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A Study on Awareneess of CPR in the General Population of Delhi NCR

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Abstract:
About 4,280 people per 1 lakh population are getting cardiac arrest per year in the India . Every minute 112 people are succumbing to cardiac arrest. This is a very big problem. Almost 80 to 82 per cent cardiac arrest happens outside hospital. With each minute the chances of survival decreases by 7 to 10 minutes. If we don't immediately give CPR, the patient will have brain injury. In some countries, with increasing practice of CPR it has been found that 40-60 per cent people could be saved. Since time is important, any layman can manually start a heart with a skill which can be learned with a practice of 5-10 minutes and can save a life. For this purpose studying Awareness of CPR in the General Population may be useful. This study was conducted among the general population of Delhi NCR from 2019 to 2022 for 200 participants . Participants were categorized on the basis of different age , group, sex and occupations. Out of which 39.5 (%) were less than the age of 25, 53.5(%) were between 25 and 50 and 7 (%) were greater than 50. 49.5 (%) were males and 50.5 (%) were females. 17(%) had occupation in medical sciences followed by 83(%) belonging to non- medical field. Only 43.5(%) of 200 participants were aware of CPR and rest had no knowledge about CPR. Maximum participants (45%) mentioned" others "as the source of learning CPR followed by 16.5(%) from training institutes, 13(%) from CPR awareness program and 10.5(%) from media. 83.5(%) participants are interested in learning more about CPR while 16.5(%) denied to do so. When participants were asked about the abbreviation of CPR, only 52(%) participants came out with correct answer while 48(%) were incorrect. When the participants were asked the first step/reaction towards the unconscious person . Maximum participants opted for staying there and call for help followed by 15.5(%) who were concerned about their own security . CPR awareness is independent of different age groups. Participants related to medical profession were more aware than the non medical . Males are more aware of CPR as compared to females. EMS awareness is less in Indian community. Only 20% participants were aware about the EMS . Overall awareness of CPR and EMS in Indian community is very poor. People are very interested to learn and know more about CPR

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I. Introduction

Cardio – pulmonary resuscitation (CPR) consists of the use of chest compressions and artificial ventilation to maintain circulatory flow and oxygenation during cardiac arrest.

Although survival rates and neurological outcomes are poor for the patient with cardiac arrests but early and appropriate resuscitation, involving early defibrillation and appropriate implementation of post – cardiac arrest care leads to improved survival and neurological outcomes.

CPR involves chest compressions for adults between 5 cm (2.0 in) and 6 cm (2.4 in) deep and at a rate of at least 100 to 120 per minute. The rescuer may also provide artificial ventilation by either exhaling air into the subject's mouth or nose (mouth-to-mouth resuscitation) or using a device that pushes air into the subject's lungs (mechanical ventilation). Current recommendations place emphasis on early and high-quality chest compressions over artificial ventilation; a simplified CPR method involving only chest compressions is recommended for untrained rescuers.

CPR alone is unlikely to restart the heart. Its main purpose is to restore partial flow of oxygenated blood to the brain and heart. The objective is to delay tissue death and to extend the brief window of opportunity for a successful resuscitation without permanent brain damage. This hands-only CPR recommendation applies to both untrained bystanders and first responders. Cardiac arrest is the sudden cessation of cardiac function resulting in respiratory and circulatory standstill. Most cardiac arrests in adults are sudden, resulting from a primary cardiac cause and hence, circulation produced by chest compressions is of paramount importance. [1]he value of early cardiopulmonary resuscitation (CPR) is that it can buy time for the primary cardiac arrest patient by producing enough blood flow to the central nervous system and the myocardium to maintain temporary

viability. To do so, however, CPR must be started early.[2] Timely CPR improves the likelihood of survival by two to four times.[2] Mouth- to- mouth ventilation as the technique for artificial ventilation was used already in 18th century but was later abandoned[3]. In 1946,during the poliomyelitis epidemic when victims suffered from paralysis of breathing muscles, this method was rediscovered. In1958 The American Medical Association endorsed mouth-to-mouth ventilation as the technique for artificial ventilation .when mouth-to-mouth ventilation was combined with closed chest compression in 1960 - modern CPR was born . The first recommendations regarding CPR came at the National Academy of science s National Research Council (NAS-NRC) conference in 1966 in USA.[4]

The recommendations included: medical allied health and other professional personnel to be trained in the external chest compression technique according to the standards of the American Heart Association (AHA). However it was soon realised that training programs had to be extended to the general public[5]. In 1973 AHA and NAS-NRC sponsored the national conference on standards for CPR and emergency cardiovascular care (ECC) In which the recommendation came to include the general public in CPR training.

