

**St. Paul's HOSPITAL MILLENNIUM MEDICAL
COLLEGE, SCHOOL OF MEDICINE, DEPARTMENT
OF ANESTHESIOLOGY AND CRITICAL CARE**



**Knowledge, attitude, practice and associated factors of
health care professionals towards cardiopulmonary
resuscitation at St. Paul's hospital MMC**

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Abstract

Background: Cardiopulmonary resuscitation is a lifesaving procedure, performed to preserve patients' life until further management is going to follow. Having basic knowledge of CPR is a crucial task of medical care providers. Health care professionals should have positive attitude towards CPR and, practice of high quality CPR to decrease avoidable mortality and morbidity.

Objective: To assess Knowledge, attitude, practice and associated factors of health care professionals towards cardiopulmonary resuscitation at St. Paul's hospital MMC

Methodology: Institutional based cross-sectional study was conducted from September 1 to October 1 2021. Stratified sampling followed by simple random sampling was used to recruit the 350 study participants. A Structured self-administered written questionnaire was used to collect the data. The data was filled, cleared for completeness, analyzed using SPSS version-26. The result of the study was presented using tables, graphs and figures. Both bivariate and multivariate logistic regression analysis were used to identify factors associated with KAP level of CPR. Variables which have p-value less than 0.25 in bivariate analysis were considered as candidate for multivariable analysis while variables which have p-value less than 0.05 in multivariable logistic regression model were considered as statistically significant. Both crude OR and adjusted (AOR) with the corresponding 95% CI calculated to show the strength of association.

Results: This study was conducted on a total of 350 health professionals, with response rate of 100%. The mean $\pm$ SD of age of the study participants were 28.48 ($\pm$ 3.59). Among the study participants, 29.4 % had good knowledge level, 75.7% had good attitude level and 31.0 % good practice level towards CPR. Good knowledge level of CPR positively associated with age (AOR=2.74, 95% CI (1.00, 7.53), reading the CPR guideline (AOR=3.31, 95% CI (1.52, 7.19), training on CPR (AOR=2.81, 95% CI (1.56, 5.06)) and educational status. Additionally attitude levels towards CPR improved by reading CPR guideline (AOR=3.28, 95% CI (1.81, 5.93). Similarly practice level of CPR among participants positively associated with reading CPR guideline (AOR=1.84, 95% CI (1.417, 5.691)), work setting areas like working at ICU (AOR=3.46, 95% CI (1.46, 8.17)), working at EOPD (AOR=3.52, 95% CI (1.63, 7.62) and training on CPR.

Conclusion and Recommendation: The level of knowledge and practice among health care professionals in our institution is suboptimal according to AHA BLS certification reference. They have good and positive attitude towards CPR. CPR training, reading CPR guideline, age and educational level significantly associated with Knowledge level of CPR similarly attitude level of health professionals affected by reading and their age. Moreover, Practice level of CPR associated with level of CPR training, work setting and reading guideline. Therefore continuous training, reading CPR guideline and work setting rotations is highly recommended to improve KAP level of CPR.

Key words: Basic life support, Attitude, Knowledge, Practice, Cardiopulmonary resuscitation.

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Abbreviation /Acronym

ACLS:	Advanced Life Support
AED:	Automated External Defibrillator
AHA:	American Heart Association
BLS:	Basic Life Support
CA:	Cardiac arrest
CPR:	Cardiopulmonary resuscitation
EOPD:	Emergency Out Patient Department
HCP:	Health Care professionals
ICU:	Intensive Care Unit
ILCOR:	International liaison committee on resuscitation guideline
SCA:	Sudden Cardiac Arrest
SPHMMC:	St. Paul's hospital medical Millennium College
VF:	Ventricular Fibrillation
VT:	Ventricular Tachycardia

1 Introduction

1.1 Background

Cardiac arrest is a major public health issue, with more than 500,000 deaths per year in the United States(1).Cardiac arrest is a sudden and unexpected cessation of blood circulation due to failure of the heart to pump effectively. Sudden cardiac arrest is a life-threatening emergency with poor survival rates. It could result from heart attack, suffocation, drowning, electrocution and any other cause of impairment to blood circulation or breathing (2).

Cardiopulmonary resuscitation (CPR) is a series of lifesaving actions that improve the chance of survival following cardiac arrest (3).The history of CPR traces back to the biblical age. However, the more contemporary approach to CPR dates back to the 1950s.The mechanism through which chest compressions enerate blood flow can be explained by the thoracic or cardiac pump theories. The actual improvement of patient outcome, however, relies on development and implementation of vigorous and evidence-based resuscitation guideline (1).

Fundamental aspects of adult BLS include immediate recognition of SCA and activation of the emergency response system, early CPR, and rapid defibrillation to treat ventricular fibrillation (VF) or ventricular tachycardia (VT), if present with an automated external defibrillator (4) .

The recommended sequence for a single rescuer is to initiate chest compressions before giving rescue breaths (circulation, airway, breathing [C-A-B] rather than airway, breathing, circulation [A-B-C]) to reduce any delay in providing effective chest compressions. Types of CPR manual and mechanical based on the technique use(3,5).

