ORIGINAL RESEARCH ARTICLE

Pre-Hospital Care and Effect of Cardiopulmonary Resuscitation (CPR) On Survival Rate of Out-Of-Hospital Cardiac Arrest (OHCA) Victims, Telangana (India)

Amreen Aijaz Husain[1], Uddipak Rai[2*], Amlan Kanti Sarkar[3], V Chandrasekhar[4]

[1,2]School of Pharmaceutical and Population Health Informatics, DIT University, Dehradun, India
[3]Institution of Clinical Research India (ICRI), Mumbai, India
[4]Mahatma Gandhi Memorial Hospital, Warangal, India

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ABSTRACT

Introduction: OHCA is among the leading causes of mortality worldwide. India lacks a comprehensive database of cardiac arrests and an efficient emergency medical system. The treatment of cardiac disease has improved, yet the outcomes of OHCA remain poor.

Methods: This is an observational 1-year prospective, single center, cohort study conducted on cohorts of OHCA victims. "Utstein Resuscitation Template" was followed for gathering the information starting location of arrest till the final resuscitation outcome. The information on OHCA patient treatment and current knowledge gaps is the aim of this study.

Results: The study was conducted in the Warangal region of Telangana, India. The research comprised 1167 OHCA patients with a suspected cardiac etiology who were taken to the Mahatma Gandhi Memorial Hospital between June 1, 2022, and June 30, 2023. CPR attempts were recorded. Findings suggested if an individual was aware of the risk factors for CVD, they were more likely to report symptoms before OHCA.

Conclusion: OHCA survival rate can be increased if the chain of survival is maintained by offering awareness and CPR training programs to the general public or bystanders, as well as efficient emergency ambulance services with qualified emergency medical staff.

Keywords: out-of-hospital cardiac arrest, pre-hospital care, cardiopulmonary resuscitation, advanced cardiovascular life support

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***Correspondence:** Dr. Uddipak Rai (Email: uddipak.rai@dituniversity.edu.in)

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INTRODUCTION

Out-of-hospital cardiac arrest (OHCA) is a life-threatening emergency characterized by the sudden cessation of the heart's pumping function outside of a medical facility. OHCA is a significant public health concern since its estimated global incidence is 55 per 100,000 person-years.[1] It represents a critical medical event with a high risk of mortality if not promptly addressed.[2] Cardiopulmonary resuscitation (CPR) is an essential life-saving technique intended to keep the heart's blood flow and oxygen levels stable during a cardiac arrest, acting as a stopgap until more sophisticated medical assistance can be given.[3] The effectiveness of CPR in the context of OHCA has been a subject of significant research and clinical interest.[4,5] CPR involves a combination of chest compressions and, in some cases, rescue breaths to ensure oxygen is delivered to vital organs, particularly the brain.[6] Maintaining blood pressure objectives during cardiac arrest and during the restoration of spontaneous circulation (ROSC) is known to have an impact on survival rates.[7,8] Immediate initiation of CPR by bystanders, first responders, or emergency medical services (EMS) personnel plays a pivotal role in improving the chances of survival and minimizing potential neurological damage.[9] Therefore, there is a need to examine how CPR affects outcomes in OHCA scenarios, taking into account the overall chain of survival, the promptness of the intervention, and the quality of the CPR delivery. Understanding the critical role of CPR in the initial moments following a cardiac arrest is essential for promoting public awareness, enhancing community-based response systems, and ultimately improving survival rates for individuals experiencing OHCA. As advancements in emergency medical care continue to evolve, a comprehensive understanding of the effects of CPR remains paramount in shaping effective strategies for OHCA management and ultimately saving lives.[10]

OHCA poses a formidable challenge to emergency medical responders, with its swift onset and potential for dire consequences.[11] In recent decades, the field of emergency medicine has witnessed significant advancements, and one critical intervention that has emerged as a cornerstone in the management of OHCA is Advanced Cardiovascular Life Support (ACLS).[12] Further, the intricate and time-sensitive nature of OHCA demands a systematic and coordinated response, and ACLS provides a structured framework for healthcare professionals to deliver advanced medical interventions.[13] ACLS, which was created by groups like the European Resuscitation Council (ERC) and the American Heart Association (AHA), includes a range of interventions in addition to basic life support, such as advanced airway management, intravenous medicine, and electrocardiogram (ECG) interpretation.[14] ACLS is a comprehensive and evidence-based set of protocols designed to optimize the care of individuals experiencing cardiac arrest outside of a medical facility.[15] The profound impact of ACLS on the outcomes of individuals facing OHCA, shedding light on how timely and skilful administration of advanced interventions can significantly influence survival rates and neurological outcomes.[2] By extending the principles of ACLS beyond the hospital setting, emphasizing early defibrillation, and integrating cutting-edge medical technologies, healthcare providers strive to enhance the overall chain of survival in OHCA scenarios.