PATHOPHYSIOLOGY

CPR is used on people in cardiac arrest in order to oxygenate the blood and maintain a cardiac output to keep vital organs alive. Blood circulation and oxygenation are required to transport oxygen to the tissues. The physiology of CPR involves generating a pressure gradient between the arterial and venous vascular beds; CPR achieves this via multiple mechanisms[6] The brain may sustain damage after blood flow has been stopped for about four minutes and irreversible damage after about seven minutes Typically if blood flow ceases for one to two hours, then body cells die. Therefore, in general CPR is effective only if performed within seven minutes of the stoppage of blood flow. The heart also rapidly loses the ability to maintain a normal rhythm[7]. Low body temperatures, as sometimes seen in near-drownings, prolong the time the brain survives. Following cardiac arrest, effective CPR enables enough oxygen to reach the brain to delay brain stem death.

ADULT BASIC LIFE SUPPORT

About 92 percent of sudden cardiac arrest victims die before reaching the hospital, but statistic prove that if more people knew CPR, more lives could be saved. Immediate CPR can double or even triple a victim's chance of survival

BLS AHA

Basic Life Supports by

- Scene Safety
- Check Response
- Activate emergency system , AED
- Check Pulse
- Start High Quality CPR

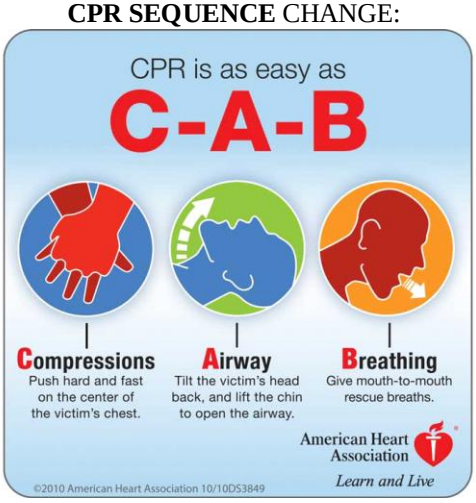
NEW AHA ADULT CHAIN OF SURVIVAL

The 6 links in the adult out-of-hospital Chain of Survival are:

- Recognition of cardiac arrest and activation of the emergency response system
- Early CPR with an emphasis on chest compressions
- Rapid defibrillation
- Advanced resuscitation by Emergency Medical Services and other healthcare providers
- Post-cardiac arrest care
- Recovery (including additional treatment, observation, rehabilitation, and psychological support)

A strong Chain of Survival can improve chances of survival and recovery for victims of cardiac arrest.

CPR SEQUENCE CHANGE:



II. Materials And Methods

STUDY DESIGN

A monocenteric survey was conducted from 2019 to 2022 to assess the awareness of CPR in the community of Delhi NCR

STUDY SETTING

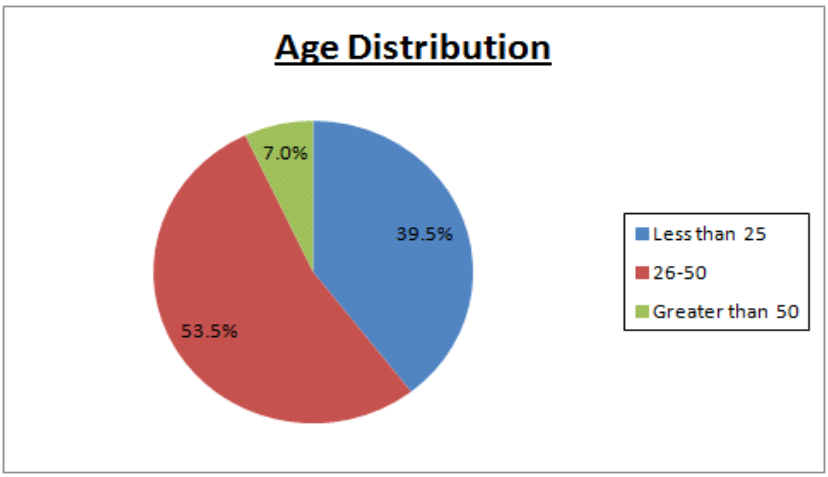
This study was conducted at the General population of Delhi NCR

