

Summer Training Report

ON

**A Systematic Review of Current Status of Knowledge, Attitude Awareness and Effectiveness of
Training About Cardiopulmonary Resuscitation in Different Regions of India**

AND

Lean Six Sigma Green Belt

By

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List of Abbreviations

CPR	Cardiopulmonary Resuscitation
BLS	Basic Life Support
NIH	National Institutes of Health
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyse
OHCA	Out-Of-Hospital Cardiac Arrest
ILCOR	International Liaison Committee on Resuscitation
SCA	Sudden Cardiac Arrest
CA	Cardiac Arrest
ECC	Emergency Cardiovascular Care
AHA	American Heart Association
AED	Automatic External Defibrillator
IRC	Indian Resuscitation Council
COLS	Compression-Only-Life Support

PART-1 REPORT ON WORK FROM HOME (ASSIGNED by FACULTY)

**A Systematic Review of Current Status of Knowledge, Attitude Awareness and Effectiveness of
Training About Cardiopulmonary Resuscitation in Different Regions of India**

A SYSTEMATIC REVIEW OF CURRENT STATUS OF KNOWLEDGE, ATTITUDE AWARENESS AND EFFECTIVENESS OF TRAINING ABOUT CARDIOPULMONARY RESUSCITATION IN DIFFERENT REGIONS OF INDIA

Abstract:

Background: Out of hospital Cardiac arrest is the major burning burden in India. Meantime, in the golden hour of OHCA Immediate bystander cardiopulmonary resuscitation (CPR) and rapid defibrillation is the only solution to decrease the incidence and increase the outcome of a chance of survival.in this case, everybody in the community would aware with Basic Life Support(BLS). Therefore, this study aimed at assessing the status of knowledge, attitude, awareness, and to evaluate the effective training intervention about Basic Life Support Skills among school children, students in various fields and health care professionals in different regions of India

Methods: literature was searched from the electronic database of PubMed and Medline about cardiopulmonary resuscitation. Inclusion and exclusion criteria were followed based on PRISMA guidelines for the articles published from 2010 to 2020 in the English language. National Institutes of Health (NIH) and axis quality assessment tools were used to know the quality of the studies.

Results: 25 studies were included out of 138 records for the and applied for deep review. Most of the articles shown the poor quality of the publication. Intervention and observation findings identified lack of is basic life support skill is inadequate in every field, alarmingly in healthcare also. Besides, updated knowledge in recent guidelines of BLS was moderate in health care professionals. Besides, updated knowledge in recent guidelines of BLS was moderate in health care professionals. Interventions of training programs on BLS was proved that effective planned training is the only solution to improve the knowledge, attitude, and practices. The most promising interventions involved were interactive sessions in a group with planned teaching programs through live demonstrations by using mannequins to improve the retention level, especially in school children. Most of the studies recommended that Implementation of BLS courses in the academic curriculum with periodic revisions has more influence in School children, college students in different fields. Also, in-service tenure courses for health care workers will aware of recently updated guidelines

Conclusion: The findings of this review identified that status of knowledge, attitude, awareness is inadequate but effective training on cardiopulmonary resuscitation had more impact on school Children's, students in different fields and health care professional in diverse regions of India

Keywords: cardiopulmonary resuscitation, automatic external defibrillator, awareness, attitude, knowledge, planned training program

1.Introduction

people Often misconceived the terms ‘cardiac arrest’ and ‘heart attack. A heart attack is a circulation problem where there is an interruption of blood circulation. In contrast, Cardiac arrest is an electrical problem, arises at a time of absence of blood circulation where there is no supply of blood to the heart. ⁽¹⁾

The major signs to identify cardiac arrest and heart attack is listed in Table 1

Table 1: signs and symptoms of heart attack and cardiac arrest

Heart Attack	Cardiac Arrest
Problem in breathing	Breathing abnormally or not breathing at all
Pain in arms, neck, back, jaw	Lying unconscious and unresponsive
Gaseousness/vomiting	Even lose their pulse
Perspiration	
Feeling dizzy/light-headed	
Chest pain, burning feeling in your chest or heaviness	
The basic difference between these two conditions can make all the difference while providing medical response and help in case of such an event.	

Globally, sudden cardiac arrest (SCA) is the deadliest disease and Worldwide the burden of the disease is identified as 24 to 186 per 100,000 person-years. Day to day the incidence rate of CA is increasing, due to the high occurrence of heart disease and the aged population. The burden of the disease is majorly occurred outside of the hospital setting and it is a major concern of health problems around the world. OHCA is defined as a cessation of cardiac mechanical activity, confirmed by the absence of signs of circulation the process is potentially reversible, the probability of recovery is small because it occurs outside the hospital setting. Out-of-Hospital cardiac arrest (OHCA) cause considerable morbidity, mortality, and a substantial burden on the health care system and are associated with poor survival due to delay in recognition and provision of early cardiopulmonary resuscitation (CPR). ^(2,3)

CPR is a skill that can revive the human body when the process of death begins. Resuscitation Medicine in the field of Emergency Medicine has developed for hundreds of years. International Liaison Committee on Resuscitation (ILCOR) was formed by the collaboration of the American Heart Association in the US and the European Resuscitation Council in Europe for the development of international guidelines. In 2000 International Guidelines for CPR & ECC (emergency cardiovascular care) made by the association and it would renewal by every 5 years with the existing standardized various CPR methods being used in- hospital or out-of-hospital circumstances worldwide and the latest one was presented in 2015⁽⁴⁾

1.1. Chain of Survival

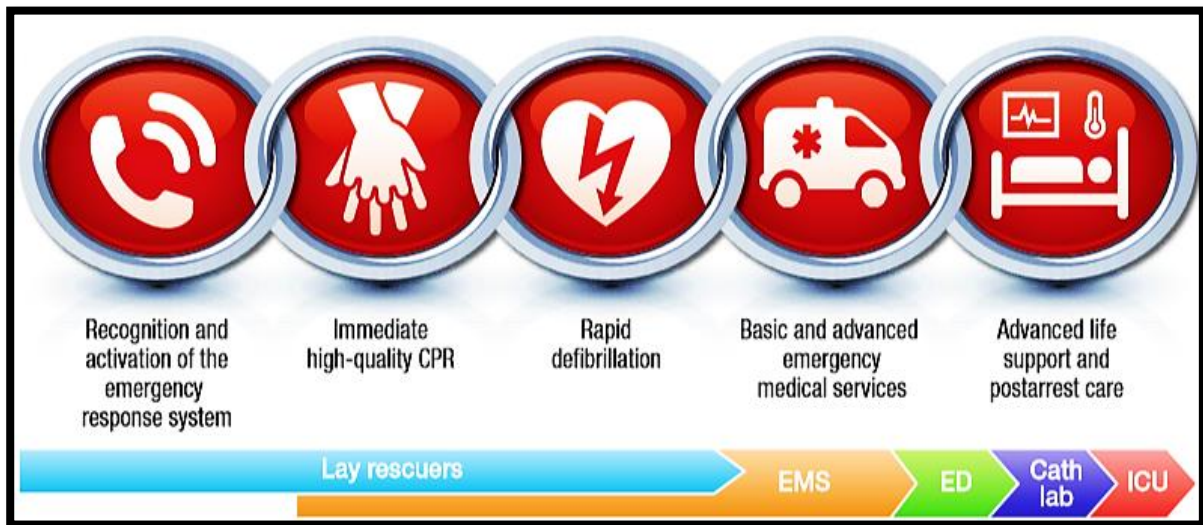


Figure 1: a process of the chain of survival

chain of survival concept is described by the American Heart Association (AHA) to reduce mortality and improve survival. it covers five elements, (Figure 1) i.e., immediate recognition and rapid access, rapid CPR, rapid defibrillation, effective advanced care, and integrated post-cardiac arrest care and also for effective outcomes, it should be initiated within 10 minutes of the collapse of the victim. In developing countries with low resource settings, the early initiation of the chain of survival could best be achieved by training the community in early identification and initiation of CPR for effective outcomes. Bystander assisted CPR plays a vital role in resuscitation of out-of-hospital cardiopulmonary arrest victims in the real need of the hour. ^(5,6,)