The five Components of high-quality adult CPR are chest compressions at a rate 100 - 120/minute, a compression depth of 5 cm ,allowing complete chest recoil after each compression, minimizing interruptions and avoiding excessive ventilation. Everyone can be a life saving rescuer for a cardiac arrest victim and CPR skills and their application depend on the rescuer's training, experience, and confidence (4,6).

The goal of cardiopulmonary resuscitation (CPR) thus is to maintain oxygen and blood supply to vital organs, restore spontaneous circulation, minimize post resuscitation organ injury, and ultimately improve the patient's survival and neurologic outcome (1).

1.2. Statement of the problem

Approximately 1.2% of adults admitted to US hospitals suffer in-hospital cardiac arrest. Despite steady improvement in the rate of survival from IHCA, much opportunity remains. Statistics from Europe are similar, with OHCA as one of the leading causes of death and an overall survival rate of 2.6% to 10.7 % (1, 7). Survey done in Cameroon showed that of 288 all-cause deaths and 27 (9.4%) were SCD. Literature showed that higher prevalence of SCA in developed and developing countries (1,7,8). Cardiopulmonary resuscitation (CPR) is an evolving lifesaving technique of modern medicine that comprises a series of lifesaving actions that improve the survival rates following SCA (1,4,5,7).

Study done in Brazil revealed that there is insufficient knowledge of cardiac arrest among health professionals is high, which is a problem that requires urgent interventions in order to guarantee the quality of care (8). A study in Cameroon showed that the burden of SCD in African population is heavy with distinct characteristics, whereas awareness of SCD and prompt resuscitation efforts appear suboptimal (7). Another study conducted at three hospitals in Botswana showed markedly deficient CPR knowledge and skills among registered nurses in the three district hospitals (9). A study done in Nepal among doctors and nurses Knowledge in BLS/ CPR was average and CPR/ BLS training and frequent assessments was recommended (10).

A cross section study conducted among HCP in Gondar showed that knowledge of health care professionals is suboptimal despite the have good attitude towards CPR (11).

CPR skills and application depend on the rescuer's training, experience, and confidence (3). To improve KAP of CPR continuous training is recommended by studies done in Brazil and Botswana (8,9). CPR is said to be a skill for all people. Quality of life is also found to be better for victims who immediately receive bystander CPR even in the absence of professional assistance and immediate CPR after collapse due to ventricular fibrillation doubles or even triples the chances of survival. In contrast, survival chances decrease by 7%–10% for every minute of CPR. It is documented that a timely performed CPR can largely prevent sudden death despite HCPs had sub optimal KAP level. Studies showed the level of knowledge, attitude and practice of HCP is associated with work experience, reading of CPR guidelines and previous training (8–11).

Being important members of the health care delivery team, health care professionals are deemed to pass the basic skills and expertise which are needed to perform high quality CPR, since our hospital is one of the largest referral hospitals in Ethiopia where many people are served. Additionally evaluating our health care professional KAP level of CPR and associated factors is paramount important to improve the quality of post cardiac arrest care. It also serve as a base line research since there is no previous study assessing the level of KAP and associated factors of CPR among health professionals of our hospital.

1.3 Significance of the study

Early and effective CPR increases both survival rate and post-arrest quality of life (5). In limited resource countries like Ethiopia there is scarce data describing the basic knowledge of CPR among Healthcare providers.

This study is the first study done in our institution which helps as a base for further studies and assess professional current KAP based on updated AHA BLS and CPR 2020 guideline.

The result of this study will provide valuable information concerning KAP and associated factors towards CPR among health professionals of SPHMMC

As well as it will help to plan interventions that will improve the quality of CPR knowledge and practice in the context of our health care system.

This study helps as a source of information for other health sectors, policy makers and stakeholders about the level of KAP of CPR and associated factors among HCPs.

2. Literature review

Cardiac arrest is a substantial public health problem estimated to account for 15–20% of all death. It is documented that a timely performed CPR can largely prevent sudden death. Being important members of the health care delivery team, medical professionals are deemed to pass the basic skills and expertise which are needed to perform CPR (12).

2.1 Knowledge level of CPR among HCP

A cross-sectional study conducted in a large public hospital Brazil evaluated the factors associated with the knowledge of health professionals on Cardiac arrest. It revealed that the prevalence of insufficient knowledge of cardiac arrest among health professionals was 78 % (8). According to a cross sectional study conducted in India among 100 nursing and medical interns showed that the knowledge score of BLS or CPR which is poor (12) .

A survey conducted on the theoretical knowledge and self-assessed ability to perform CPR conducted among 3044 healthcare professionals in Sweden. It revealed overall theoretical knowledge was poor (13). There was descriptive cross sectional study done at India among 241 undergraduate medical students the mean knowledge score of the participants was 4.55 ± 1.21 out of a possible high score of 6 (14) .

Another study conducted at three hospitals in Botswana showed markedly deficient CPR knowledge and skills among registered nurses in the three district hospitals. The pre-test knowledge average score (48%) indicated that the nurses did not know the majority of the BLS steps. It is recommended encourage and monitor regular CPR refresher courses (9).