As we delve into the evolving landscape of emergency medical care, understanding the effects of CPR/ACLS in the context of OHCA becomes crucial for healthcare professionals, first responders, and the broader community. This exploration not only underscores the importance of ongoing research and training but also reinforces the commitment to optimizing OHCA management strategies and, ultimately, improving the chances of survival for those in critical need.

METHODOLOGY

Study design: The study was designed based on the "Utstein Resuscitation Template"[11] with some modifications based on observations (Figure 1). Consensus reporting recommendations for resuscitation are often known as the "Utstein style". It was born out of an international multidisciplinary conference that took place in June 1990 at the Utstein Abbey outside of Stavanger, Norway. This first meeting's goal was to create standard terminology and definitions for OHCA. It was hoped that this would improve knowledge of the epidemiology of cardiac arrest, enable intra- and intersystem comparisons, allow evaluation of the advantages of various system approaches, spur quality improvement, point out knowledge gaps, and aid clinical research.

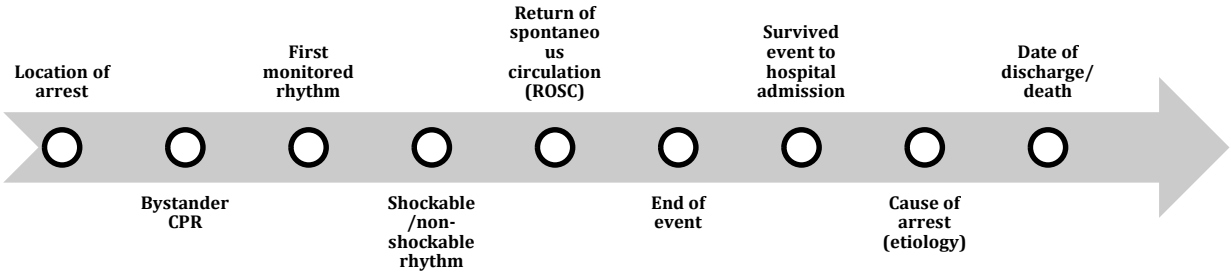


Figure 1: Utstein process flow representation

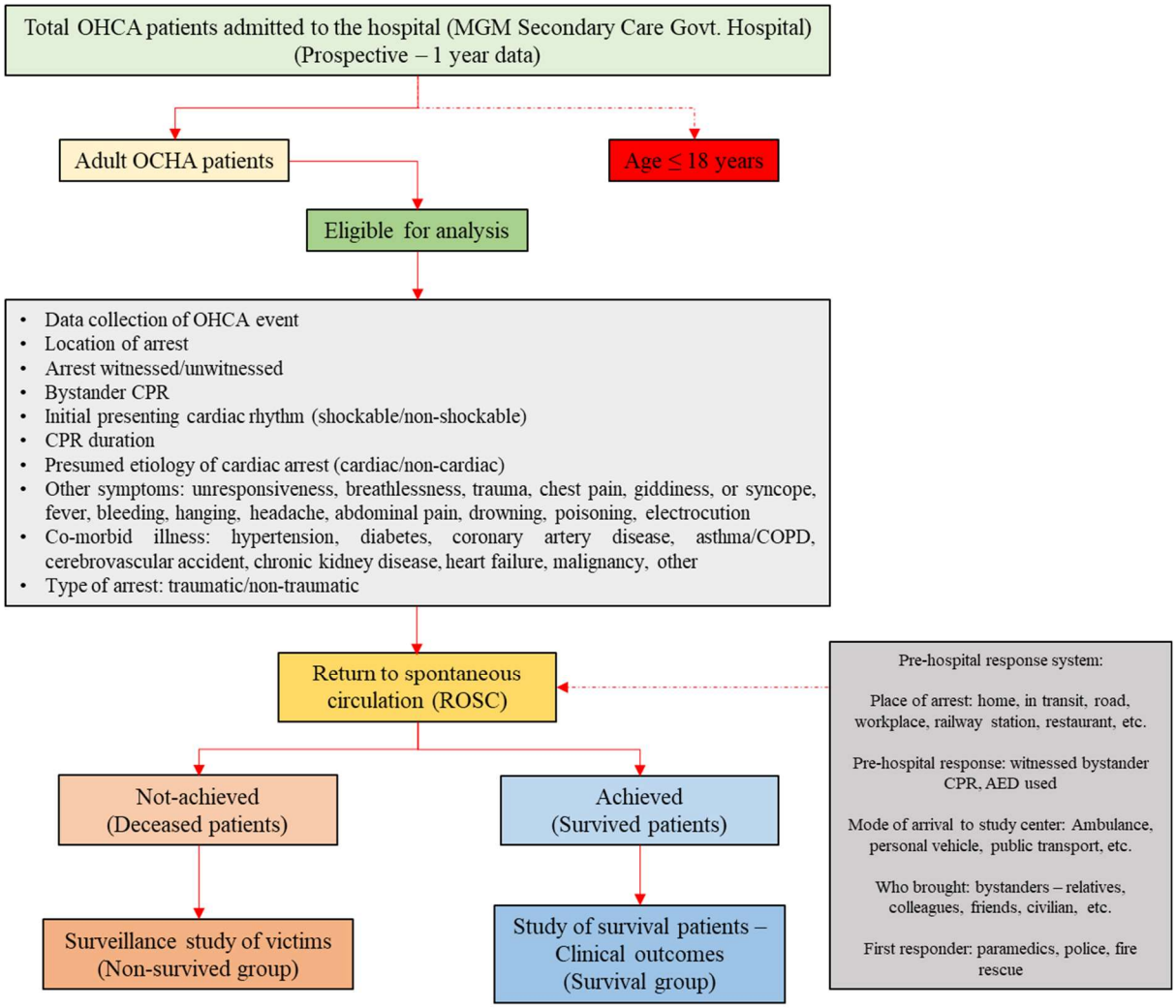


Figure 2: Study design

A summary of study deign has been presented in Figure 2.

Further, the data collection questionnaire was used to obtain the OHCA details (Figure 3).

Study population: We conducted our study from 01.06.2022 to 31.06.2023 using the ED patient file records obtained from the regional Government Hospital, Mahatma Gandhi Memorial Hospital, which is a secondary care District Headquarters Hospital serving the medical needs of a population of about 2,000,000 individuals a year in a low resource setting. We have aimed to reach all OHCA cases that presented to the ED within a 01-year time frame.

Study participants: All adults over the age of 18 who were admitted to the hospital with a history of non-traumatic OHCA with a suspected cardiac origin throughout the study's runtime were included as study subjects. To analyse the data from the study, 1167 people in total were included.

Sample Size: Includes Cohorts of OHCA victims, 500 participants or more.