1.2. Automatic External Defibrillator



Figure 2: Automatic External Defibrillator

AED is a portable electronic device, used in the case of cardiac issues, where it will diagnose automatically if any irregularity in the heart's rhythm and send an electric shock to the heart so that the normal rhythm is restored. An untrained person also can use as equally as trained through the voice prompts of the machine. (Figure 2) In developed countries, Multiple research papers proven that AED plays a major role for safeguard of out-of-hospital cardiac arrest patients in public places where the crowd is more such as airports, railway stations, bus stations, shopping malls, parks, gym, college, schools, etc. Other than doctors and health care workers, laypersons can double a victim's chance of survival through delivering CPR and AED ^(5,6,7)

1.3 Indian resuscitation council:

India has been following the guidelines of CPR recommended by the American heart association (AHA). But, due to a large population, poorly developed emergency medical services, ambulance services, scarce availability of automated external defibrillators, and cultural beliefs, the following guidelines are not accessible. considering these barriers, the Indian society of anaesthesiologists initiated the Indian Resuscitation Council (IRC). The major objective of IRC is 'saving lives' through education, research, and collaboration and to promote accurate and scientific resuscitation training & guidelines. these guidelines are simple and framed based on India's present scenario like cultural constraints, availability of trained personnel, limited infrastructure, and the shortage of healthcare workers. These guidelines primarily focussed on the delivery of compression-only-life support (cols) in out of hospital cardiac arrest victims through providing training programs in the community as a service of creating and motivating awareness of people to learn and perform the vital life-saving skill.

The burden of cardiopulmonary arrest in India is approximately 4280/100,000. Seventy percent of out-of-hospital cardiopulmonary arrest occurs at home and 90% of individuals who suffer out-of-hospital cardiac arrest are deceased. chance of survival is reduced by 7%–10% due to time delay of resuscitation in OHCA victims. Regrettably, only about 46% of people receiving timely instant bystander CPR. Humanitarian, the chance of survival of victims can double or triple when the decision making to do of CPR by witnessed or bystander instantly though it will happen only when the layperson would train the skills of CPR then only witnessed do CPR confidently without hesitating ^(8,9,10,11,12)

Nowadays, Bystander CPR is getting more popular in many countries of the world. Wassenberg et al Conducted a study in Denmark between 2001 to 2010 to examine the survival rates among OHCA patients after bystander CPR resuscitation. The study revealed that the survival rate with the bystander CPR is associated with survival on arrival at hospital is increased and another study done by Cummins et al observed more than 30% of survival in the bystander-initiated CPR group of 579 cases over 718 cases who are not received CPR until paramedics arrived in Subsequently, Komatsu et al has reported that bystander CPR is a significant pre-hospital

contributory factor in the survival and neurological outcomes in postcardiac arrest syndrome following OHCA⁽¹³⁾

But due to some reasons undeveloped and developing countries like India are lacking about CPR. Rajaram et al. reported a bystander rate of 4.4% in OHCA in a study from urban India. The common reasons for uncertainty and poor knowledge of resuscitation to act when faced with OHCA are fear of knowledge about the technique, Poor retention of knowledge and skills, Fear of failure, fear of harming the patient, fear of responsibility and fear of infection while mouth-mouth breathing and lack of confidence, lack of Research standards and Reliable statistics. ^(14,15,16) Learning basics and equipped knowledge about CPR and AED are community service amount to real voluntary work. Every person particularly youth should be trained in this technique as paramedics or doctors may always not be able to reach the victim within the first 10 minutes in the golden hour of cardiac arrest ^(7,8,9)

The present study aims to know the status of knowledge, attitude, awareness, and effective methods of training about cardiopulmonary resuscitation in various sectors of India. India is lacking compared to other countries like the united states, Europe, Japan and Singapore have mandated hands-only CPR in their school curriculum while in India such a policy step still seems far away and also it is necessary that CPR knowledge and adequate training be imparted to the common man and this is even more important in developing and underdeveloped countries .so, this study, will be an insight for training people and policymakers take it more seriously in a healthcare domain and also this study will be necessitated as a resource to reinforce the forthcoming studies to cross all obstacles for implementing life-saving techniques and installation of AED machinery in public places ^(7,8,9,10)

2. Methods

The review process was reported according to the PRISMA (preferred reporting items for systematic reviews and meta-analyses) standards. ⁽¹⁷⁾

2.1. Eligibility

For inclusion of the studies .if they were (1) Descriptive study and Study, Intervention Study before-after (Pre-Post) study with no control group and questionnaire-based studies (2) I included studies in which Awareness, attitude, knowledge, and practices of CPR were main outcomes and communicated to students, health care professionals and laypersons or the community as a sample. I excluded articles in languages other than English.

2.2. Search strategy

I searched the electronic databases PubMed and Medline from 2010 to 2020 in the English language. We developed a broad search strategy that included the use of MeSH heading subjects cardiopulmonary

resuscitation (CPR), Automatic External Defibrillator and first aid training and also developed narrow terms following text words educational training Awareness, attitude, knowledge, practices of CPR, schools, dental, nurses, medical students, practitioners, volunteers, laypersons, degree students.

2.3. Study selection

In initial phase Titles, abstract and keywords were screened and reviewed. subsequently, full-text articles were included in the study selection phase and irrelevant articles and studies that did not include the subject's cardiopulmonary resuscitation (CPR), Automatic External Defibrillator and first aid training were excluded

2.4. Data collection process

Data extraction form was developed based on observational (descriptive, exploratory, cross-sectional questionnaire-based surveys) and interventional studies (pre- post-training questionnaire-based survey. The Information was extracted for interventional studies on (1) author, study site, year (2) type of study, (3) sample size in each field (4) type of intervention,(5) pre and post-training (6) outcome measure and tool used (7) effect. And for observational studies (1) author, study site, year (2) type of study, (3) sample size in each field (4) outcome measure and tool used, (5) effect

2.5. Risk of bias and quality of evidence

To Validate risk of bias and reliable the quality, worth and relevance of the studies We used The National Institutes of Health (NIH) quality assessment tool for before-after (Pre-Post) study with no control group tool(18) comprises 12 questions for interventional studies(Annexure 1) and AXIS appraisal tool comprises 20 questions(Annexure 2) Both tools (19)have areas to record a “yes”, “no” or “don't know” answer for each question. Eventually, the overall rating was recorded as good, fair, and poor based on the marks of each study.

