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Original Research Article

Knowledge and attitude of the general population toward common medical emergencies

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ABSTRACT

Background: Medical emergencies, such as heart attacks, strokes, allergic reactions, or choking, can happen unexpectedly, and understanding the basic steps to take in these moments can make a significant difference in outcomes. Knowledge on how to tackle common medical emergencies empowers individuals to respond quickly and effectively in critical situations, potentially saving lives. Hence this study was done to assess the general population's knowledge and preparedness in handling medical emergencies.
Methods: This cross-sectional study was conducted among general population above the age of 16 years in a tertiary healthcare centre, Mysuru. A total of 301 were included in the study after obtaining assent from the parents for those between the age of 16-18 years and consent from adults above 18 years consented. A semi-structured self-administered questionnaire was used to collect data and was analysed using SPSS 25 version.
Results: The questionnaire assessed awareness of medical emergencies across four scenarios. Heart attack and CPR: 96% identified it correctly, but 66.4% didn't know CPR. Stroke and FAST: 85.7% diagnosed it, yet 66.1% were unaware of FAST. Choking: 87.4% identified it; 52.8% knew the Heimlich manoeuvre. Poisoning: 95.7% recognized it; nausea (29%) was the most cited symptom. A significant 79.1% had no prior training, but 91% were interested. Suggestions for awareness included workshops, social media clips, and posters in public spaces, with a focus on both urban and rural areas.
Conclusions: The research reveals gaps in public knowledge and skills for handling health emergencies, highlighting the need for better education and stronger emergency preparedness efforts.

Keywords: Awareness, BLS, CPR, Common medical emergencies, General population

INTRODUCTION

A medical emergency is an injury or illness that is acute and poses an immediate risk to a person's life or long-term health and it's extremely important to attend to these patients immediately. The early identification of a medical emergency and subsequent management will be helpful to save the patient's life and prevent irreversible consequences.[1] According to the American Red Cross, Basic Life Support, or BLS, generally refers to the type of care that first-responders, healthcare providers and public safety professionals provide to anyone who is experiencing cardiac arrest, respiratory distress or an obstructed airway. BLS standard includes recognition of sudden cardiac arrest (SCA), heart attacks, strokes, and foreign body airway obstructions, as well as the use of automated external defibrillators for cardiopulmonary resuscitation (CPR) and defibrillation.[1] In today's world, where emergencies can strike at any moment, the ability to perform BLS is not just a valuable skill, it is a potential lifesaver. ICMR conducted a study to understand the incidence and survival rate of out-of-hospital cardiac arrests (OHCA) in urban and rural India. The study highlighted the importance of bystander CPR in

improving survival outcomes. It was found that the chances of survival doubled when immediate bystander CPR was performed. However, certain studies in India found that the bystander CPR rates (9.8%) fall below the impact goal of bystander response of 62% set by the AHA-ECC.[2] Amongst the sparse data available from India, the CARO study reported bystander CPR rate of only 1.3%.[3] This highlights that BLS is especially more important in underdeveloped and developing areas as professional aid sometimes takes time to reach such places. and can play a role in saving someone's life or delaying/reducing their chances of mortality by giving basic care before emergency services arrive. A study done by Shaheen et al found that only 47.3% had heard of BLS, and 76.2% lacked training, revealing limited knowledge but a strong willingness among the public to learn these vital skills.[4]

There are only a few studies done on this subject and they show relatively insufficient knowledge of the general population on this subject and the need to educate the masses on how to tackle them, hence this study was conducted to assess the knowledge and attitude of general population on tackling medical emergencies and how to implements methods to improve the same.

METHODS

This cross-sectional study was conducted over a six-month period from July to December 2024, aiming to assess the knowledge and attitudes of the general population toward common medical emergencies. The study included individuals aged 16 years and above, selected through purposive sampling. For participants under 18, assent was obtained along with parental consent. Participants were recruited from diverse demographic backgrounds to ensure representativeness. Appropriate ethics committee approval was taken. Informed consent and confidentiality were maintained throughout the study. Data was collected using a self-administered, semi-structured questionnaire distributed via Google forms. The survey captured demographic details and responses to scenario-based questions on medical emergencies such as heart attacks, strokes, choking, and poisoning. It assessed factual knowledge, appropriate management steps, immediate actions, and attitudes toward learning emergency response techniques. A total of 301 responses were analyzed. Data were coded and entered in Microsoft Excel, then analyzed using SPSS version 25. Results were presented using tables and graphs.