Based on, the study carried out among medical practitioners in Nigeria. Only 40% of respondents had attended a basic and an advanced life support training program while 30% knew how to operate an AED and seventy percent knew the meaning of AED. Most of the respondents that had attended a basic and an advanced life support program were residents (80%) while 16% were consultants and the remaining 4% were general practitioners. Most of the medical practitioners in Osun state were not knowledgeable about cardiopulmonary resuscitation and defibrillation (15). There was descriptive, cross-sectional survey done in south Africa among one hundred doctors participated. None of the participants showed adequate knowledge. The mean total score was 35.1% (95% CI: 31.7; 38.6). The mean adult CPR score was 40.6% (95% CI: 37.4; 45.6). The mean pediatrics CPR score was 36.6% (95% CI: 37.0; 41.6). Generally participants' knowledge

of resuscitation was poor. This raises considerable concern about the effectiveness of the CPR that is performed (16).

According to a study done in Uganda respondents had inadequate CPR knowledge at pretest. The study revealed statistically significant improvement in knowledge of CPR for all nurses post training (17). Another study done among Nigerian doctors 25%-89% respondents (mean 61.6% 24%) did not know items absolutely essential for CPR, 37 (66.1%) could not use adrenaline effectively either by route of administration or dosage, 25 (44.6%) would use inappropriate venous access, and majority (41 of 56, 73.2 %) would not use blood gas analysis, urine output, ECG to monitor response to CPR. Thirty-eight (67.9%) believed other doctors knowledge of CPR was inadequate and 54 (96%) felt doctors needed to update their knowledge of CPR(18) .

A descriptive cross sectional study of a random sample of 350 HCPs done in Tanzania showed that Only 57 (16%) and 88 (25%) scored above 50% in written and practical tests. This study suggests that the level of CPR knowledge displayed by all HCP was poor despite the fact that most providers reported having performed CPR in the past. Since MNH is a tertiary referral hospital, it may reflect the performance of resuscitation status of other local health centers in Tanzania and other low-income countries to employ a formal system of training every HCP in CPR (19).

Based on cross sectional study conducted among clinical year medical students in Jimma University. About 93.3% of the respondents had good knowledge about CPR of which, fifth year (36.2%), fourth year (34.1%) and interns respectively. Among studied participants (80.7%) students were not practiced CPR. The majority of students' knowledge, attitude and practices toward to CPR in Jimma University were not sufficient, favorable and safe enough (20).

A study carried out among 397 nurses working in Gondar University Hospital and Bahirdar referral Hospitals in 2016 showed that, 38.6% had good knowledge of BLS. This showed that low knowledge level among nurses (21).

According to the study conducted among 406 health professionals to assess the factors associated with knowledge and attitude towards adult cardiopulmonary resuscitation (CPR) among health professionals at the University of Gondar Hospital, of the study participants, 25.1% (95% CI 21.2 to 29.3) had good knowledge towards adult CPR(11) .

A cross sectional study done in AA showed the level of knowledge on cardiopulmonary resuscitation among anesthetists working in Addis Ababa governmental and private hospitals was found to be poor. More than ninety-three percent of them scored below 84%, according to American heart association reference for CPR certification, all health professionals should score 84% and above on standardized knowledge questions to be certified on CPR(22) .

2.2 Attitude Level of CPR among HCP

A cross sectional study among nurse and medical interns showed that they have positive and good attitude towards it (12).

According to the study conducted among 406 health professionals to assess the factors associated with knowledge and attitude towards CPR among health professionals at the University of Gondar Hospital, of the study participants, 60.8% (95% CI 55.9 to 65.5) had good attitude towards adult CPR. The overall level of knowledge and attitude of health professionals towards adult CPR was suboptimal. Health professionals who were taking CPR training and reading CPR guidelines had good knowledge and attitude towards CPR. In addition, work experience, number of work settings and exposure to cardiac arrest (11).

2.3 CPR Practice level among HCP

Study done in India revealed that poor practice score of BLS or CPR(14). A study done in Sweden to rat self-assessed abilities to perform CPR were low(13) .A cross sectional study done in Tanzania suggests that the level of CPR kills displayed by all HCP was poor despite the fact that most providers reported having performed CPR in the past. It is recommended Staff should be certified and assessed regularly to ensure retention of resuscitation knowledge and skills (19).

A study carried out among 397 nurses working in Gondar University Hospital and Bahirdar referral Hospitals in 2016 showed that 28.4% good practice of BLS.

According to this study the practice of BLS among nurses were low (11).

2.4 Factors associated with CPR knowledge of HCP

A study done in Brazil showed that after logistic regression, belonging to the professional category of nursing technician ($p = 0.003$) and nurse ($p = 0.001$) and working in the form of on-call duty for 24h ($p = 0.005$) was associated to insufficient knowledge(8) . Working on a monitored ward, recently attended CPR training and being a nurse or physician were factors

associated with higher theoretical knowledge shown by survey done in Sweden (13). The level of knowledge related to BLS varied depending on the year of study, and this difference was statistically significant ($p < 0.05$). The knowledge score decreased with increasing duration of training and the study point to the need for frequent refresher training and motivation (14) .

A study among Nigerian doctors CPR is associated with problems of lack of materials, and demonstrable inadequate knowledge and application of its pathophysiology as more than two thirds of the respondents believed other doctors' knowledge of CPR was inadequate (18) .

A study done in Gondar and Bahidar showed that educational status, assigned place, training, and previous exposure were significantly associated with knowledge of BLS(21) .