2.6. Evidence synthesis

Studies were assessed for heterogeneity of population, intervention outcomes measures and effect with the intent of undertaking metanalysis if possible; findings were summarised thematically for descriptive analysis

3. Results

This search identified 138 publication. After the removal of 40 duplicates, 98 publications were reviewed. 50 articles were excluded. 30 Full-text articles assessed for potentially eligible articles. 5 articles were excluded because study setting in other countries than India This resulted in the inclusion of 25 studies. This data is also presented in the PRISMA flow chart (Figure 3)

3.1. Setting

More than half (15/25) of the studies were conducted in the north India i.e. Gujarat(4), Maharashtra(1), New Delhi(2),Rajasthan(2), Punjab(1),Manipur(1),Nepal(1), Odisha(2),Meghalaya(1) and Remaining 10 studies from south India i.e. Karnataka(5),Tamilnadu(3), Andhra Pradesh(1),Kerala(1) .

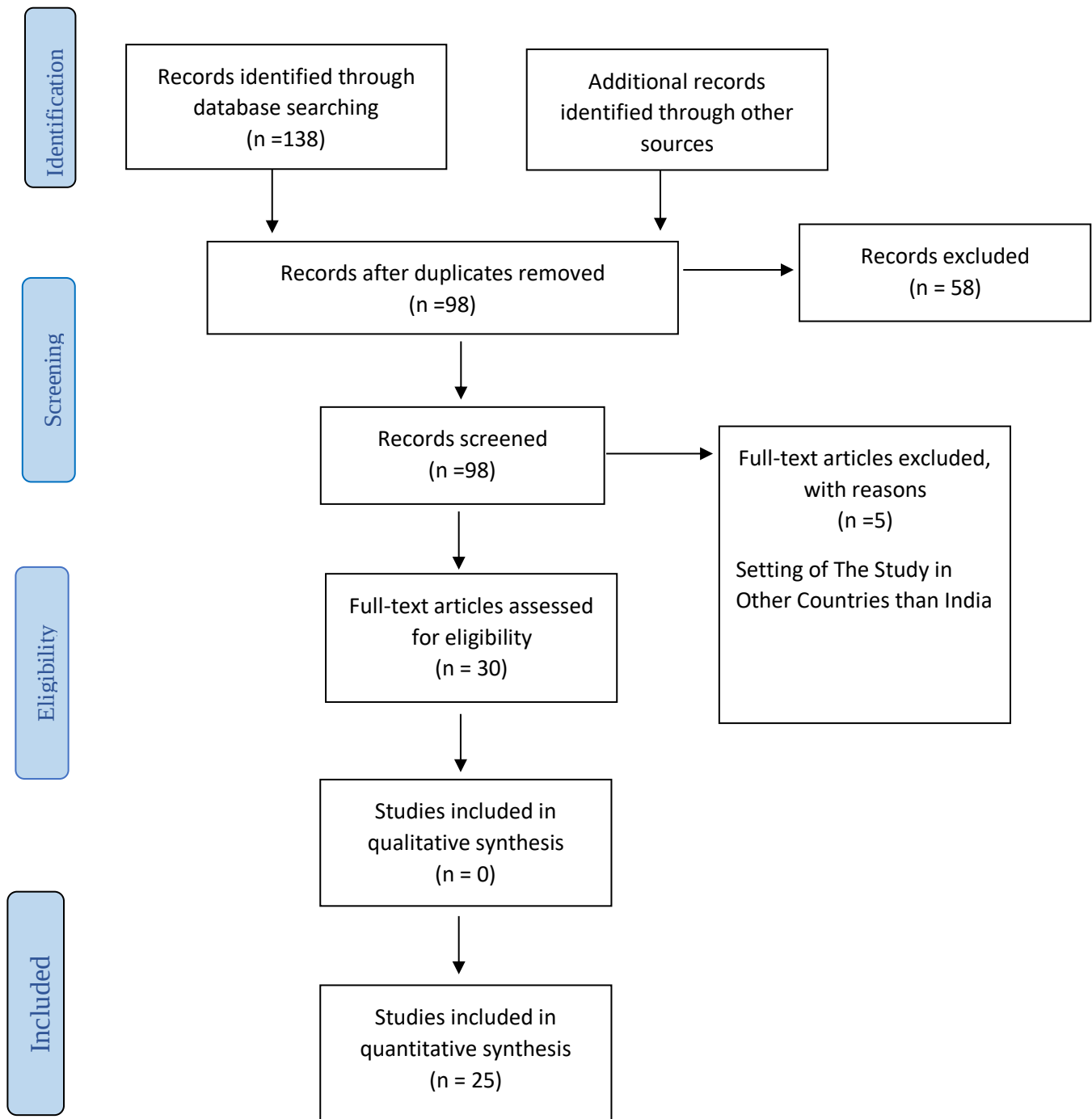


Figure 3: PRISMA (preferred reporting items for systematic reviews and meta- analyses) flow chart of the review process

3.2. Quality of evidence

Out Of the 25 studies, 19 were observational studies (6 descriptive studies & 11 cross-sectional studies), quality valuation of evidence was good (n = 1), fair (n = 5) and poor (n = 11) and 8 were interventional studies (before and after studies) quality valuation of evidence was good (n = 3), fair (n = 2) and poor (n = 3).

3.3. Synthesis of findings

studies were too heterogeneous of population, intervention, and effect. So, we did not conduct a meta-analysis. In this point of view, findings were summarised thematically in a narrative manner by dividing the Studies into two themes based on the type of study i.e. Intervention of Planned Training Programme of Basic Life Support Skills for Understanding and Retention & Observation the attitude, awareness, knowledge, perception, and practices of Basic Life Support Skills for School Children, Students in Different Fields, and Health Care Professionals. The results from each study were listed in Tables 1&2 and described below under the related headers.

3.3.1. Observation the attitude, awareness, knowledge, and confidence of Basic Life Support Skills (Table 2)

In these category 17 studies were included, in that 11 studies are cross-sectional studies remaining 6 are Descriptive studies. These studies were adapted to different tools (self-administered semi-structured closed-ended questionnaires) to evaluate the basic theoretical and practical knowledge regarding BLS. They followed the American Heart Association and Indian resuscitation council guidelines for developing questions. Observations of studies are revealed that anybody can be a rescuer for saving the life of a cardiac arrest victim. But the vital requirement is updated knowledge and skills on performing CPR. Also, confidence is the major determinant in the success of the emergency of cardiac arrest. It could be Developed by implementing CPR training programs in the community, with the updated guidelines.

A Descriptive study (Patidar AB et al)⁽²⁰⁾ of school children in the ninth standard, identified that compare to male students (52.93 ± 7.98). female students have a more positive attitude towards BLS but lack of confidence in both male and female children due to unawareness of legal actions and fear of mouth to mouth infections.

Health care professionals like nurses, dentists, and doctors should have a compulsory knowledge of BLS to train the community people and to anticipate the life-threatening condition. But Three studies (Bajracharya S et al, Singh R et al, Varughese S et al)^(21,22,23) identified that there was poor adequate and update knowledge of BLS in nursing staff and confirmed that There was no association between the knowledge and academic qualification or work experience. in addition, another study (Chaudhari MS et al)⁽²⁴⁾ Reported that there was very poor knowledge of updated guidelines of BLS among nurses and doctors.