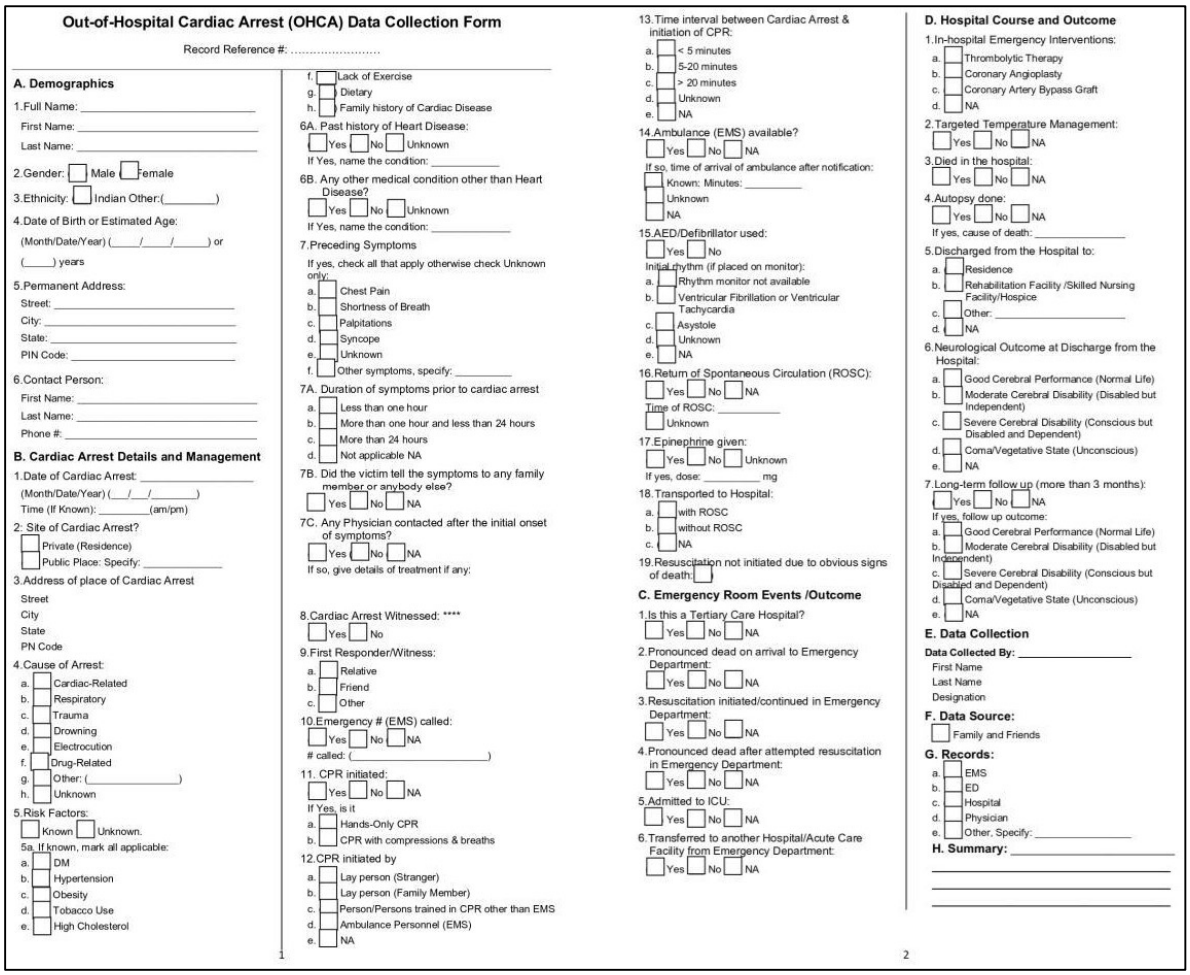
Inclusion Criteria: All participants (victims) of Out of Hospital Cardiac Arrest above 18 years.

Exclusion Criteria: Participants (victims) of OHCA whose data is not available or whose attendants are unwilling to share the data are excluded from the study. Patients revived before coming to the hospital. Traumatic cardiac arrest patients, excluding subjects who had faced trauma, hanging or burns. (Bulleted statements merged in paragraph format)

Ethical consideration Permission for the study was taken from the hospital authorities and Institutional Ethics Committee KIEC (Reference number: ECR/840/Inst/TG/2016/RR/20/29).

Statistical analysis:

Microsoft Excel is used to record data in an organized database and analyzed with the use of SPSS and MedCalc Statistical Software version 19.3.1. Quantitative variables are summarized as mean standard deviation (S.D.) and 95% confidence interval (C.I). Mean/median, percentage, frequency, proportion, and 95% CI were used to summarize qualitative characteristics. In order to account for potential confounders resulting from imbalances in baseline characteristics between the two groups, we employed logistic regression.



Out-of-Hospital Cardiac Arrest (OHCA) Data Collection Form

Record Reference #: .....

A. Demographics

1.Full Name: _____
First Name: _____
Last Name: _____

2.Gender: ☐ Male ☐ Female

3.Ethnicity: ☐ Indian Other:(_____)

4.Date of Birth or Estimated Age:
(Month/Date/Year) (____/____/____) or
(____) years

5.Permanent Address:
Street: _____
City: _____
State: _____
PIN Code: _____

6.Contact Person:
First Name: _____
Last Name: _____
Phone #: _____

B. Cardiac Arrest Details and Management

1.Date of Cardiac Arrest: _____
(Month/Date/Year) (__/__/____)
Time (If Known): _____(am/pm)

2: Site of Cardiac Arrest?
☐ Private (Residence)
☐ Public Place: Specify: _____

3.Address of place of Cardiac Arrest
Street
City
State
PN Code

4.Cause of Arrest:
a. ☐ Cardiac-Related
b. ☐ Respiratory
c. ☐ Trauma
d. ☐ Drowning
e. ☐ Electrocution
f. ☐ Drug-Related
g. ☐ Other: (_____)
h. ☐ Unknown