According to a study done in Gondar university health professionals Work experience (adjusted OR (AOR): 5.02, 95% CI 1.25 to 20.20), number of work settings (AOR: 6.52, 95% CI 2.76 to 15.41), taking CPR training (AOR: 2.76, 95% CI 1.40 to 5.42), exposure to cardiac arrest case (AOR: 2.16, 95% CI 1.14 to 4.07) and reading CPR guidelines (AOR: 5.57, 95% CI 2.76 to 11.20) were positively associated with good knowledge(11) .

2.5. Factors associated with HCP attitude of CPR

Study done in India the level of attitudes related to BLS varied depending on the year of study, and this difference was statistically significant ($p < 0.05$).It showed that the higher the year of study, the more positive the participants' attitudes were. This survey recommends the need for frequent refresher training and motivation (14) .

A study conducted in Gondar showed that taking CPR training (AOR: 1.74, 95% CI 1.42 to 1.53) and reading CPR guidelines (AOR: 2.74, 95% CI 1.55 to 4.85) were positively associated with good attitude (11).

2.6 Factors associated with HCP practice of CPR

Working on a monitored ward, recently attended CPR training and being a nurse or physician were factors associated with higher ratings of self-assessed ability to perform CPR. These findings imply prioritization of CPR training (13) . A cross sectional study among 241 medical students in India only 12.9% of the participants had ever practiced BLS. Twenty-one (21) participants (8.7%) 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. Fear

of acquiring infection, causing harm to the victim, and lack of confidence were the common causes for participants' reluctance (14) .

A study done in Uganda respondents had inadequate CPR skills at pretest. The study revealed statistically significant improvement in skills of CPR for all nurses post training. There was a significant change in nurses' skills than in knowledge post training. This studies highlights the need for adequate training of clinicians in the skill of resuscitation and the importance of developing appropriate CPR training programmes that are accessible, innovative and inexpensive to health professionals (17).

According to the study done in Gondar and bahirdar among nurses with regard to practice of BLS, training, previous exposure, confidence and knowledge were factors associated with practice of BLS at ($p \leq 0.05$). Thus subsequent training and education is mandatory to achieve the desired outcome (21).

According to International Liaison Committee on Resuscitation (ILCOR) Formula for Survival emphasizes 3 essential components for good resuscitation outcomes: guidelines based on sound resuscitation science, effective education of the lay public and resuscitation providers, and implementation of a well-functioning Chain of Survival (3,4)

Based on the above literatures, it is revealed that, HCP have low level of knowledge and practice despite the have good attitude. Almost all recommended that HCP need to have update training.

2.7. Conceptual Frame work

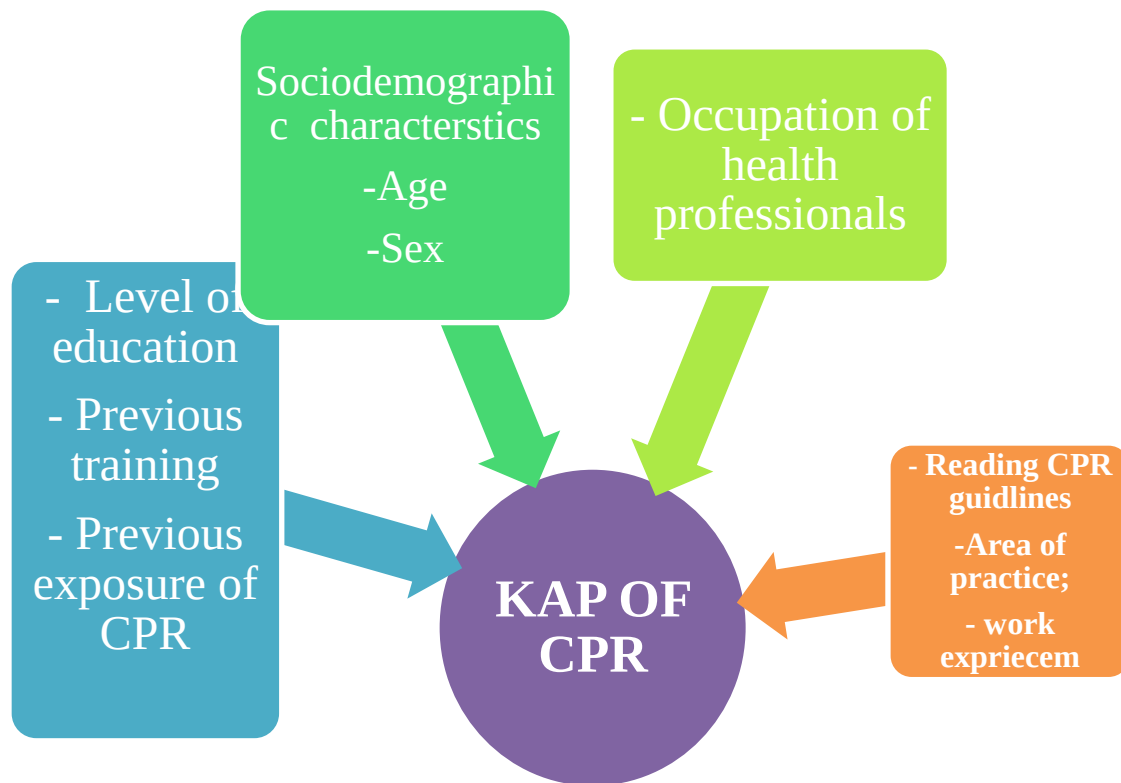


Figure 1 Conceptual framework showing factors affecting knowledge attitude and practice of health care professionals

3 OBJECTIVES

3.1 General objective.

To assess knowledge, attitude, practice and associated factors of health care professionals towards cardiopulmonary resuscitation at St. Paul's hospital MMC.