Table 2: Observation the attitude, awareness, knowledge, and confidence of Basic Life Support Skills

Author and place	Study type	Population (patient)n	Outcome (tool used)	Effect	Quality
Patidar AB et al. ⁽²⁰⁾ (Ludhiana, Punjab) (2014)	Descriptive study	N=301 school children studying in ninth standard	Attitude -Likert scale (Strongly Agree, Agree, Uncertain, Disagree, and Strongly Disagree). It consists of total 16 statements out of which 8 were positive & 8 were negative statements.	attitude score was 54.20 ± 7.99 positive inclination towards BLS. However, the total mean score of the female students (55.87 ± 7.74) as compared to their male counterparts (52.93 ± 7.98).	Poor
Bajracharya S et al. ⁽²¹⁾ (Kathmandu, Nepal) (2016)	Descriptive Cross-Sectional Study	50 nurses working in critical and high care units).	self-administered semi-structured questionnaire Knowledge regarding latest CPR sequence and CPR indication	86% of them had never attended any BLS training. But they had seen CPR being done.58% had done CPR.62% stated C-A-B as the latest CPR sequence. 90% of the respondents said cardiac arrest is the indication of CPR.	Poor
Varughese S et al ⁽²³⁾ (Mangalore Karnataka) (2018)	Descriptive Study	N=89 staff nurses	Self-administered Two hundred questionnaires on knowledge, perspective & factors influencing on initiation of CPR among the clinical nurses	32.5% had good knowledge level.100% agreed that CPR was necessary to learn 13 .The factors influencing initiation of CPR shows 13.5% with the fear of harming the client, 6. % with lack of confidence, 21.3% lack of training, and 5.6% nurses with fear of infection	Poor
Meena Kumari K et al ⁽²⁵⁾ (Manipal, Karnataka) (2014)	Descriptive study	N=250 MBBS students of second, third, fourth year	questionnaire comprised of three parts, first one dealing with general questions to know the importance of CPR in clinical practice, second one consisted of the main goal and accuracy of CPR intervention and the last segment comprised of questions targeting the indications, methods and effectiveness of CPR..	first category got positive response on knowledge and need of CPR. In second category, 20% got excellent, 36% scored as good and 44% gave poor response. Third one >47.2% scored with excellent grade, 30% good and 22.8% gave poor response only 20.4% were aware of the current upgraded, being C-A-B from previous A-B-C. the depth of chest compression only 7-8% was correct	Fair
Chowdari A et al ⁽²⁶⁾ (Mangalore, Karnataka) (2013)	Cross-Sectional Study	N=377 undergraduate medical students from first to final year of MBBS	A semi-structured anonymous questionnaire was developed CPR as per the AHA guidelines (Year 2010) on (1) Basic characteristics of the study participants. (2) Knowledge about BLS/CPR. (3) Perceptions about BLS/CPR.	84.6% had heard of BLS/CPR. Some of them (30.6%) could give the correct order of performing Few (18.9%) had undergone prior training in BLS, whereas only 17.7% had been in a situation that needed BLS/CPR. Nearly half (50.2%) were not confident of performing BLS/CPR.	Fair

Author and place	Study type	Population (patient)n	Outcome (tool used)	Effect	Quality
Akoijam BS et al ⁽²⁷⁾ (Imphal, Manipur) (2017)	Cross Sectional Study	N=80 medical interns	A self-administered questionnaire containing socio-demographic and knowledge regarding CPR was used. A checklist was also used to assess the skills of CPR and was done through observation and video recording.	More than half of them knew when to start CPR but did not know when to put a victim in a recovery position or how to open the airway. Nearly 3/4 of them did not know when they were supposed to stop CPR. Majority of them did not know the correct site for chest compression. Very few of them checked for response and breathing and most of the participants had incorrect positioning while performing it. None of the participants knew how to give rescue breaths	Fair
Reddy S et al ⁽³²⁾ (Hyderabad, Andhra Pradesh) (2013)	Descriptive study	N=338 of III, IV and V years BDS clinical students, dental interns, PG and BDS and MDS faculty	TO assess the basic theoretical and practical knowledge regarding BLS a self-administered questionnaire comprising of 20 multiple choice questions (Q1-Q20) and last two questions (Q21-Q22) were employed	No training on BLS was received by III, IV and V year clinical BDS students and half of interns had adequate knowledge when compared to postgraduate students, BDS tutors and MDS staff and majority of interns received training, whereas not a satisfactory number of BDS and MDS faculty were updated with the skills of BLS.	Poor
Naram A et al ⁽³³⁾ (Chennai, Tamilnadu) (2019)	Descriptive Study	N=100 of 4th year dental students and interns	self-administered questionnaire comprising 10 multiple-choice questions; the questionnaire assessed the theoretical and practical knowledge regarding the BLS.	80% of the dental students were aware of the term BLS. About 42% of the have not done CPR or observed doing a CPR. About 50% do not know the exact location of the chest compression. About 65% of the study population does not know the ratio of chest compressions and mouth breathings	Poor
Baduni N et al ⁽³⁵⁾ (New Delhi) (2014)	Cross Sectional Study	N=104 (26 were faculty, 15 were resident doctors/tutors, 31 were private dental practitioners and the rest 32 were dental students	20 selected questions including abbreviations of BLS and AED assessment of patients, resuscitation techniques, use of defibrillators and recognizing and managing victims of stroke, electrocution, road traffic accidents, and myocardial infarction.	it was observed that the maximum mean score (9.19 ± 1.23) was obtained by dentists with clinical experience between 1 years and 5 years, being fresh with their knowledge. The minimum mean score was obtained by BDS students (5.62 ± 1.78), emphasising on the need to include BLS in their curriculum	Fair

Author and place	Study type	Population (patient)n	Outcome (tool used)	Effect	Quality
Narayan DP et al ⁽³⁶⁾ (Bangalore, Karnataka) (2015)	Cross Sectional Study	202 dental students (102 were interns and 100 were postgraduate student).	A closed ended 17 questions included BLS, AED, CPR, EMS, assessment, and resuscitation techniques regarding airway, breathing, circulation in unresponsive victims, emergency equipment's in the dental office and knowledge about drugs used in emergencies in dental practice.	In the 201 participants, 121 (59.9%) had a positive attitude and 81 (40.1%) had a negative attitude towards BLS and had average knowledge about BLS	poor
Vausedvan B et al ⁽²⁹⁾ (Kottayam, Kerala) (2016)	Cross Sectional Study	N=810 (575 medical students and 236 nursing students)	semi-structured questionnaire concerning the basic demographic factors, knowledge regarding the BLS resuscitation algorithm, their opinion regarding the causes of lack of knowledge & starting of a structured course of BLS in their curriculum.	Average knowledge score was significantly higher among nursing students (8.5±2.8 Vs 6.6±2.5; p value-0.001). Highest knowledge level was seen among those who had seen the BLS previously (15.2% Vs 4.5%; p value- 0.001) or attended the BLS workshop previously (8.1% Vs7.3%; p value-0.001).	Poor
Sangamesh NC et al ⁽²⁹⁾ (Bhubaneswar, Odisha) (2017)	Descriptive study	N=659 BDS faculties, , nursing faculties Medical junior residents, 3rd-year and final-year UG students from both medical and dental , interns	self-prepared 20 basic questions, including the experience and attitude of the participants to BLS/CPR, theoretical and practical knowledge of the participant to BLS/CPR, and previous experience and exposure to BLS. The last two questions were about rating the participant themselves on BLS knowledge and reason for the lack of knowledge	Among all the subjects, most of them were aware and had positive attitude toward BLS (94%). The knowledge of BLS was less among the respondents since most of them had not undergone prior BLS training or performed BLS by self. The respondents had average knowledge regarding the individual components of BLS	Fair
Chaudhari MS et al ⁽²⁴⁾ (Gujarat) (2017)	Cross-Sectional Study	N=213 (92 were doctors and 121 were nursing staff. Doctors and nursing staff)	self-prepared 20 MCQ based questionnaire regarding the awareness about recent guidelines of AHA, BLS, and factors associated which include profession, age, gender, current primary posting, previous BLS training and updated with Highlights of 2015	Among 213 participants, only 10.3% had acceptable score (>16 correct answers out of 20 MCQs). Relation between acceptable score and responders having updated with 2015 guidelines and previous BLS training was found to be statistically insignificant. Knowledge about BLS is very poor	Poor