5.Risk Factors:
☐ Known ☐ Unknown.
5a. If known, mark all applicable:
a. ☐ DM
b. ☐ Hypertension
c. ☐ Obesity
d. ☐ Tobacco Use
e. ☐ High Cholesterol
f. ☐ Lack of Exercise
g. ☐ Dietary
h. ☐ Family history of Cardiac Disease

6A. Past history of Heart Disease:
☐ Yes ☐ No ☐ Unknown
If Yes, name the condition: _____

6B. Any other medical condition other than Heart Disease?
☐ Yes ☐ No ☐ Unknown
If Yes, name the condition: _____

7.Preceding Symptoms
If yes, check all that apply otherwise check Unknown only:
a. ☐ Chest Pain
b. ☐ Shortness of Breath
c. ☐ Palpitations
d. ☐ Syncope
e. ☐ Unknown
f. ☐ Other symptoms, specify: _____

7A. Duration of symptoms prior to cardiac arrest
a. ☐ Less than one hour
b. ☐ More than one hour and less than 24 hours
c. ☐ More than 24 hours
d. ☐ Not applicable NA

7B. Did the victim tell the symptoms to any family member or anybody else?
☐ Yes ☐ No ☐ NA

7C. Any Physician contacted after the initial onset of symptoms?
☐ Yes ☐ No ☐ NA
If so, give details of treatment if any:

8.Cardiac Arrest Witnessed: ****
☐ Yes ☐ No

9.First Responder/Witness:
a. ☐ Relative
b. ☐ Friend
c. ☐ Other

10.Emergency # (EMS) called:
☐ Yes ☐ No ☐ NA
called: (_____)

11. CPR initiated:
☐ Yes ☐ No ☐ NA
If Yes, is it
a. ☐ Hands-Only CPR
b. ☐ CPR with compressions & breaths

12.CPR initiated by
a. ☐ Lay person (Stranger)
b. ☐ Lay person (Family Member)
c. ☐ Person/Persons trained in CPR other than EMS
d. ☐ Ambulance Personnel (EMS)
e. ☐ NA

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13.Time interval between Cardiac Arrest & initiation of CPR:
a. ☐ < 5 minutes
b. ☐ 5-20 minutes
c. ☐ > 20 minutes
d. ☐ Unknown
e. ☐ NA

14.Ambulance (EMS) available?
☐ Yes ☐ No ☐ NA
If so, time of arrival of ambulance after notification:
☐ Known: Minutes: _____
☐ Unknown
☐ NA

15.AED/Defibrillator used:
☐ Yes ☐ No
Initial rhythm (if placed on monitor):
a. ☐ Rhythm monitor not available
b. ☐ Ventricular Fibrillation or Ventricular Tachycardia
c. ☐ Asystole
d. ☐ Unknown
e. ☐ NA

16.Return of Spontaneous Circulation (ROSC):
☐ Yes ☐ No ☐ NA
Time of ROSC: _____
☐ Unknown

17.Epinephrine given:
☐ Yes ☐ No ☐ Unknown
If yes, dose: _____ mg

18.Transported to Hospital:
a. ☐ with ROSC
b. ☐ without ROSC
c. ☐ NA

19.Resuscitation not initiated due to obvious signs of death: ☐

C. Emergency Room Events /Outcome

1.Is this a Tertiary Care Hospital?
☐ Yes ☐ No ☐ NA

2.Pronounced dead on arrival to Emergency Department:
☐ Yes ☐ No ☐ NA

3.Resuscitation initiated/continued in Emergency Department:
☐ Yes ☐ No ☐ NA

4.Pronounced dead after attempted resuscitation in Emergency Department:
☐ Yes ☐ No ☐ NA

5.Admitted to ICU:
☐ Yes ☐ No ☐ NA

6.Transferred to another Hospital/Acute Care Facility from Emergency Department:
☐ Yes ☐ No ☐ NA

D. Hospital Course and Outcome

1.In-hospital Emergency Interventions:
a. ☐ Thrombolytic Therapy
b. ☐ Coronary Angioplasty
c. ☐ Coronary Artery Bypass Graft
d. ☐ NA

2.Targeted Temperature Management:
☐ Yes ☐ No ☐ NA

3.Died in the hospital:
☐ Yes ☐ No ☐ NA

4.Autopsy done:
☐ Yes ☐ No ☐ NA
If yes, cause of death: _____

5.Discharged from the Hospital to:
a. ☐ Residence
b. ☐ Rehabilitation Facility /Skilled Nursing Facility/Hospice
c. ☐ Other: _____
d. ☐ NA

