



**BASIC LIFE SUPPORT AND ITS UNEXPLORED POTENTIAL– A REVIEW**

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**ABSTRACT**

Basic life support (BLS) is a life-saving skill that has become an indispensable tool and widely used even by non-medical personnel in the western world. With rising rates of cardiac arrests worldwide and the lack of proper health care services in rural India necessitates widespread implementation of BLS without confining it only to medical professionals. Awareness and willingness to perform BLS in the general population vary widely, often due to social and culture influences, education, and ambiguity regarding the techniques and knowledge gaps. Government initiatives to teach BLS at schools and community level can help bridge this gap and aid in saving precious lives, one life at a time.

**KEYWORDS:** Basic life support (BLS), Cardiopulmonary resuscitation (CPR), Automated external defibrillator (AED), Education, Barriers, Awareness.

**INTRODUCTION**

Cardiac arrest is the single most common cause of sudden death in today's world. Studies show an increased incidence of cardiac problems worldwide attributed to sedentary lifestyle choices and unhealthy eating habits.<sup>[1]</sup> This problem is even more pronounced in India, where proper health care is still a challenge in rural India, where hospitals are scarce.<sup>[2]</sup> With medical emergencies occurring at any time and place, a basic life support provider can make a significant difference. The presence of someone trained in providing Basic Life Support (BLS) skills in emergency situations can not only help in saving precious lives but also decrease the morbidity rate.

The main aim of this paper is to discuss BLS as an everyday life-saving skill for the common man, to know the impact of BLS training, to identify the key barriers and discuss potential areas for improvement for widespread awareness within India.

**BLS – The basics**

BLS is typically performed without the use of medical instruments or drugs. A critical intervention for saving lives in hospital or out of hospital, constitutes CPR (cardiopulmonary resuscitation) - a series of chest compressions and rescue breaths which aids in restarting the heart and return of spontaneous circulation. Employed properly, this technique can help not only

resuscitate a patient but also decrease the hospital stay. The awareness of such a skill, thus, should not be limited to doctors and nurses but extended to ordinary people also, who in most cases are the first responders.<sup>[3]</sup>

BLS, a protocol which has been perfected through Centuries, with earliest accounts of CPR can be traced back to centuries, with standardisation in the late 20<sup>th</sup> century with the introduction of chest compression and rescue<sup>[4]</sup>, the introduction of aspects such as defibrillation or simply shocking the heart using an AED (automated external defibrillator) in the BLS algorithm has dramatically improved the chances of survival for an out-of-hospital- cardiac-arrest (OHCA).<sup>[5]</sup>

**The Worldwide Impact**

Research has shown that BLS training in medical professionals has significantly improved the BLS providing skills with improved attitudes towards providing BLS after refresher courses for people who have been previously trained.<sup>[6,9]</sup>

This shows the necessity of the BLS refresher courses even amongst trained medical professionals. Yet training non-medical first responders, often the first at the scene, remains an overlooked but urgent priority.

The studies done for the general population regarding BLS were few, but they were enlightening. A study on

BLS for laypersons conducted in Jeddah concluded that around 39% of the participants passed a questionnaire on BLS, the awareness and attitude, however, were conversely proportional to age and economic status.<sup>[10]</sup>

Similar attitudes towards BLS were seen in an Asian study, although they had the willingness to learn to provide BLS, most of the subjects had not even seen an AED.<sup>[11]</sup> This discrepancy may stem from limited access to resources that are typically more readily available in developed nations. This correlation between economic status and attitude towards BLS was further proved by another meta-analysis.<sup>[12]</sup>

In contrast, a study conducted in California in 1987 which aimed to assess BLS skills amongst the general population by providing mass BLS courses has shown extremely positive effect with some requesting additional time to practice on the manikins to enhance their ability with improved confidence in providing CPR even 6 months after the course, however they suggested various target approaches to attract people from all walks of life.<sup>[13]</sup>

Similarly a study conducted in Poland demonstrated that approximately 73% of test subjects received prior BLS training with over 90 % ready to provide BLS, although the study concluded that knowledge of BLS is poor amongst the public, the results were better than that seen in Jeddah; Another point to note is there was a high percentage of desire amongst the people to learn the BLS in Poland.<sup>[14]</sup> A Canadian study also gave similar results with willingness to provide and learn BLS.<sup>[15]</sup> This demonstrates that people of developed nations are much more receptive to health awareness programmes than their counterparts in developing nations. This difference can be attributed to various factors like resource limitation and lack of awareness.