RESULTS

Table 1 explains about the demographic details of the participants, with Majority (40%) aged 45-60 years, while 60+ years constitute only 5%. Females (58.8%) outnumber males (40.9%), with a small 0.3% identifying as others. Most respondents are post-graduates (49%), followed by graduates (42%), with only 9% having high school education.

Table 1: Demographic details of the Study participants.

Category	Variables	Percentage (N)
Age (in years)	16-30	29 (87)
	30-45	26 (77)
	45-60	40 (121)
	60 and above	5 (16)
Gender	Male	40.9 (123)
	Female	58.8 (177)
	Others	0.3 (1)
Educational qualification	High School	9 (26)
	Graduate	42 (127)
	Post-Graduate	49 (148)

Table 2: Awareness about common emergencies among the study participants.

Category	Variables	Percentage (N)
Do you know the emergency number to call in case you encounter a medical emergency?	Yes	73.8 (222)
	No	26.2 (79)
Among the options given below, which ones are common medical emergencies? (select all that apply)	Heart attack	95.7 (288)
	Stroke	86 (259)
	Choking	67.1 (202)
	Allergic reactions	41.5 (125)
	Snake bite	61.8 (186)
	Diarrhoea	13.3 (40)
	Convulsions	41.5 (125)
	Burns	56.8 (171)
	Traumatic injuries	61.8 (186)
	Drug overdose	56.5 (170)
	Viral fever	10.6 (32)
	Headache	8.3 (25)
	Sinusitis	4.7 (14)
	Severe bleeding	55.8 (168)
	Fracture	0.7 (2)

Table 2 covered basic questions on medical emergencies, such as whether participants knew the emergency number to call in case of an incident. 73.8% of respondents answered affirmatively. When asked about the emergency number for an ambulance in India, 80.85% answered correctly. The final question in this section asked participants to identify common medical emergencies from a list of options. The most commonly selected emergencies were heart attack (14.45%), stroke (13%), choking (10.14%), traumatic injuries (9.33%), and snakebite (9.33%).

Table 3: Cardiac arrest and CPR.

Category	Variables	Percentage
What should your next step be?	Call people around	13.2
	Call the hospital	33.33
	Check whether he is breathing or not	28.24
	Sprinkle water on his face	9.93
	Try to wake him up	14.64
	Don't know	0.52
	Walk away	0.13
What actions can you take while you wait for professional help to arrive? (Select all that apply)	Reassure patient and keep calm	27.08
	Give the person food or drink	0.74
	Monitor the person's breathing	32.44
	Perform CPR if person is unresponsive and not breathing	37.95
	Don't know	1.79
Do you know how to perform CPR?	Yes	33.6
	No	66.4
If yes, what is the ratio of chest compressions to rescue breaths in CPR for a single rescuer performing CPR on an adult?	30:2	27.1
	15:2	1.5
	30:1	1.25
	15:1	3.1
	Don't know	62.7
When should one perform CPR?	In all unconscious patients	11.3
	If no pulse is felt	54.8
	If the person is in pain	0.4
	If the person has difficulty breathing	15.6
	Don't know	17.9

Table 3 shows the results of scenario 1, which addressed heart attack and CPR, revealed that 96% of participants correctly identified the condition. When asked about additional symptoms requiring attention in a person experiencing a heart attack, the most common responses included excessive sweating (28.6%), palpitations (23.3%), and left arm pain (25.67%). However, 66.4% of participants indicated that they did not know how to perform CPR.

Table 3 explains results related to scenario 2 which focused on Stroke and the FAST method, with 85.7% of participants correctly diagnosing the scenario. Among the other symptoms of a stroke, 30.33% selected sudden numbness or weakness of the face, arm, or leg, 30.21% chose inability to speak, and 19.79% identified difficulty walking. A significant 66.1% of participants were unaware of the FAST method.

Table 4: Stroke and FAST.

Category	Variables	Percentage
What should your next step be?	Call emergency services immediately	33.87
	Drive the person to the hospital	22.25
	Keep the person calm and comfortable	20.52
	Give the person food or drink	1.11
	Don't know	1.73
	Note the time the symptoms started	20.52
Are you familiar with the acronym FAST for recognizing the symptoms of this condition?	Yes	33.9
	No	66.1

Table 5: Choking and its management.