3.2 Specific objective

- ✓ To assess knowledge of health care professional towards CPR at St .Paul's hospital MMC.
- ✓ To assess the attitude of health care professional towards CPR at St. Paul's hospital MMC.
- ✓ To determine the practice of health care professional towards CPR at St. Paul's hospital MMC
- ✓ To assess factors associated with knowledge of CPR among health care professionals at St .Paul's hospital MMC
- ✓ To assess factors associated with attitude of CPR among health care professionals at St .Paul's hospital MMC
- ✓ To assess factors associated with practice of CPR among health care professionals at St .Paul's hospital MMC

4. Methodology

4.1. Study Area

The study was conducted at **SPHMMC**. It is found in Gulele sub city in Addis Ababa, Ethiopia. It is one of the largest referral hospitals in the country which provides health services in many specialty and subspecialty departments. Abet emergency, trauma and burn hospital located in Addis ketema sub city also affiliate of SPHMMC. Currently in SHPMMC total of 3853 employees professionals including administrative staff ,off this 321 are GPs,1059 nurses,56 anesthetists,132 midwife and 321 general practitioners and 781 residents with in 19 different field of study .

4.2. Study design and Period

- Institutional based cross sectional study was conducted at St.Paul's Medical Millennium College September 1- October 1 2021.

4.3. Source Population

- All health care professionals of St. Paul's Hospital Medical Millennium College A.A. Ethiopia.

4.4. Study population

All selected health care professionals of SPHMMC who were available during data collection period.

4.5. Inclusion and Exclusion criteria

4.5.1 Inclusion criterion

- All health care professionals who were residents, general practitioners, nurses, anesthetists and midwives working in SPHMMC at least for 1year

4.5.1 Exclusion criteria

- HCP who were away from work during data collection period
- HCP who were ill during data collection.

4.6. Sample size determination

By using the statistical formula for single population proportion, taking 25% & 60.8% for the prevalence good knowledge and attitude level respectively towards CPR among health care professionals from previous study (11). Maximum tolerable error of 5%, 95% confidence level, sample population 2349 considering non-response rate 10%, we have got the following

$$n = (Z_{\alpha/2})^2 \cdot P(1-P) / d^2$$

If $p = 0.25$ (Prevalence of knowledge level)

$$n = (1.96)^2 \cdot (0.25 \times 0.75) / (0.05 \times 0.05)$$

Sample size, $n_o = 288$

Correction formula, $n_f = n_o / 1 + n_o / N$

$$288 / 1 + 288 / 2349 = 236$$

= 10% none response rate final sample size become 260.

$$n = (Z_{\alpha/2})^2 \cdot P(1-P) / d^2$$

If $P = 0.6$ (Prevalence of attitude level)

$$n_f = (1.96)^2 \cdot (0.4 \times 0.6) / (0.05 \times 0.05)$$

Sample size, $n_o = 369$

Correction formula, $n_f = n_o / 1 + n_o / N$

$$369 / 1 + 369 / 2349 = 318$$

= 10% none response rate final sample size become 350.

Where

Z = confidence level of 95%

D = degree of precision =

The larger taken as final sample size which is 350

4.7 Sampling techniques and procedures

Stratified sampling followed by simple random sampling technique was employed to reach study participants. Initially health professionals were stratified into different categories based on their field of study and department. The total number of health professionals included in the study was proportional to the number of health professionals in each profession. Finally, a simple random sampling technique was employed to select study participants