A point to be kept in mind is that the Californian study was conducted in the late 1990s, there is bound to be improvement in the attitude towards BLS, especially with the advent of the internet and use of T-CPR, a telephonically instructed CPR which is widely used in the USA. Recent studies highlighted that the effectiveness of T-CPR was equated to that of AHA-level CPR by the by-standers, indicating the effectiveness of an untrained by-stander.<sup>[16,17]</sup>

Studies have also shown that by-stander willingness to BLS has increased because of T-CPR within the USA. It also has the added benefit of improving the neurological outcomes in people having cardiac arrest.<sup>[18,19]</sup> which can potentially lower hospital stays and positively impact the prognosis of the patients. These studies underscore the potential of layperson intervention even without formal training. If untrained individuals can contribute meaningfully to survival outcomes, the impact of structured, population-wide BLS education could be exponentially greater.

Collectively, the above studies highlight the influence of education, accessibility, and economic parity towards BLS training and delivery by the general population. A model that has proven successful in developed nations may not yield the same results in developing countries, where limited resources, lack of awareness and financial constraints often pose greater barriers than the mere availability of BLS training sessions. This discrepancy between the developed and developing countries implies that a multimodal approach is needed to overcome the above barriers in a developing nation like India. Thus, effective implementation requires adapting strategies to suit the specific demographic and cultural context of each region, as a universal approach is likely to be ineffective for diverse populations.

### **The Indian perspective**

In a country like India, with a massive population of 1.25 billion, there has been a steady increase in the incidence of Sudden cardiac deaths over the past decade, showing 10.3% per annum, with a rise in sudden cardiac death.<sup>[20,21]</sup> As envisioned by Dr. APJ, that India should be a developed nation, providing access to BLS classes for to most of the population, is the need of the hour.

A recent study on CPR showed that Dr. APJ Abdul Kalam could have been saved if basic life support had been provided at the collapse site itself.<sup>[21]</sup> Another study points out that the mortality rate is high in developing countries due to a lack of awareness and training amongst the public.<sup>[22]</sup> This further underpins the need for widespread awareness of BLS in our daily lives.

Research conducted in India shows a lack of general information about BLS and even less confidence in administering BLS by college students from non-medical backgrounds.<sup>[23]</sup>

A study done in the capital of India, Delhi, surprisingly showed unimpressive results, indicating hesitation and unpreparedness amongst the public, even though they had the basic knowledge about BLS.<sup>[24]</sup> The above two studies reflect the attitude of a well-educated demographic who have access to resources, living in a metropolitan city. If this is the outlook of the people living in cities, one can infer the taboos and misconceptions associated with BLS and CPR in rural India.

On the other hand, study conducted in Bengaluru assessed the ability of school children before and after hands only CPR class, and they inferred there were significant improvements in terms of technique after the BLS classes.<sup>[25]</sup> another study conducted in two schools in Mumbai, also yielded similar results.<sup>[26]</sup> showing promising impact on the young minds of next generation.

Although these surveys were limited only to tier 1 Indian cities, it is safe to infer that early introduction of BLS training is ideal and can help embedding life-saving skills

from an early age and help them promptly react in case of emergencies thereby improving the chances of survival for out of hospital cardiac arrests while they wait for medical help to arrive.

### **The implementation & strategies**

Currently, BLS training is a part of the curriculum for health care professionals and MBBS graduates. The recent increase in the incidence of sudden cardiac deaths in India.<sup>[27]</sup> further reinforces the need for BLS education for the general population, which can be crucial in saving lives at the ground level. The importance of BLS is thus undeniable in modern healthcare, especially in a developing country like India.

Education should be at the forefront of any strategy before giving BLS training, a study showed that many people have trouble recognising between an epileptic fit, a hypoglycaemic event, a simple faint and a cardiac arrest.<sup>[28]</sup> this shows that merely giving classes about BLS and CPR would not suffice and it should be supplemented with recognition of other basic and yet common life threatening life conditions so that they can differentiate between these conditions and act accordingly.

