell-Ortiz F, Escalada-Roig X, et al. Out-of-hospital cardiac arrest (OHCA) attended by mobile emergency teams with a physician on board. Results of the Spanish OHCA Registry (OSHCAR). Resuscitation. 2017 Apr 1;113:90-5.
19. Randjelovic SS, Nikolovski SS, Tijanic JZ, Obradovic IA, Fiser ZZ, Lazic AD, Raffay VI. Out-of-Hospital Cardiac Arrest Prospective Epidemiology Monitoring during the First Five Years of EuReCa Program Implementation in Serbia. Prehospital and Disaster Medicine. 2023 Feb;38(1):95-102.
20. “10 Reasons Why CPR is Important.” https://avive.life/blog/why-is-cpr-important/, 2021 Nov 22.

NINO AGLADZE

AWARENESS, KNOWLEDGE AND ATTITUDES TO CARDIOPULMONARY RESUSCITATION (CPR) IN GEORGIAN POPULATION

Ivane Javakhishvili Tbilisi State University, faculty of medicine,
department of clinical and research skills, Tbilisi, Georgia

SUMMARY

Background: Out-of-hospital cardiac arrest (OHCA) is a leading cause of death. Bystander immediate cardiopulmonary resuscitation (CPR) is critical for increasing survival rates.

The aim of study was to assess CPR awareness, knowledge, and attitudes as well as their correlation with regular first aid training in Georgian population.

Methods: Data on CPR knowledge was collected from 572 volunteers residing in Tbilisi. SPSS (Statistical Package for the Social Sciences) 16.0 for analysis and X2 - Pearson's chi-squared test (p-value) for statistical significance were used.

Results: Out of the study objects, 301 (52.6%) were familiar with CPR, while 271 (47.4%) had no information about it. Most volunteers 215/301(71.4%) gained CPR knowledge through first aid training, and 86/301 (28.6%) from other sources (TV, social media, educational booklets, media, etc.) Among those who received first aid training regularly (124/215 or 57.7%), 92% confirmed willingness for CPR performance. In contrast, among those who took first aid training once (91/215 or 42.3%), only 43% confirmed preparedness for CPR performance.

Conclusions: The CPR awareness level in Georgian population is low. The most effective way to increase both awareness and willingness for CPR performance is the implementation of regular first aid training courses in all community settings.

Keywords: Out-of-hospital cardiac arrest, CPR, first aid training, Georgian population