Author and place	Study type	Population (patient)n	Outcome (tool used)	Effect	Quality
Chandrasekaran S et al ⁽³¹⁾ (Salem, Tamilnadu) (2010)	Cross-Sectional Study	N=1054 of 345 medicos, 75 interns, 19 dental students, 59 internss, 105 homeopathy interns, 319 nursing students, 72 doctors, 29 dentists, 25 nursing faculty & 6 Homeo doctors	A questionnaire with 20 questions regarding the awareness and skills involved in BLS was used to assess the levels of awareness to BLS and its practical knowledge	No one among them had complete knowledge of BLS. Only two out of 1054 (0.19%) had secured 80 – 89% marks, 10 out of 1054 (0.95%) had secured 70 – 79% marks, 40 of 1054 (4.08%) had secured 60 – 69% marks and 105 of 1054 (9.96%) had secured 50 – 59% marks. Most of them, that is, 894 (84.82%) had secured less than 50% marks. Awareness of BLS is very poor.	Fair
Mani G et al ⁽²⁸⁾ (Kancheepuram, Tamil Nadu) (2014)	Descriptive, Cross-Sectional Study	N=241 medical students third semester 52 (21.6%), fifth semester 93 (38.6%) and seventh semester 96 (39.8%).	semi-structured questionnaire devised based on American Heart Association Guidelines for BLS and CPR 2010.	The knowledge score decreased with increasing duration of training. Only 12.9% of the participants had ever practised BLS. Twenty-one (expressed reluctance about performing BLS in a hospital setting, and 57.3% of the participants expressed reluctance about performing BLS in an out-of-hospital setting.	Poor
Singh R et al ⁽²⁷⁾ (Pali Rajasthan) (2019)	Cross-Sectional Study	Nursing Staff	structured questionnaire of seventeen questions assessing the knowledge of BLS resuscitation algorithm.	67.00% nursing staff had medium knowledge followed by 20.00% had good knowledge and 13.00% nursing staff had poor knowledge	Poor
Yunus M et al ⁽³⁰⁾ (Shilong, Meghalaya) (2015)	Cross-Sectional Observational Study	N=500 students of Graduate-level, PG, and UG medical students as well as UG nursing students	A predefined questionnaire with 30 questions based on AHA's BLS was used to assess the levels of knowledge, attitude and practice of BLS. 8 Knowledge and practice questions were multiple choice questions while Attitude based questions were structured as yes/no/not sure pattern..	The untrained participants have scored poorly as compared to trained participants in theoretical knowledge and practice of BLS (24.36 % and 53.45% versus 9.25 % and 24.07%). Most of the participants of both trained and untrained group were having very good attitude towards BLS. Knowledge and practice skills of BLS/CPR are poor in medical and nursing students.	Fair

principally, Educational institutions like medical and nursing colleges have a foremost role in creating awareness and improve knowledge on BLS. 7 studies (Meena Kumari K et al, Chowdari A et al, Akoijam BS et al, Mani G et al, Vausedvan B et al, Yunus M et al, Chandrasekaran S et al)^(25,26,27,28,29,30,31) conducted a cross-sectional study and descriptive study in medical and nursing students. It was identified that, inadequate knowledge about updated guidelines and had a Positive attitude towards performing CPR. A major proportion of students expressed a lack of awareness and confidence in performing BLS. Depending on the class of semesters, the attitude was varied. Because of no periodic revision of CPR training programs. Moreover, similar results were shown in 5 studies (Reddy S et al, Naram A et al, Sangamesh NC et al, Baduni N et al, Narayan DP et al)^(32,33,34,35,36) conducted in dental students.

3.3.2 Intervention of Planned Training Programme of Basic Life Support Skills for Understanding and Retention (Table 3)

In this category, 8 studies were included in that 2 studies are quasi-experimental studies remaining 6 are interventional studies. Of all these studies the intervention was Training Programme of Basic Life Support Skills based on the American Heart Association and Indian resuscitation council guidelines. The training was done under two categories, one is a theoretical approach through a lecture by using slide show presentation, video presentation, and the other one is a practical approach through demonstration hands-on training of correct steps of CPR by using mannequin with well-experienced practitioners. Subsequently, for assessing the understanding and retention levels, different outcome measures were used such as checklists, structured, and semi-structure closed-end questionnaires which were given pre- and post-training. The same questionnaires were used for retention level after a while.

Intervention studies evaluating the success of planned training programs demonstrated significant improvements in the performance of CPR before and after training to know the understanding and retention level in school children, students in different fields, and health care professionals. Two studies (Dhansura T et al, Stanly S et al)^(37,38) identified intervention in school children studying in standards seven to ten, which increase the proportion of understanding and retention skills with periodic training programs. And observed that post-training the children are more confident towards performing CPR and good retention skills. Intervention which includes emergency preparedness like a simulated sudden cardiac arrest situation like a person fallen in front of you in an unconscious situation and to enhance the knowledge, a theoretical lecture also given on chain of survival, correct CPR performance, and application of AED. Another study (Jarwani BS et al)⁽³⁹⁾ intervention about CPR was done based on Indian guidelines of COLS for 2 hr session in laypersons of community. It was identified that; attitude is the main consequence because CPR learning is not mandatory in school and college level to train and to resuscitate. Only 5 % laypersons showed ready to perform CPR before training, significantly it was improved to 92% after training showing the great impact on the change of attitude towards performing CPR and improved knowledge of compression rate, depth, and AED operating.