Studies indicate that the risk-to-benefit ratio of performing CPR strongly favours intervention, as the potential harm from administering CPR is significantly lower than the consequences of inaction.<sup>[28]</sup> Even though most people may fear causing injury or worsening the situation, evidence suggests that attempting CPR is generally safe and rarely harmful.

Therefore, it is both reasonable and beneficial to educate the public not only about CPR but also about managing other common medical emergencies until proper medical attention can be provided.

One way to penetrate and inculcate BLS training to the general population is by making use of primary health care centres and sub-health care centres. As per the health ministry of India, "As of March 31, 2023, the country has a total of 1,69,615 Sub-Centres (SCs), 31,882 Primary Health Centres (PHCs), 6,359 Community Health Centres (CHCs), 1,340 Sub- Divisional/District Hospitals (SDHs), 714 District Hospitals (DHs) serving both rural and urban areas".<sup>[30]</sup>

This decentralised network of healthcare system within India offers a unique platform for spreading awareness about Basic Life Support (BLS), particularly in rural and underserved areas.

In rural areas, local populations often place a higher degree of trust in their regular healthcare providers, such as PHC doctors, nurses, Accredited Social Health Activists (ASHAs), Auxiliary Nurse Midwives (ANMs), than in unfamiliar external instructors. Leveraging this trust can enhance the credibility and effectiveness of

BLS training programmes. Integrating BLS education into routine health services delivered by community-level health workers will not only increase acceptance but also remove the taboos associated with it.

Government Policies, including BLS modules within primary care services and other health programmes at the ground level, could accelerate the normalisation of bystander CPR delivery by people from all walks of life. Furthermore, installation of AED in public spaces like bus stops, train stations, religious spaces, colleges and educating people about its usage can be helpful in improving the survival rates.

### **The Barriers and the Way Forward**

In a country like India, where gender inequality is quite pronounced and where there is differential access to health care among genders.<sup>[31]</sup> could imply that a bystander BLS responder might hesitate in providing CPR to the opposite gender.

This can be overcome by proper training and education during BLS classes itself. Research conducted in India and the USA has shown that providing manikins with breasts / female manikins during hands-on training sessions helped overcome this gender related taboo; they further deduced that participants become more comfortable after being trained with female manikins.<sup>[32]</sup> This technique, if employed widely within India, focusing on rural and backwards regions of our country, can help minimise this social barrier.

Money can also be a potential hindrance for BLS classes if people are expected to pay for the training, and this can be a deterrent in increasing the number of BLS providers. Most people showed inclination to the BLS training according to a study when it was offered free.<sup>[33]</sup>

Government policies aiming to provide free BLS training will amplify the awareness and increase the enthusiasm among the public and thereby potentially increase the survival rates of out-of-hospital cardiac arrests.

Legal ambiguity and grey areas in the law regarding BLS providers can be another significant impediment after proper BLS training is provided. Studies show that hesitation due to a lack of knowledge on the legalities of BLS can impede trained individuals.<sup>[33]</sup> This should be addressed by the government by charting out clear legal rules protecting the BLS responder; this knowledge, supplemented during BLS training, can minimise this fear and hesitation when providing BLS.

Furthermore, standardisation and simplification of the BLS algorithm for the public and supplying them with this information in the form of pamphlets or booklets, removing the medical jargon, would encourage people to refer to it periodically and improve the retention.

**CONCLUSION**

While other countries have more trained persons, as per WHO, less than 1% of trained persons who can perform CPR in India.<sup>[34]</sup> although considered a universal basic life-saving skill, it has been overlooked in India.

With the rising incidence of heart attacks, people collapsing in public spaces has become a norm. In such cases, performing BLS becomes the responsibility of bystanders, with youth being the forefront responders. BLS training has become a necessity. The lacuna of skilled BLS providers has become evident, with only medical personnel knowing this skill and the rest of the public oblivious regarding the importance of the same.

To cover this gap, the government should emphasise on offering training at minimal cost and periodically provide free sessions from high school level to university, conducting more hands-on sessions, thereby improving the confidence to provide BLS. Inculcating the principles of empathy and compassion helps in motivating individuals further.