Category	Variable	Percentage
What should one do first?	Give him a glass of water	8
	Pat him forcefully on the back	52.2
	Give abdominal thrusts	33.6
	Ask him to eat plain food	8
	Don't know	52.2
Are you familiar with the term Heimlich Manoeuvre?	Yes	52.8
	No	47.2
What should you do after the object is expelled and the person can breathe again?	Let him rest and keep an eye on him	36.5
	Call emergency services to check for any complications or injuries	50.2
	Resume eating immediately, as if nothing happened	0.2
	Offer the person a large piece of bread to eat slowly	1.5
	Don't know	11.6

Table 5 explains scenario 3 focused on choking and its management. The majority of participants (87.4%) correctly identified the scenario, and most answered the questions regarding first aid for choking accurately (Table

4). Additionally, 52.8% of participants were aware of the Heimlich manoeuvre, and of those, 59.3% knew the correct way to perform it.

Table 6: Poisoning and its management.

Category	Variables	Percentage
What should be done if you suspect that someone has ingested a poison? (Select all that apply)	Call emergency services or poison control centre	13.2
	Give the person milk or water to drink	33.33
	Induce vomiting	28.24
	Make the person lie down	9.93
	Try to find out what substance was ingested	14.64
What commonly available substance can be useful in treating such a case?	Glycerine	2.8
	Activated charcoal	18.9
	Neem	8
	Petroleum jelly	0.4
	Don't know	68.9
	Vegetable Oil	1
What actions can you take while waiting for professional help to arrive? (Select all that apply)	Give the person CPR	0.82
	Give the person something to eat	0.55
	Monitor the person's breathing, consciousness, and pulse	28.16
	Keep the person calm and still	20.74
	Remove any remaining poison from the person's surroundings	25.96
	Don't know	3.57
	Tap the person on his back to expel the substance	20.19
What precautions can be taken to prevent such incidents in future? (Select all that apply)	Educate children about dangers of ingesting unknown substances	28.09
	Label all containers clearly	25.13
	Keep all household cleaners and edible items on one shelf	8.55
	Don't know	0.53
	Store chemicals and medicine out of the reach of children	29.78
	Store medicines and household cleaners in containers different from their original one.	7.92

The 4th scenario is explained in Table 6 which was related to the management of a poisoning case, where 95.7% were able to arrive at the correct possibility of the scenario given. Out of the options given for a question on common symptoms to watch for in a poisoning case, nausea or vomiting (29%), stomach pain (22.7%) and unusual odour on clothing or breath (17.57%) were the most selected options.

Table 7: Distribution of study participants based on previous training in managing common medical emergencies.

Questions	Options	Percentage (N)
Have you attended any educational programs or workshops on management of common medical emergencies?	Yes	79.1 (238)
	No	20.9 (63)
Would you be interested in attending a first aid or basic life skills training course if one is conducted?	Yes	91 (274)
	No	9 (27)
If no, then why? (n=27)	No time	40.7 (11)
	Not interested	11.1 (3)
	I don't think it would benefit me	7.4 (2)
	I already know enough to handle a medical emergency if I encounter one	11.1 (3)
	Others	29.7 (8)

Table 7 focused on the general population's exposure towards training regarding common medical emergencies. Of the respondents, 79.1% reported that they had never participated in any educational programs or workshops related to managing such emergencies. The remaining participants had received training through workshops held in their workplaces or office training programs. A significant 91% expressed interest in attending a first aid or basic life skills training course if one were offered. Around 9% individuals said they were interested in training with 407% giving the reason of having no time to get trained.

The final section highlighted suggestions to improve public awareness of handling common medical emergencies. Key recommendations included organizing regular workshops or training sessions by professionals in schools, workplaces, and communities. Many also suggested using short, easy-to-understand videos on social media to demonstrate essential skills like CPR. Displaying informative posters on basic life support in public spaces was another common idea. Emphasis was

placed on ensuring both rural and urban populations have access to such training and understand its importance.