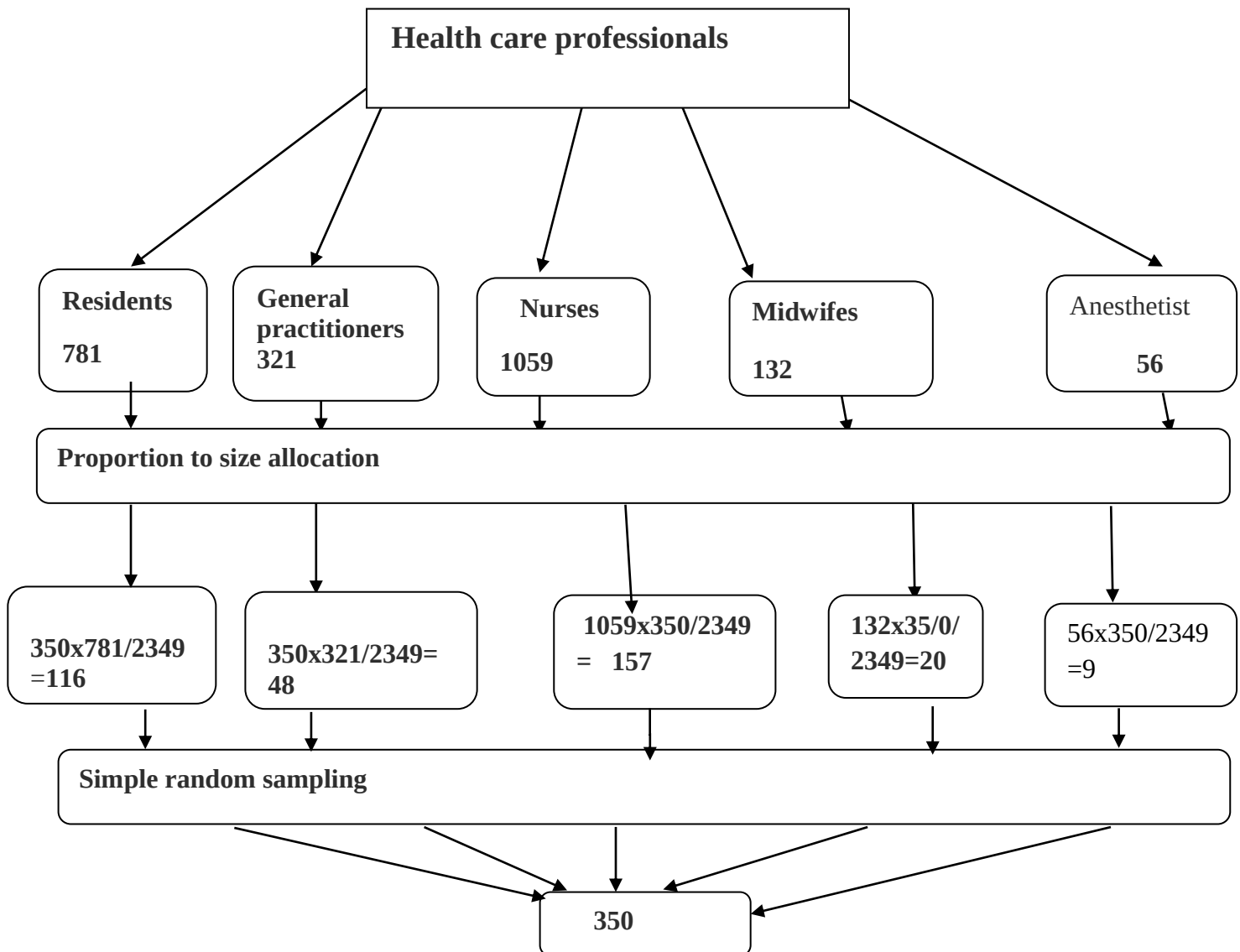


Figure 2 Schematic Presentation of Sampling Procedure in Health care professionals of SPHMMC in Addis Ababa, Ethiopia 2021

4.8. Methods of Data Collection

Two data collectors were recruited for the study. An English version of the structured self-administered Questionnaire was used to collect data from HCPs. The questionnaire consists of socio-demographic, work related, 7 attitude, 15 knowledge and 5 practice questions. The questionnaire was derived from standard reference American Heart Association (AHA) 2020 guidelines for CPR and emergency cardiac care and review of previous studies (4,11). The sum of correct responses for the 15 knowledge questions was computed and expressed in percentage to categorize whether study participants have good or poor knowledge. Similarly, attitude was measured on a 5-point likert scale and expressed in percentage to categorize whether study participants have positive or negative attitude as well as for practice questions.

4.9. Variables

4.9.1. Dependent variables

- ✓ Knowledge of CPR
- ✓ Attitude towards CPR
- ✓ Practice of CPR

4.9.2. Independent variables

- ✓ Age
- ✓ Sex
- ✓ Unit (Area) of practice
- ✓ Level of training
- ✓ Work experience
- ✓ Reading of CPR guidelines
- ✓ Exposure to CPR
- ✓ Profession of health professions

4.10. Operational definitions

Cardiopulmonary Resuscitation: set of procedures used in patient to attempt to reestablish the respiratory function and blood circulation

Knowledge on CPR: study participants who answered 80% and above correct answers to the knowledge questions on CPR were considered to have good knowledge, while participants who scored below 80% were considered to have poor knowledge.

Attitude towards CPR: study participants who answered 80% and above correct answers to the attitude questions on CPR were considered to have positive attitude, whereas those who answered below 80% were considered to have poor attitude. Each item of the attitude questionnaire was measured on a 5-point likert scale, which has a total of 7 items, with a minimum total score of 7 and a maximum of 35, and expressed in percentage

Practice: It refers to academic application of knowledge and skills on clinical practice of CPR and who answer 70% and above the practice question were considered having good CPR practice

4.11. Data Quality Control

To ensure quality of data, pretest was done on 18 (5% of the sample size) health professionals. Based on the findings amendments were made on the questionnaires. Training was given to the data collectors on the aim or objective of the study, how to approach study subjects, how to use the questionnaire, and how to collect data. The principal investigator checked the collected data for completeness, accuracy and clarity.

Daily supervision and feedback were done by the principal investigator during the entire period of data collection. Finally coding, data entry, data cleaning and crosschecking were done before data analysis.

4.12. Data analysis and interpretation

Data was entered to SPSS V.26 for data analysis. Descriptive statistics was carried out and the results were presented using text, tables and graphs.

Both bivariate and multivariate binary logistic regression analyses used to identify associated factors of level of knowledge, attitude and practice of CPR among health professionals. Variables with a p value less than <0.25 in the bivariable analysis fitted into the multivariable logistic regression analysis using the 'enter' method. Both crude OR and adjusted OR (AOR) with the corresponding 95% CI calculated to show the strength of association. In the multivariable analysis, variables with P- value of <0.05 considered statistically significant.