BLS training can also be taken up as a corporate social responsibility (CSR) initiative to train all employees and all jobholders. Media campaigns and initiatives by various organisations can further propel the effort to spread widespread awareness and make BLS an ordinary skill for the non-medical responder, sculpting them into life-saving warriors.

**REFERENCES**

- Gräsner JT, Bossaert L. Epidemiology and management of cardiac arrest: What registries are revealing. *Best Practice & Research Clinical Anaesthesiology*, 2013 Sept; 27(3): 293–306.
- Bajpai V. The Challenges Confronting Public Hospitals in India, Their Origins, and Possible Solutions. *Advances in Public Health*, 2014; 2014: 1–27.
- Zaheer H, Haque Z. Awareness about BLS (CPR) among medical students: status and requirements.
- Kapoor MC. The History and Evolution of Cardiopulmonary Resuscitation.
- Rao BH, Sastry BKS, Chugh SS, Kalavakolanu S, Christopher J, Shangula D, et al. Contribution of sudden cardiac death to total mortality in India — A population based study. *International Journal of Cardiology*. 2012 Jan; 154(2): 163–7.
- Umuhzoza C, Chen L, Unyuzumutima J, McCall N. Impact of structured basic life-support course on nurses' cardiopulmonary resuscitation knowledge and skills: Experience of a paediatric department in low-resource country. *African Journal of Emergency Medicine*, 2021 Sept; 11(3): 366–71.
- Abolfotouh MA, Alnasser MA, Berhanu AN, Al-Turaif DA, Alfayez AI. Impact of basic life-support training on the attitudes of health-care workers toward cardiopulmonary resuscitation and defibrillation. *BMC Health Serv Res* [Internet]. 2017 Dec [cited 2025 July 26]; 17(1): Available from: <http://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-017-2621-5>
- Dalhat S, Mujahid H, Saheed A, Miko AM, Mohammad AM, Sani A, et al. Impact of Basic Life Support Training on the Knowledge of Cardiopulmonary Resuscitation among Final- Year Medical Students. *Nigerian Journal of Medicine*, 2022 July; 31(4): 424–8.
- Ghauri SK, Khan H, Bangash MA, Mustafa KJ, Khan AS. Impact of Basic Life Support Training on the Knowledge of Basic Life Support in Undergraduate Medical Students.
- Subki AH, Mortada HH, Alsallum MS, Alattas AT, Almalki MA, Hindi MM, et al. Basic Life Support Knowledge Among a Nonmedical Population in Jeddah, Saudi Arabia: Cross- Sectional Study. *Interact J Med Res*, 2018 Nov 28; 7(2): e10428.
- Pranata R, Wiharja W, Fatah A, Yamin M, Lukito AA. General population's eagerness and knowledge regarding basic life support: A community based study in Jakarta, Indonesia.
- Clinical Epidemiology and Global Health*, 2020 June; 8(2): 567–9.
- Ng TP, Eng SWO, Ting JXR, Bok C, Tay GYH, Kong SYJ, et al. Global prevalence of basic life support training: A systematic review and meta-analysis. *Resuscitation*, 2023 May; 186: 109771.
- Pane GA, Salness KA. A survey of participants in a mass CPR training course. *Annals of Emergency Medicine*, 1987 Oct; 16(10): 1112–6.
- Rasmus A, Czekajlo MS. A national survey of the Polish population's cardiopulmonary resuscitation knowledge. *European Journal of Emergency Medicine*, 2000 Mar; 7(1): 39–43.
- Cheskes L, Morrison LJ, Beaton D, Parsons J, Dainty KN. Are Canadians more willing to provide chest-compression-only cardiopulmonary resuscitation (CPR)?—a nation-wide public survey. *CJEM*. 2016 July; 18(4): 253–63.
- Ahmed F, Khan UR, Soomar SM, Raheem A, Naeem R, Naveed A, et al. Acceptability of telephone-cardiopulmonary resuscitation (T-CPR) practice in a resource-limited country- a cross-sectional study. *BMC Emerg Med.*, [Internet]. 2022 Dec [cited 2025 July 26]; 22(1).
- Available from: <https://bmccemergmed.biomedcentral.com/articles/10.1186/s12873-022-00690-w>
- Dowker SR, Smith G, O'Leary M, Missel AL, Trumpower B, Hunt N, et al. Assessment of telecommunicator cardiopulmonary resuscitation performance during out-of-hospital cardiac arrest using a standardized tool for audio review. *Resuscitation*, 2022 Sept; 178: 102–8.
- Fukushima H, Bolstad F. Telephone CPR: Current Status, Challenges, and Future Perspectives. *OAEM*. 2020 Sept; 12: 193–200.
- Rybasack-Smith H, Lauro J. A History and Overview of Telecommunicator Cardiopulmonary