Table 3: Intervention of Planned Training Programme of Basic Life Support Skills for Understanding and Retention

Author and place	Study type	Population (patient)n	Intervention	Control	Outcome (tool used)	Effect	Quality
Dhansura T et al⁽³⁷⁾ (South Mumbai, Maharashtra) (2020)	Quasi-Experimental Study	N=132 school children studying in standards seven to ten.	one-hour training session on COLS by slideshow presentation based on IRC- COLS guidelines (2017)	Pre and post training	a multiple-choice questionnaire comprising five questions, the questions tested facts about COLS and gauged the understanding of the same.	comparing the scores obtained in the post-training questionnaire to the questionnaire administered after three months, a P value of $P < 0.001$ was obtained	Poor
Stanly S et al.⁽³⁸⁾ (Manipal, Karnataka) (2017)	Intervention Study	N=16 school children studying in standards Eight to ten	According to 2015 AHA guidelines. training given on chain of survival, correct CPR performance and application of AED	Pre and post training	Checklist of the emergency preparedness, knowledge retention level, effectiveness, and barriers in performing BLS skills	The mean pre-training score was 2.6 (± 1.9) & post training was 12.44 (± 0.89) and one-week recall scores was 12 (± 1.05).	Poor
Khan H et.al⁽⁴¹⁾ (Vadodra, Gujarat) (2015)	Intervention study	N= 121 37 nursing students 84 and nurses	Theoretical lecture which include all details about the CPR followed by practical session includes video & practical	Pre and post training	questionnaires form contained a Knowledge (n=13) and practice (n=07) based and validated by expert faculty. was there	Pre- test mean marks 4.14 ± 1.38 Post-tests mean marks 9.54 ± 1.46 .	Fair
Ratha K et al⁽⁴²⁾ (Bhubaneswar, Odisha) (2014)	Intervention study	Intern B.Sc. Nursing Student	planned teaching programme on BLS	Pre and post training	A structured close ended knowledge questionnaire used Pre-test was conducted on 1st day and planned teaching programme on BLS provided to the student on same day. After 7days post test was conducted	Pre-test Mean-9.12, Median-9 SD-1.97 and Post-test Mean – 13.4, Median-13 SD-2.89.”t”value was 13.9 which is greater than the tabulated value at ($p=0.001$) level of significance	Poor

Author and place	Study type	Population (patient)n	Intervention	Control	Outcome (tool used)	Effect	Quality
Bhatnagar V et al ⁽⁴³⁾ (Mumbai, Maharashtra) (2017)	Interventional study	N=41 first year PG students	10 h session with combined lecture series and hands-on training based on AHA 2015 Guidelines	Pre and post training	The questionnaire was given as before the CPR training program was initiated, immediately after the CPR training program was concluded, and residual knowledge would be identified after 6 months.	Before training, i.e., 63.97%. It improved to after training, i.e., 84.74%. After 6 months score declined to 67.4%.	Good
Tanna D et al ⁽⁴⁴⁾ (Vadodara, Gujarat) (2019)	Interventional Study	N=108 MBBS students	1hr of lecture followed by hands on training for CPR based on Indian guidelines	Pre and post training	A structured questionnaire which included total ten questions- eight multiple choice questions, one short answer and one true/false. The same questionnaire was used as a pre & post-training.	Mean post-test score (6.58) was significantly higher than the mean pre-test score (2.94), p value <0.0001.	Fair
Goduhan AK et al ⁽⁴⁰⁾ (Jaipur, Rajasthan) (2017)	Quasi Experimental Study	N=1500-degree students	The training on BLS Lecture cum demonstration and discussion method was selected as an appropriate method of teaching the degree students. It was planned to teach in group.	Pre and post training	Part – I demographic data & status of any prior information on CPR. Part-II Consisted of 30 questionnaires on General concept, Steps and Technique Post resuscitation care of CPR Part-III Consisting observation checklist	Initially there were 1259 (83.9%) in the poor category, who all improved after training as seen in the post training observation results showing only 32 (2.1%) persons in poor category. There was not a single student in the excellent category of score before intervention which increased to 665 (44.3%) in excellent category of skills.	Good
Jarwani BS et al ⁽³⁹⁾ (Ahmedabad, Gujarat) (2019)	Interventional Study	N=298 volunteers	presentation was done initially in half an hour of 2-hour session followed by hands on training survey was conducted before and after training to know the CPR learning	Pre and post training	Questionnaire was based on topics like CPR knowledge, attitudes toward CPR and factors which might affect CPR practice.	1 v/s 9 was pre and post training score (p<0.05). 0% to 90% of AED knowledge. depth of compression rate was 1% to 78%	Poor

Effective knowledge and skills about CPR would be improved by planned teaching and demonstration based on information level with a logical solution was a good method in any community of people. Goduhan AK et al ⁽⁴⁰⁾ showed that effective planned group teaching programs (Creating interest by motivating and reinforcing, Live demonstration on a mannequin for CPR, Discussion, Participatory discussion,) were more interactive and to be competent through exchange the views and improve knowledge and skills. During pre-training in 1500-degree students' knowledge and skills on CPR is 1259(poor), 241(good), 0(excellent) After ten days of training program revealed that 32(poor), 803(good), 665(excellent)

In any hospital, emergency care and inpatient ward all healthcare professionals and nurses are the first responders to determine a patient in a cardiopulmonary arrest. In this point of view, three studies (Khan H et al, Ratha K et al, Bhatnagar V et al,)^(41,42,43) which includes medical UG and PG students, nursing staff and nursing students identified interventions which increase the proportion of knowledge and skills about CPR with planned teaching programs. The intervention involved, standard CPR with rapid defibrillation and use of AED through combined lecture series and hands-on training based on updated guidelines. Also, another study (Tanna D et al)⁽⁴⁴⁾ determined high-quality CPR skills needed long-duration hands-on training but for improvement of CPR skills enough of shorter duration and recommended that AHA training is costly, lengthy, and needs more periodic renewals may be the reasons for conducting training. For this reason, the Indian resuscitation council has made CPR guidelines to avoid those issues 'based on Indian setup. Short duration training with IRC guidelines had enhanced knowledge and skills of doctors

4. Discussion

The main findings of this systematic review were, there were no systematic reviews that were published and available in India on the intervention of training and observation of current status on attitude, awareness, knowledge, and practices about basic life support skills and also the overall quality of included studies was poor. Intervention and observation, two categories identified the lack and key interventions that may give an awareness of the current scenario of India in the BLS skills and which will be useful for forthcoming studies and for updating the guidelines in IRC.

Several studies pressed on education intervention should be mandatory because the frequency of CPR training programs would conduct in educational institutions as a module or course with periodic revision in their academic curriculum and also as a services tenure training programs for health care workers ^(37,38,41,42) (doctors, nurses, and paramedics) will increase the awareness rate and confidence to perform a CPR in out of hospital cardiac arrest victims eventually decrease the incidence and burden of cardiac arrest in India. Besides, Community training programs and campaigns regarding BLS has more influence on bystanders. So, equipping them with CPR knowledge and skill will empower them to act in time of golden hour of cardiac arrest. It should reflect every Indian into a life saviour. Meanwhile, researchers come forward to do more research on a larger sample size with multicentric collaborations. Some studies recommending that Training is not only awareness

but also updating the knowledge with current guidelines of BLS.⁽⁴³⁾ studies identified that planned teaching programs with the renewal of 6 months of regular intervals were more effective in contrast one study recommended that in spite of periodic training programs situation-based practical training by using mannequins. (40,41)

Studies revealed that negative attitude towards performing CPR with lack of confidence due to causing harm to the victim and fear of acquiring an infection while mouth to mouth breathing and legal actions .in addition another with an intervention of training of CPR in school children's identified some barrier while simulation time such as effective compression required intense strength, difficulty in understanding the scientific terms, remembering the algorithm stepwise, and complained of pain over the wrist. (29,38)