SELECTION OF PARTICIPANTS

A total 233 people between the age of more than 18 years from August 2019 to January 2022. Of these 233 persons ,33 refused to fill the questionnaire. A verbal consent was taken before the questionnaire was given to the person.The questionnaire consisted the name, age, gender, education ,occupation and the address with total of eleven questions.Questions were asked in the simple manner in two languages which are English and Hindi.The questions were focused mainly on the awareness of CPR, source of awareness. To assess the interest to know and learn about CPR

III. Observations and Results

Age Distribution

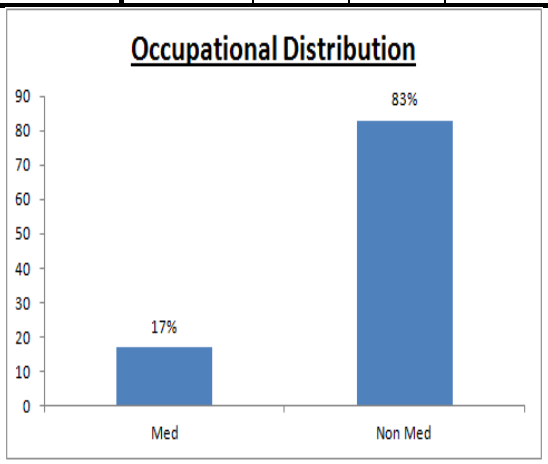


Out of 200 participants 39.5 (%) were less than the age of 25.

53.5(%) were between 25 and 50 and 7 (%) were greater than 50.

Sex Distribution

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	99	49.5	49.5	49.5
	Female	101	50.5	50.5	100.0
	Total	200	100.0	100.0	



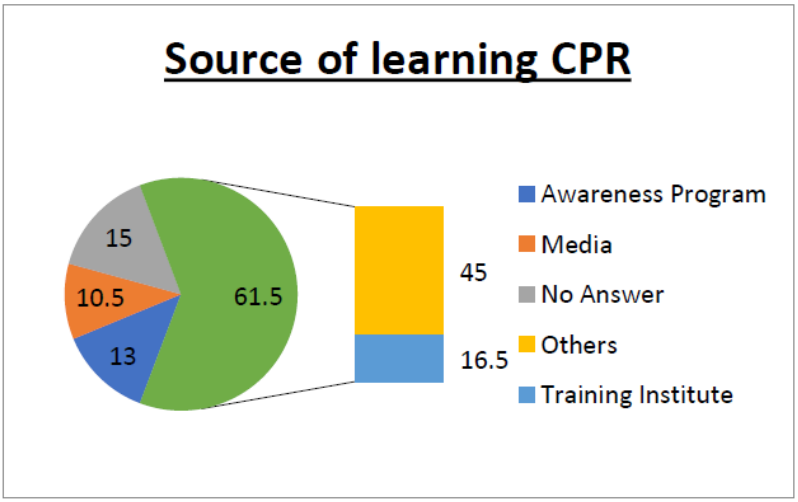
Awareness about CPR

Only 43.5(%) of 200 participants were aware of CPR and rest had no knowledge about CPR.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	113	56.5	56.5	56.5
	Yes	87	43.5	43.5	100.0
	Total	200	100.0	100.0	

SOURCE OF LEARNING CPR

Maximum participants (45%) mentioned others as the source of learning CPR followed by 16.5(%) from training institutes, 13(%) from CPR awareness program and 10.5(%) from media.