6.Neurological Outcome at Discharge from the Hospital:
a. ☐ Good Cerebral Performance (Normal Life)
b. ☐ Moderate Cerebral Disability (Disabled but Independent)
c. ☐ Severe Cerebral Disability (Conscious but Disabled and Dependent)
d. ☐ Coma/Vegetative State (Unconscious)
e. ☐ NA

7.Long-term follow up (more than 3 months):
☐ Yes ☐ No ☐ NA
If yes, follow up outcome:
a. ☐ Good Cerebral Performance (Normal Life)
b. ☐ Moderate Cerebral Disability (Disabled but Independent)
c. ☐ Severe Cerebral Disability (Conscious but Disabled and Dependent)
d. ☐ Coma/Vegetative State (Unconscious)
e. ☐ NA

E. Data Collection

Data Collected By: _____
First Name
Last Name
Designation

F. Data Source:
☐ Family and Friends

G. Records:
a. ☐ EMS
b. ☐ ED
c. ☐ Hospital
d. ☐ Physician
e. ☐ Other, Specify: _____

H. Summary: _____

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Figure 3: OHCA Data Collection Form Fillable. (Image submitted as a separate file)

RESULTS

There were 1,167 participants in the study, and 67.18% of them were men, suggesting a higher proportion of men. The participants' age distribution revealed that 44.41% of the subjects were between the ages of 40 and 59, indicating a sizable presence of middle-aged people in the sample. Furthermore, a significant proportion of the subjects, exactly 90.17%, had an out-of-hospital cardiac arrest (OHCA) at their place of residence, indicating a frequent occurrence of these events in comfortable, residential environments. Table 1 provides a clear and orderly portrayal of the study population by detailing the patients' comprehensive demographic information, such as gender, age distribution, and the site of the cardiac arrest.

An out-of-hospital cardiac arrest (OHCA) was observed in 91.55% (n=791) of the participants, and the majority of first responders—98.92% (n=826)—were family members. This demonstrates the importance of immediate bystanders in the emergency situations. Additionally, the data showed that, as shown in Figure 4a, 49.65% of the incidents entailed calling emergency medical services (EMS), and of those, 87.25% involved contacting Ambulance 108.A favorable result was achieved in 79.07% of the cases when cardiopulmonary resuscitation (CPR) was carried out. Even so, since CPR was not administered in 20.92% of cases, there is still opportunity for improvement.

Table 1: Demographic characteristics of subjects with OHCA

Characteristic	N (%)	95% CI (Wilson)
Gender (n = 1167)		
Male	784(67.18)	61.97%-72.39%
Female	383(32.82)	28.48%-37.16%
Age group (n = 1162)*		
Adult = 20-39 yrs.	188(16.17)	13.99%-18.35%
Middle Aged (40-59 yrs)	516(44.41)	38.93%-49.89%
Senior Adult (60-65 yrs)	297(25.56)	20.14%-30.98%
Elderly: >65 yrs.	161(13.86)	11.67%-16.05%
Location of OHCA (n = 1130)		
Residence	1019(90.17)	88.36%-91.98%
Public place	85(7.53)	1.76%-13.20%
Other healthcare facility	24(2.13)	≈0
Hospital (MGMH)	2(0.17)	≈0
Time of OHCA (n = 1164)***		
Early hours of morning	197(16.93)	9.62%-24.24%
Morning	305(26.2)	17.88%-34.52%
Afternoon	339(29.12)	20.49%-37.75%
Evening and late night	323(27.75)	19.49%-36.01%

Missing data: * In 05 patients, the information on age was not available; ** In 37 cases the data on the location of OHCA was not mentioned; *** In 03 patients the time of OHCA was not available.