4.13 Presentation and Dissemination Plane

The result of the study was presented using tables, graphs and figures. The copies of final results will be disseminated to SPHMMC department of anesthesiology, critical care, SPHMMC library, and publishing in journals.

4.14 Ethical Consideration

An institutional review board (IRB) approval was obtained from SPHMMC ethical review committee. Oral informed consent was obtained from the study subjects after the purposes and the importance of the study explained and those who were not voluntary was be excluded. Confidentiality was kept by avoiding personal identifications, keeping questionnaires and checklists locked..

5. Results

5.1. Socio-demographic characteristics of the study participants

There are 350 study participants with 100% response rate. More than half of the participants 194(55.43%) were females. The mean age of the study participants were 28.48 (SD $\pm$ 3.59) and the majority of the study participants were within the age group of 26-30 years 199(56.86%). Half of the participants were also BSC holders 172(49.14%) and with regard to their Occupation 157 (44.9%) nurses 116(33%). (Table 1)

Table 1 Socio-demographic characteristics of health care professionals at St. Paul's hospital MMC, Ethiopia, 2021

	Frequency(n)	Percent
Sex		
Male	194	55.43
Female	156	44.57
Age in years		
18-25	82	23.43
26-30	199	56.86
31 and above	69	19.71
Occupation		
Resident	116	33.1
General practitioner	48	13.7
Nurse	157	44.9
Anesthetist	9	2.6
Midwifery	20	5.7
Level of education		
BSC	172	49.14
MSC	14	4.00
General practitioner	48	13.71
1st year resident	60	17.14
2nd yr and above resident	56	16.00

5.2. Work-related characteristics of study participants

In relation to working area of the study participants, 121(34.57%) of them were working at wards and 50(14.29%) working at ICU. With regard to CPR information only 178(50.86%) of participants were taken training about CPR while 98(28%) of them have not read the CPR guideline. Most of the study participants 167(47.71%) had 2-5 yrs of work experience after graduation (Table2).

Table 2 Work-related characteristics of health care professionals at St. Paul's hospital MMC, Ethiopia, 2021

	Frequency	Percent
Year of experience		
<2 yrs	106	30.29
2-5 yrs	167	47.71
>5 yrs	77	22.00
Work setting area		
Ward	121	34.57
OR	85	24.29
Emergency OPD	59	16.86
Recovery Room	18	5.14
ICU	50	14.29
Other (Isolation and covid center)	17	4.86
Have ever taken CPR training		
Yes	178	50.86
No	172	49.14
Have you ever read CPR Guideline		
Yes	252	72.00
No	98	28.00

5.3. Knowledge level of health care professionals about CPR

From the study participants only 103(29.43%) 95 % CI (24.63 - 34.20) had good knowledge about CPR (figure3).

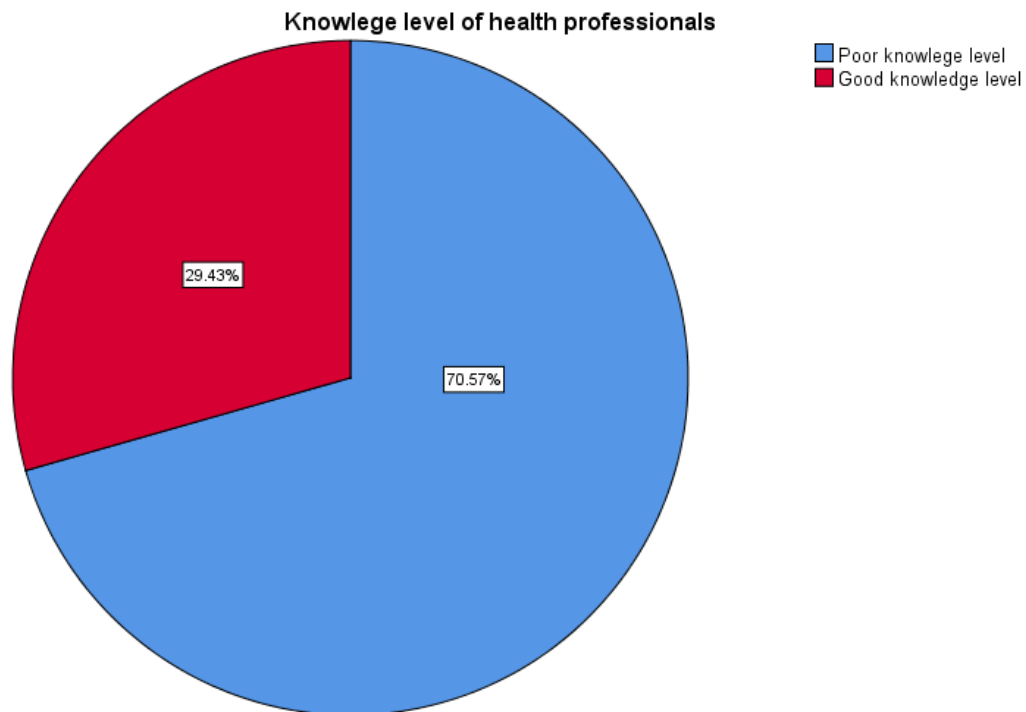


Figure 3 Knowledge level of CPR among health care professionals at SPHMMC, AA, Ethiopia 2021