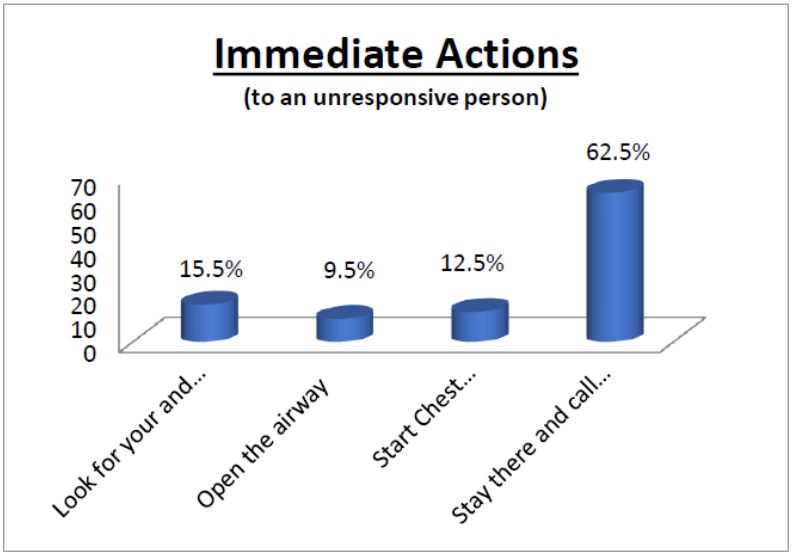


Abbreviation of CPR

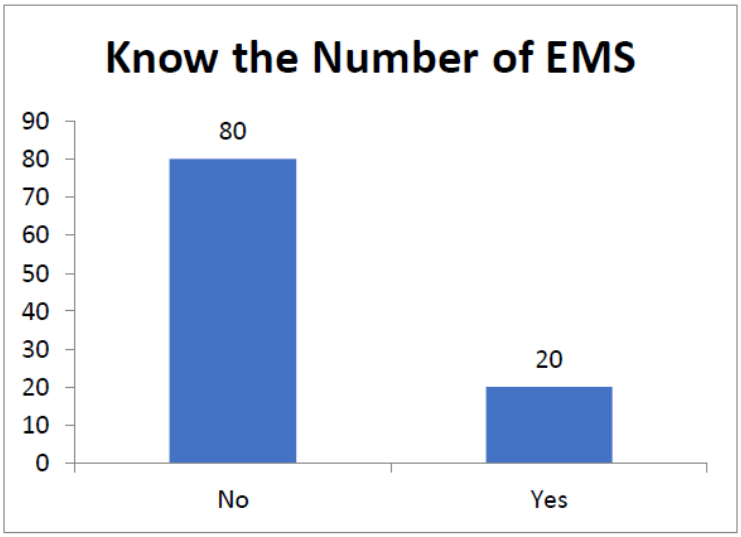
When participants were asked about the abbreviation of CPR, only 52(%) participants came out with correct answer while 48(%) were incorrect.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Right	104	52.0	52.0	52.0
	Wrong	96	48.0	48.0	100.0
	Total	200	100.0	100.0	

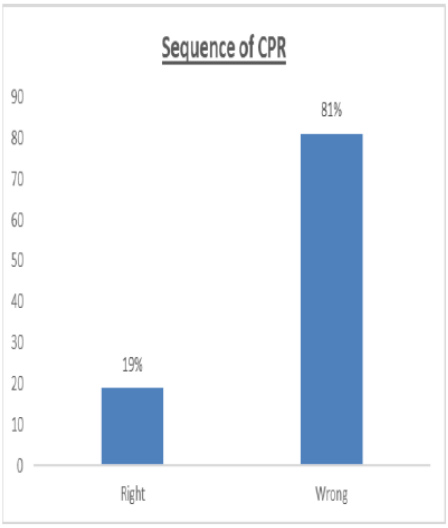
Immediate Action to an Unresponsive Person