Table 2: Resuscitation characteristics of subjects of OHCA

Characteristic	Subjects(%)	95%CI(Wilson)
OHCA witnessed (n = 864)		
Yes	791(91.55)	85.84%-97.26%
No	73(8.45)	2.79%-14.11%
First responder witness (n = 835)		
Relative	826(98.92)	96.90%-100%
Other	9(1.08)	≈0
EMS called (n = 854)		
Yes	424(49.65)	45.45%-53.85%
No	430(50.35)	46.15%-54.55%
Type of EMS called (n = 392)) *		
Ambulance 108	342(87.25)	81.31%-93.19%
Ambulance	50(12.75)	5.69%-19.81%
CPR initiated (n = 798)		
Yes	631(79.07)	75.58%-82.56%
No	167(20.92)	16.29%-25.55%
If yes, type of CPR initiated (n =145) **		
CPR with chest compressions and breaths	10(6.9)	≈0
Hands only CPR	133(91.72)	87.99%-95.45%
AED use	2(1.38)	≈0
CPR initiated by (n = 185) ***		
EMS person	86(46.48)	32.55%-60.41%
Trained personnel	75(40.54)	26.00%-55.08%
Lay person - family	16(8.64)	≈0
Lay person - Stranger	8(4.32)	≈0
Time interval between OHCA & initiation of CPR (n = 626)		
<5 min	55(8.78)	1.18%-16.38%
05-20 min	461(73.64)	70.04%-77.24%
>20 min	110(17.58)	10.59%-24.57%
EMS ambulance available (n = 298)		
Ambulance 108	210(70.47)	61.00%-79.94%
Ambulance	88(29.53)	18.28%-40.73%
Time of arrival of EMS (n = 182) ****		
<10 min	6(3.3)	3.30%-17.41%
10 to 30 min	168(92.31)	87.61%-97.01%
> 30 min	8(4.39)	≈0
AED/Defibrillator used (n = 155)		
Yes	60(38.71)	23.40%-54.02%
No	95(61.29)	46.08%-76.50%
ROSC achieved (Survived) (Not-survived) (n=631)		
Yes	3(0.47)	≈0
No	628(99.52)	97.07%-01.97%
Time interval between OHCA and death of pt (n = 1167)		
<12 hs	1093(93.66)	89.34%-97.98%
12-24 hs	66(5.66)	1.50%-9.72%
> 24 hs	8(0.68)	≈0(−0.59-1.95%)

Notably, a substantial percentage (91.72%) of those who performed CPR did so solely with their hands, highlighting the necessity for more approachable and user-friendly CPR approaches. It's also important to note that 40.54% of patients had CPR administered by trained hospital emergency personnel, whereas 46.48% of cases involved EMS personnel performing CPR. This emphasizes cruciality of trained responders to provide prompt and efficient life-saving care. Most CPR attempts started in less than 20 minutes, highlighting criticality of a prompt reaction. The fact that 70.47% of incidents involved EMS ambulances at the site emphasize importance to have access to qualified medical aid at all times. Furthermore, as Figure 4b illustrates, most EMS arrivals happen within thirty minutes, demonstrating the criticality of ambulance arrival which directly impacts the survival rate of victims, if delayed.

The extremely low percentage of 0.47% for Return of Spontaneous Circulation (ROSC) indicates the difficulty to achieve successful outcomes after an out-of-hospital cardiac arrest (OHCA). This low ROSC rate emphasizes the urgent need of effective intervention. Moreover, the data indicates that a significant percentage of persons (93.66%) passed away within a 12-hour period, underscoring the pressing need for prompt help and the challenges associated with delivering efficient emergency care in these circumstances. One important thing to keep in mind is that emergency responders frequently could not start CPR or establish ROSC by the time victims were transferred to the hospital. This delay points to a critical window of opportunity where prompt and decisive action is necessary. The results shown in Table 2 highlight the significance of fast on-scene assistance by bystanders and EMS personnel, as hospital emergency staff were often unable to start CPR quickly enough to make a major difference. All things considered, these findings highlight the necessity of raising public awareness, providing CPR training, and expediting EMS response times in order to increase the likelihood of survivors after OHCA.

Discussion

The purpose of this study was to determine how prehospital care and cardiopulmonary resuscitation (CPR) affected the survival rate of patients experiencing out-of-hospital cardiac arrest (OHCA) in Telangana, India. Our data shows that 90.17% of OHCA happened at home or in a habitation, although a significant portion also happened in public areas (7.53%), other healthcare institutions (2.13%), and hospitals (0.17%). This is in line with the results of the Cardiac Arrest Resuscitation Outcome (CARO) research, which revealed that 92% of arrests took place in homes[15]. For emergency systems in India, a framework for measuring and improving resuscitation care is provided by a comparative analysis of the Utstein data items in this study in connection to other worldwide registries. Gender, age, and location data are comparable to those from other OHCA registries. It is widely established that gender variations exist in the epidemiology and resuscitation results following OHCA.[16,17] In our study, we found that Ambulance 108 transported a substantial portion (87.28%) of OHCA. Yan et al.'s comprehensive review and meta-analysis revealed that the prehospital stage, where effective CPR from EMS translated to the highest incidence of ROSC (36.3%; 95% CI 23.8-48.9%), was the most influential period for the management of OHCA patients.[18] This highlights the necessity of educating the public about the value of using EMS services and ambulances so that AED use and ACLS procedures can be performed early.[19]