5.Limitations

The eligible studies were of poor quality, as found by NIH and AXIS evaluations. Most of the studies were observational studies. Out of twenty-five, only eight were interventional studies remaining studies are observational. Moreover, few studies only follow Indian Resuscitation Council guidelines remaining all studies followed American Heart Association guidelines

6.Conclusion

The findings of this review identified that status of knowledge, attitude, awareness is inadequate but effective training on cardiopulmonary resuscitation had more impact on school Children's, students in different fields, and health care professionals in diverse regions of India. This review also suggests that implementing CPR as a regular course from school onwards should do mandatory through forming the legislation. Teaching must be focussed on case-based situations rather than theoretical lectures with the recent guidelines. Meanwhile organizing CPR training programs and health education of cardiac arrest from cities to small villages by the involvement of the government of India engaging with Professional organizations will have a greater impact on public and health professionals. Installation of AED in public places like airports, railway stations, parks, shopping malls should be mandatory with a proper maintenance system. Doctors, Nurses, and Paramedics should have Inservice courses to update their knowledge with current guidelines. In the era of technology and communication revolution, Widespread media campaigns programs on CPR can increase the rate of awareness towards improvement in willingness and confidence among the public to perform CPR of OHCA victims. Also, the Telecommunication system can adapt by the hospitals, to provide emergency medical services through dispatcher service to advice the bystander in initiating CPR. The emergence of these revolutions will change over the current scenario of cardiac arrest in India.

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Annexure 1: The National Institutes of Health (NIH) quality assessment tool for before-after (Pre-Post) study with no control group

Items	1	2	3	4	5	6	7	8	9	10	11	12	Total	Grade
Dhansura T et al (South Mumbai, Maharashtra) (2020)	Y	N	N	N	N	N	Y	?	?	N	?	Y	3	Poor
Stanly S et al. (Manipal, Karnataka) (2017)	Y	Y	Y	Y	N	N	N	?	?	N	?	Y	5	Poor
Khan H et.al (Vadodara, Gujarat) (2015)	Y	Y	Y	Y	Y	Y	Y	?	?	N	?	Y	8	Fair
Ratha K et al (Bhubaneswar, Odisha) (2014)	Y	Y	N	N	Y	N	N	?	?	N	?	Y	4	Poor
Bhatnagar V et al (Mumbai, Maharashtra) (2017)	Y	Y	Y	Y	Y	Y	Y	?	?	Y	?	Y	9	Good
Tanna D et al (Vadodara, Gujarat) (2019)	Y	N	Y	Y	Y	N	Y	?	?	Y	?	Y	7	Fair
Goduhan AK et al (Jaipur, Rajasthan) (2017)	Y	Y	Y	Y	Y	Y	Y	?	?	Y	?	Y	9	Good
Jarwani BS et al (Ahmedabad, Gujarat) (2019)	Y	N	N	N	Y	N	N	?	?	N	?	Y	5	Poor

Standard	Rating
Above 9	Good
Above 7	Fair
Below 6	Poor

Note: Key to symbols: Y = Yes, N = No? = Don't know. The details of each item can be found in the Appendix 2.1. Was the study question or objective clearly stated?2. Were eligibility/selection criteria for the study population prespecified and clearly described?3. Were the participants in the study representative of those who would be eligible for the test/service/intervention in the general or clinical population of interest?4. Were all eligible participants that met the prespecified entry criteria enrolled?5. Was the sample size sufficiently large to provide confidence in the findings?6. Was the test/service/intervention clearly described and delivered consistently across the study population?7. Were the outcome measures prespecified, clearly defined, valid, reliable, and assessed consistently across all study participants?8. Were the people assessing the outcomes blinded to the participants' exposures/interventions?9. Was the loss to follow-up after baseline 20% or less? Were those lost to follow-up accounted for in the analysis?10. Did the statistical methods examine changes in outcome measures from before to after the intervention? Were statistical tests done that provided p values for the pre-to-post changes?11. Were outcome measures of interest taken multiple times before the intervention and multiple times after the intervention (i.e., did they use an interrupted time-series design)?12. If the intervention was conducted at a group level (e.g., a whole hospital, a community, etc.) did the statistical analysis consider the use of individual-level data to determine effects at the group level?

Annexure 2: Appraisal Tool for Descriptive/Cross-Sectional Studies (Axis)

Items	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	TO T A L	GRA DE
Patidar AB et al. (Ludhiana, Punjab) (2014)	Y	Y	N	Y	Y	N	N	Y	Y	Y	?	Y	?	?	Y	Y	Y	N	N	N	11	Poor
Bajracharya S et al. (Kathmandu, Nepal) (2016)	Y	N	Y	Y	N	N	N	N	N	N	Y	N	N	N	Y	N	N	N	N	N	5	Poor
Varughese S et al (Mangalore Karnataka) (2018)	Y	Y	Y	Y	N	N	N	?	?	Y	N	Y	N	Y	Y	N	Y	N	N	N	9	Poor
Meena Kumari K et al (Manipal, Karnataka) (2014)	Y	Y	Y	Y	Y	Y	?	?	?	Y	Y	Y	N	Y	Y	N	Y	N	N	N	12	Fair
Chowdari A et al (Mangalore, Karnataka) (2013)	Y	Y	Y	Y	Y	Y	?	?	Y	N	Y	Y	N	Y	Y	N	Y	N	N	N	12	Fair
Akoijam BS et (Imphal, Manipur) (2017)	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y	N	Y	Y	N	Y	N	N	N	13	Fair
Reddy S et al (Hyderabad, Andhra Pradesh) (2013)	Y	Y	Y	N	N	N	?	?	N	?	N	Y	N	Y	Y	N	N	N	N	N	7	Poor
Naram A et al (Chennai, Tamilnadu) (2019)	Y	Y	N	N	N	Y	N	N	N	N	N	N	N	N	Y	Y	N	N	N	N	5	Poor
Baduni N et al (New Delhi) (2014)	Y	Y	Y	Y	Y	N	?	N	N	?	Y	Y	N	N	Y	N	Y	Y	N	N	12	Fair
Narayan DP et al (Bangalore, Karnataka) (2015)	Y	Y	Y	Y	Y	:?	Y	?	N	N	Y	Y	Y	Y	Y	N	N	N	N	N	11	Poor

Vausedvan B et al (Kottayam, Kerala) (2016)	Y	Y	Y	Y	Y	N	?	N	N	?	Y	Y	N	N	Y	N	Y	Y	N	N	10	Poor
Sangamesh NC et al (Bhubaneswar, Odisha) (2017)	Y	Y	Y	Y	Y	Y	?	N	N	Y	Y	Y	N	N	Y	N	N	N	Y	Y	12	Fair
Chaudhari MS et al (Gujarat) (2017)	Y	Y	Y	Y	N	N	N	N	N	N	N	Y	?	Y	N	N	N	Y	N	N	7	Poor
Chandrasekaran S et al (Salem, Tamilnadu) (2010)	Y	Y	Y	Y	Y	N	N	N	N	N	?	Y	N	N	Y	Y	N	N	N	N	13	Fair
Mani G et al (Kancheepuram, Tamil Nadu) (2014)	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	Y	N	N	Y	N	N	N	6	poor
Singh R et al (Pali Rajasthan) (2019)	Y	Y	Y	Y	N	N	?	N	N	?	N	N	N	Y	N	N	N	N	N	N	5	Poor
Yunus M et al (Shilong, Meghalaya) (2015)	Y	Y	Y	Y	Y	Y	N	N	y	N	Y	N	Y	N	Y	Y	N	Y	N	N	11	Fair