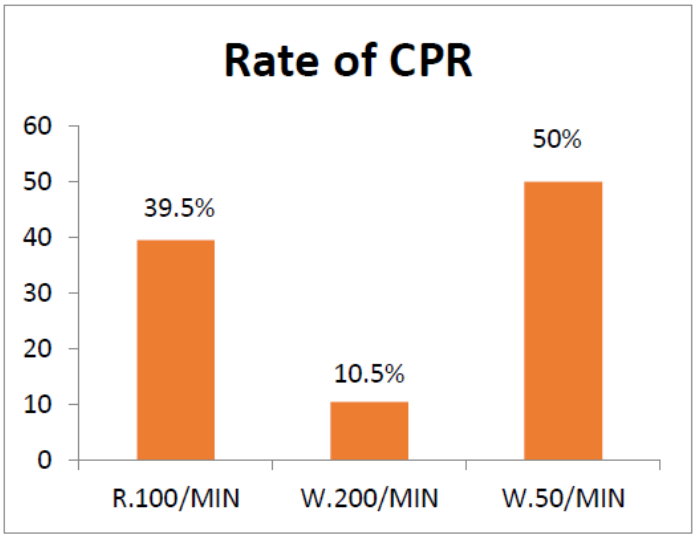
Knowledge regarding EMS activation



Sequence of CPR



Rate of CPR



IV. Discussion

A monocenter survey was conducted from august 2019 to January 2022 to assess the awareness of CPR in the community.In the study 233 subjects were given the questionnaire .

Out of 233 subjects ,33 refused to fill the questionnaire. So the analysis data was taken from remaining subjects.

Participants were categorized on the basis of different age , group, sex and occupations.

Most of the participants were females, majority were between 25 to 50 years and 81% were of nonmedical occupational. Participants related to any medical profession were more aware than the non medical. males are more aware of CPR as compared to females. EMS awareness is less in Indian community.Only 20% participants were aware about the EMS national phone number.

Other studies done in India or in other countries like Pakistan, Saudi Arabia ,Ireland were done to assess the awareness of CPR/BLS on dental students, nursing staff ,or medical students also show poor awareness.Out of 200 participants, 39.5 (%) were less than the age of 25, 53.5(%) were between 25 and 50 and 7 (%) were greater than 50.In the present study out of 200 participants, 49.5 (%) were males and 50.5 (%) were females. Out of 200 participants, 17(%) had occupation in medical sciences followed by 83(%) belonging to non- medical field. Only 43.5(%) of 200 participants were aware of CPR and rest had no knowledge about CPR. Maximum participants (45%) mentioned" others "as the source of learning CPR followed by 16.5(%) from training institutes, 13(%) from CPR awareness program and 10.5(%) from media. Out of 200, 83.5(%) participants are interested in learning more about CPR while 16.5(%) denied to do so . When participants were asked about the abbreviation of CPR, only 52(%) participants came out with correct answer while 48(%) were incorrect. When the participants were asked the first step/reaction towards the unconscious person .Maximum

participants opted for staying there and call for help followed by 15.5(%) who were concerned about their own security .The Person's chi-square test shows that age groups and sex are significantly correlated as p-value (0.002) < 0.05. The value of chi-square test does not show the significance between age and occupation as p-value (0.177)>0.05. Awareness of CPR is independent of age groups, p-value being greater than 0.05. Source of learning CPR is independent to different age groups as the data shows independent relationship between the two factors (p-value>0.05)Learning more about CPR is independent of age-groups so getting more knowledge is not age-specific as we found in sources of learning CPR. Knowledge of participants in knowing the abbreviation of CPR is age-specific as p-value (0.006) <0.05. Knowing the number of CPR is independent to different age groups as the data shows independent relationship between the two factors (p-value>0.05). Sequence of CPR is independent to different age groups as the data shows independent relationship between the two factors (p-value>0.05)

V. Conclusion

CPR awareness is independent of different age groups.Participants related to medical profession were more aware than the non medical .Males are more aware of CPR as compared to females.

EMS awareness is less in Indian community. Only 20% participants were aware about the EMS .

Overall awareness of CPR and EMS in Indian community is very poor. People are very interested to learn and know more about CPR

VI. Recommendations

Need for more training institutes.
Need to start CPR awareness programs in colleges, high/secondary schools.
Need to start national level free awareness programs to police, ambulance drivers, firemen.
News channels and media can help a lot.
Medical professionals should aware CPR to their families, relatives and friends.

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