The current prospective observational study's findings demonstrated that greater CPR performance was observed in situations when an arrest was witnessed, the bystander's education level exceeded a high school diploma and the bystander had CPR

training. This epidemiology investigation also discovered lower rates of bystander CPR for OHCA in low-income neighbourhoods. This is the second research publication of national provenance, after Ramaka et al. discussed the benefits of cardiopulmonary resuscitation (CPR) over OHCA and other risk factors in a regional context in India. Due to the Covid-19 pandemic, a study carried out at the same regional medical centre during the research discovered significantly more severe instances of OHCA.[20,21] In addition to the much higher frequency linked to the pandemic (explained in a separate published literature research), we saw in our study a twofold rise in favourable outcomes from OHCA, with fewer people surviving and more resuscitations concluding on-scene and at lower rates ROSC. The research publications on the length of the pandemic presented a crucial image regarding ROSC and resuscitation rates.[22]

In the current study, 79.07% of bystanders received CPR; however, 631 patients, or 54.07% of the overall study group, received CPR from a medically competent expert. In these circumstances, the odds of living to be released from the hospital were enhanced based on risk. It is commonly known that doing bystander CPR improves OHCA outcomes, leading to higher survival and discharge rates when compared to when bystander CPR is not performed.[23,24]

It is commonly known that doing bystander CPR improves OHCA outcomes, leading to higher survival and discharge rates as compared to when bystander CPR is not performed.[23,24] According to the CARO research, 1.3% of bystanders in India performed CPR, based on the scant data provided.4 According to our research, just 9.8% of our patients received bystander CPR, far less than the AHA-ECC's impact objective of 62% for bystander response.[25] According to the most current Sweden registry, bystander CPR rates for adult age categories ranged from 26 to 54%.[26] In order to close this knowledge gap, we must raise community awareness of CPR through widespread training initiatives across the nation that debunk common misconceptions, run educational campaigns, and start school-based training.[27]

Even though bystander CPR is known to be an essential link in the survival chain for OHCA patients, its incidence has not increased. After a careful review of the literature, it was determined that Singapore, Taiwan, and Japan had bystander CPR rates of 24.3%, 31.4%, and 40.2%, respectively. In research encompassing 20520 cardiac arrests in North America, only 31.4% of patients got bystander CPR.[28]

Limitations

Determining the extent of CPR administered by onlookers, the precise time interval from the patient's collapse to the initiation of CPR, and the number of bystanders present were challenging to ascertain, as these factors might potentially affect the patient's prognosis. Information on the patient's past medical history, prescription drugs, in-hospital care, and other related risk factors could not be precisely included in this study due to the patient's severe state and the likelihood that the majority of cases would end in death. Additionally, poor instrument maintenance and the treatment of an emergency that had previously been postponed until receiving hospital emergency care significantly hampered the application of additional ACLS approaches, such as the use of an artificial defibrillator, insufficient hospital records, insufficient information from death certificates and family members, inadequate record keeping, and emergency personnel support during emergency scenario management are other variables that contribute to information bias.

Conclusion

In order to improve the results of CPR and the low survival rates after an OHCA event in India, targeted strategies should be developed to establish a centralized medical emergency body. This body could offer guidelines for establishing emergency medical systems (EMS), creating emergency protocols, providing technical assistance and training, and more. A nationwide initiative to raise bystander CPR rates and teach the general public basic CPR is also urgently needed to improve the survival rate of OHCA incidents. Furthermore, India does not yet have a national cardiac arrest registry, therefore there is little information available on OHCA. Tracking OHCA incidents in our nation will be made easier in the near future with the use of collected data on OHCA. The creation of a nationwide cardiac arrest registry would be based on this. Additionally, if the study on OHCA, patient CPR outcomes, factors influencing the outcome, and the identification of strong predictors of these outcomes is successful which would take an hour—it would help administrators and medical directors identify changes that should be made in order to optimize system interventions and improve the outcome for CA patients. This would benefit the Indian population and improve the chances for OHCA survivors.

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