- Resuscitation (T-CPR). RHODE ISLAND MEDICAL JOURNAL. 2019.
22. Rao BH, Sastry BKS, Chugh SS, Kalavakolanu S, Christopher J, Shangula D, et al. Contribution of sudden cardiac death to total mortality in India — A population based study. *International Journal of Cardiology*, 2012 Jan; 154(2): 163–7.
  23. Showkathali R. Life support training – Need of the hour in India. *Indian Heart Journal*, 2016 Jan; 68(1): 106–7.
  24. Sharma S, Sharma S. Basic life support skills training among general public – Need of the hour. *JCHM.*, 2024 July 28; 11(2): 40–2.
  25. Chaskar V, Thakkar A, Zadkar S, Gite J. Prospective Study to Assess Knowledge about Basic Life Support in College Students and Evaluate the Effectiveness of Basic Life Support Training. *Journal of the Practice of Cardiovascular Sciences*, 2024 Jan; 10(1): 30–5.
  26. Thakur T, Dhir A. Heartbeat of Awareness: Evaluating Public Knowledge of BCLS in New Delhi. *European Journal of Cardiovascular Medicine*, 2024; 14(5).
  27. Ramesh AC, Hariprasad KV, Abhishek KB, Murthy MRK, Edison M, Hoek TLV. Teaching Hands-Only CPR (HOCPR) skills to 8th-grade students in urban Bengaluru: Development of a comprehensive Hands-Only CPR programme for high school students. *Indian Journal of Anaesthesia*, 2022 Feb; 66(2): 140–5.
  28. Ghurye N, Dhansura T, Khurana A, Kudalkar S, Upadhyay Y. The understanding and recall of school children in Mumbai in compression only life support cardiopulmonary resuscitation. *Indian J Anaesth.*, 2020; 64(6): 501.
  29. Rao BH. Global burden of Sudden Cardiac Death and insights from India. *Indian Heart J*, 2014; 66 Suppl 1(Suppl 1): S18-23.
  30. Koster RW. Modern BLS, dispatch and AED concepts. *Best Practice & Research Clinical Anaesthesiology*, 2013 Sept; 27(3): 327–34.
  31. Oliveira NC, Oliveira H, Silva TLC, Boné M, Bonito J. The role of bystander CPR in out- of-hospital cardiac arrest: what the evidence tells us. *Hellenic Journal of Cardiology*, 2025 Mar; 82: 86–98.
  32. ministry of health and family welfare india. Press Release: Press Information Bureau. Available from: <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2053070>
  33. Patel R, Chauhan S. Gender differential in health care utilisation in India. *Clinical Epidemiology and Global Health*, 2020 June; 8(2): 526–30.
  34. Kotini-Shah P, Behera P, Froelich E, Jena SS, Sahoo AK, Gupta A, et al. Use of Breasted Manikins During Community Cardiopulmonary Resuscitation Trainings in India and United States. *Clinical Therapeutics* [Internet]. 2025 July [cited 2025 July 26]; Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0149291825002164>
  35. Almutairi AH, Alhassan SA, Alsuwayyid RY, Alaskar AA, Almutairi FS, Alsaid AF, et al. Awareness, Knowledge, and Attitudes Regarding Basic Life Support Among the General Population in the Al-Majma'ah Region, Saudi Arabia. *Cureus* [Internet]. 2023 Nov 10 [cited 2025 July 26]; Available from: <https://www.cureus.com/articles/196785-awareness-knowledge-and-attitudes-regarding-basic-life-support-among-the-general-population-in-the-al-majmaah-region-saudi-arabia>
  36. Times of India. Less than 1% Indians know cardiopulmonary resuscitation - Times of India., 2021 Apr 23.