Standard	Rating
Above 16	Good
Above 12	Fair
Below 11	Poor

Note: Key to symbols: Y = Yes, N = No, ? = Don't know/Not applicable. The details of each item can be found in the Appendix 2.1) Were the aims/objectives of the study clear? 2) Was the study design appropriate for the stated aim(s)? 3) Was the sample size justified? 4) Was the target/reference population clearly defined? (is it clear who the research was about?) 5) Was the sample frame taken from an appropriate population base so that it closely represented the target/reference population under investigation? 6) Was the selection process likely to select subjects/participants that were representative of the target/reference population under investigation? 7) Were measure undertaken to address and categorise non-responders? 8) Were the risk factor and outcome variables measured appropriate to the aims of the study? 9) Were the risk factor and outcome variables measured correctly using instruments/measurements that had been trialled, piloted or published previously? 10) Is it clear what was used to determine statistical significance and/or precision estimates? (e.g., *p*-values, confidence intervals) 11) Were the methods (including statistical methods) sufficiently described to enable them to be rejected? 12) Were the basic data adequately described? 13) Does the response rate raise concerns about non-response bias? 14) If appropriate, was information about non-responders described? 15) Were the results internally consistent? 16) Were the results presented for all the analyses described in the methods? 17) Were the authors' discussions and conclusions justified by the results? 18) Were the limitations of the study discussed? 19) Were there any funding sources or conflicts of interest that may affect the authors' interpretation of the results? 20) Was ethical approval or consent of participants attain

PART-2 ONLINE COURSE REPORT ON
Lean Six Sigma by Henry Harvin Educations

1.Name of the course: Lean Six Sigma

CSSE stands for 'Certified Six Sigma Executive'- Green Belt Level. This certification offers the benefit to showcase expertise in Lean and Six Sigma as CSSE next to the

For example: DR. BALAJI NAIK BUKKE (CSSE)

2.Course Description

lean six sigma is a problem solving tool in process and quality improvement or in simple words, improvement methodology for manufacturing process as well as administrative and service applications.

3.Objectives of the Course

- ☐ To understand Lean Six Sigma with Common Ways to Commence a Project
- ☐ To identify and rectify the problems with different types of tools which is involved in lean six sigma methodology and to improve the quality and process
- ☐ To be a green belt certified, can implement Lean Six Sigma project in a concerned organisation where the need of six sigma is applicable.

4.Course Contents

This course covers five phases of six sigma i.e. DMAIC

D	DEFINE
M	MEASURE
A	ANALYSE
I	IMPROVE
C	CONTROL

Define Phase

1.Understanding the Problem

- Ways to Collect VOC
- Classification of VOC –Affinity Diagram
- Prioritization of VOC –KANO Model + ISO 13053:2011
- VOC to CTQ –CTQ Drill Down Tree

2. Define the Problem

- Project Charter

3. Understanding the Process

- SIPOC / COPIS

4. Define the Process

- As-Is Process Map

5. Project Management Tools

- Communication Plan
- RASIC,

Measure Phase

1. What to collect?

- Fishbone Diagram / Ishikawa Diagram / Cause & Effect Diagram
- 5 Why Analysis (Why-Why Analysis) –Potential Root Cause Identification

2. Introduction to Basic Statistics

- Types of data
- Measures for Data Analysis

3. How much to collect?

- Sample vs Population
- Confidence Interval (Margin of Error) & Confidence Level
- Sample size calculations

4. How to collect?

- Sampling Methodology

5. Can I trust the measurement system?

- What is measurement system?
- Equipment Variation –Repeatability
- Precision & Accuracy
- Operator Variation –Reproducibility
- MSA –Gage R & R ANOVA & AAA

6. Data collection plan & data collection

Analyse Phase

1. Calculation of Process Capability
 - Yield, TPY & RTY
 - Z Score, Cp/Cpk, Pp/Ppk, DPMO
2. 7 QC Tools 3. Introduction to Hypothesis Testing
 - Null & Alternate
 - Types of Error
 - Hypothesis Tests –Decision Tree

Improve Phase

1. Idea / Solution Generation
 - Brainstorming, Subject Matter Expert □
 - Process Flow Diagram
 - Hypothesis Tests –r, r square, linear equation etc.
2. Screening of Ideas / Solution
3. Risk Management -FMEA
4. Pilot Testing
 - Update Action plan & FMEA
 - Validation of improvement
 - Cost Benefit Analysis –Full scale improvement approval

Control Phase

1. Control Plan
2. Control Charts
3. Lessons Leant Documents Module

5.Learning Methodology used in the course (lectures/PPT/Video/Cases/Webinar/ Assignments/Reading Material)

Uses mix of techniques aligned to the unique G.C.A.O. pedagogy which stands for Goal-Centric & Action Oriented. Demonstrated Business Case Studies using the statistical tools, exercises & brainstorming using Adaptive Probing Methodology along with theories and learning videos live-online

Duration

5-days/20-hours Live Online Training Session

Based on this training, the examination is conducted basis which certificate is awarded.

Post that, 12-months/24-hours Live-Online Action-Oriented Sessions with a focus on implementation-related challenges

Date:

22nd March 29th March 4th April 5th April and 11th April 2020

Day:

5 Weekends (Saturday & Sunday)

Timings:

8 pm - 12 am (Saturdays), 8 pm - 12 am (Sundays)

Trainer Profile:

Delivered by Seasoned Industry Experts with specialization in Lean and Six Sigma. These talented practitioners bring valuable experience and demonstrated success across diverse domains & industries. These practitioners are also Empanelled as subject matter experts with Henry Harvin Management Academy.

6. Key Learnings from the Course

learning Benefits

- Cultivate capabilities in Fact-Based decision making & Data-Driven problem solving
- Gain the skill to explore + analyse + solve management problems using 20+ Management Tools
- Sharpens Business Acumen & commitment to improving processes
- Derive useful Information from Data using analytic tools
- Learn essential Project Management + Leadership skills
- Gain the skill to make Customer-Centric Actions at every stage
- Understand the science to develop high-quality products/services
- Develop the capability to look beyond the present field with this domain and industry independent methodology
- Value Creation

Career Benefits

- Become Eligible for jobs demanding analytical background
- Fill the void of thousands of untapped High-Paying Jobs for Six Sigma Professionals with Talent Shortage
- Open doors to Job Opportunities Abroad demanding specialization
- Improve your CV & LinkedIn Profile with professional development
- Distinguish your profile from peers during Job Interviews
- Support a Start-up with improved Process and Performance that leads to high-quality products and services

Certification

Due to Some Consequences in My Family I Am Not Attended the Live Session, but I Completed the Course Through Offline Video Provided by The Institute. After A While, On May 12 Hardly I Given Exam for Green Belt Certification for The Eligibility Of 'Certified Six Sigma Executive'- Green Belt Level. Successfully I Qualified in The Exam with Good Percentage. Eventually, The Institute Provide A Certificate As
"Certified Six Sigma Executive'- Green Belt level"



7.Reference:

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