DISCUSSION

This study sought to evaluate the general population's awareness and response capabilities concerning common medical emergencies. The findings reveal considerable variability in awareness, with certain emergencies like heart attacks (95.7%) and strokes (86%) being widely recognized, while others like sinusitis (4.7%) and viral fever (10.6%) were less frequently identified as emergencies. Similar findings were reported by Naqash et al, who found a decent level of awareness regarding high-profile emergencies, such as cardiac arrest and strokes, but less recognition of equally critical conditions like poisoning or convulsions.[1]

When it comes to recognizing emergency contacts, 73.8% of respondents were aware of the emergency number, a promising statistic, although slightly lower than that reported by Shaheen et al in their multinational study across Arab countries.[4] However, a significant gap still exists in actionable first-response knowledge. For example, only 33.6% of participants reported knowing how to perform CPR, and among those, only 27.1% correctly identified the 30:2 compression-to-breath ratio- comparable to the knowledge gaps noted in Aroor et al, where CPR awareness among students was also found to be low.[9]

The gap between knowledge and correct application is evident in questions regarding immediate steps in emergencies. While a third (33.33%) correctly said they would call a hospital, 28.24% chose to check breathing- an appropriate but not prioritized response- suggesting confusion in triaging actions. Similar trends were observed in the studies by Krishna et al and Jarrah et al, and highlighting a widespread lack of clarity in step-wise emergency response.[3,10]

Regarding specific emergency scenarios, such as choking, 52.2% suggested patting on the back- a mixed recommendation depending on severity- while only 33.6% selected abdominal thrusts, and 52.8% were familiar with the Heimlich manoeuvre. These figures align with global trends that show inconsistencies in layperson responses, as shown by Sasson et al in their systematic review, which emphasized the importance of public training for improved survival outcomes in out-of-hospital cardiac arrests (OHCA).[6]

The recognition of poisoning as a medical emergency was also weak. Only 13.2% would call poison control services, while many opted for unsafe practices like giving milk (33.33%) or inducing vomiting (28.24%). This is concerning, given that inappropriate first aid for poisoning can exacerbate the condition, as supported by Woyessa et al, who stressed the importance of community education to reduce complications and mortality associated with toxic ingestion.[5]

Preventive awareness also appeared moderate. While nearly 30% would store chemicals out of children's reach and label containers clearly, some dangerous misconceptions persisted, such as storing edibles and cleaners on the same shelf (8.55%). These findings echo those of Mori et al, who evaluated the effectiveness of online first-aid education and found substantial improvements in knowledge post-intervention, emphasizing the need for accessible, widespread training programs.[7]

Despite some encouraging levels of general awareness, critical gaps remain in practical application and immediate response accuracy. Consistent with studies such as Bhat et al and Herlitz et al, improved outcomes for OHCA and other emergencies strongly depend on bystander intervention quality.[2,8] Therefore, public education initiatives, particularly targeting CPR, poison management, and the recognition of stroke symptoms (e.g., FAST), are crucial.

This study was conducted in south India, and may not apply to other regions equally. This study did not assess the practical skills of participants in BLS and other scenarios, only their knowledge and attitude towards such scenarios. Further research could focus on assessing the practical knowledge and skills of healthcare professionals and general populations and formulate strategies to improve the same and increase preparedness towards medical emergencies

CONCLUSION

In rapidly developing nations like India, healthcare infrastructure and delivery is often stretched thin due to the sheer volume of people requiring aid. In such situations, emergency response times can be unpredictable, and public awareness of medical preparedness is not just beneficial, but a critical necessity. For the general population, the ability to recognize early warning signs of common emergencies, can mean the difference between full recovery and permanent disability or death. A significant portion of citizens remain unfamiliar with basic life-saving interventions. Bridging this knowledge gap through community-based training and public health education empowers bystanders to act as first responders, stabilizing patients during the golden hour before professional medical help arrives. By inculcating a culture of preparedness, there can be significant reduction in mortality and can lessen the pressure on secondary and tertiary healthcare systems.

Recommendations

Based on the findings of this study and the existing evidence on this topic, recommendations include:

Providing accessible BLS training to general population. Organizing workshops, seminars at schools, workspaces, and communities by trained healthcare professionals to improve awareness and preparedness towards medical emergencies. Putting up posters, flyers, banners at workplaces, healthcare set ups, public places to promote education. Implementing policies and taking initiatives to make it easier for people to access BLS training.

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