Table 3 Correct response to knowledge questions by health care professionals at St. Paul's hospital MMC, Ethiopia, 2021(N=350)

Questions	Frequency	Percent
Abbreviation BLS stands	286	81.71
Correct Sequences of BLS according to AHA 2020?	148	42.29
Compression to ventilation ratio for infants by 2 CPR providers?	174	49.71
Appropriate Site of adult chest compression	283	80.86
Proper Site of pregnant chest compression during CPR according to AHA2020	138	39.43
Early administration of adrenaline for non-shokable rhythm recommended	236	67.43
Depth of compression in adult CPR	264	75.43
Airway Maneuver in trauma suspected patients	196	56.00
Adult dose of adrenaline for CPR?	251	71.71
The rate of chest compression in adult CPR/minute	251	71.71
Abbreviation of AED stands for?	182	52.00
Which one is Non shockable rhythm	213	60.86
When do you deliver shock during CPR?	176	50.29
When do you check ROSC during?	214	61.14
Components of high quality CPR?	292	83.43

5.4. Attitude level of health care professionals about CPR

From the participants 265(75.71%) 95%CI (71.8 to 80.8) have good attitude towards CPR (figure 4).

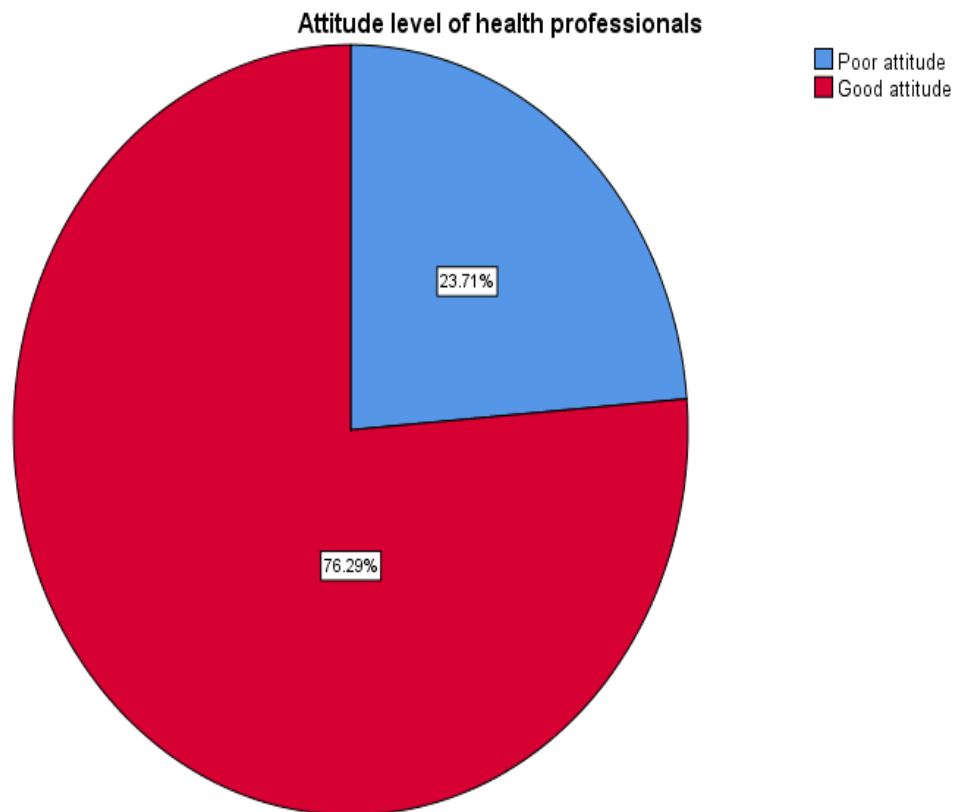


Figure 4 Attitude level of CPR among health care professionals at SPHMMC, AA, Ethiopia 2021

Table 4. Response of attitude questions of CPR by health care professionals at St. Paul's hospital MMC, Ethiopia, 2021

Attitude questions	Strongly disagree (N^o/%)	Disagree (N^o/%)	Neutral (N^o/%)	Agree (N^o/%)	Strongly Agree (N^o/%)
Recognize victim who needs CPR	10(2.87)	13(3.72)	35(10.03)	188(53.87)	103(29.51)
CPR possibly increase survival	3(0.86)	10(2.86)	23(6.57)	168(48.00)	146(41.71)
All health professional can do CPR	26(7.45)	79(22.64)	85(24.36)	108(30.95)	51(14.61)
All HCP should get CPR training	7(2.00)	6(1.71)	22(6.29)	117(33.43)	198(56.57)
HCP should get training every 5 yrs.	8(2.29)	12(3.43)	29(8.29)	139(39.71)	162(46.29)
Establishing CPR team has good outcome	7(2.00)	5(1.43)	10(2.86)	102(29.14)	226(64.57)
Willing to provide chest compression	4(1.14)	7(2.00)	18(5.14)	117(33.43)	204(58.29)

5.5. Practice level of health care professionals about CPR

Health care professionals who have good practice of CPR is 109(31.1%) 95%CI (26.3 to 36.0) (Fig5).

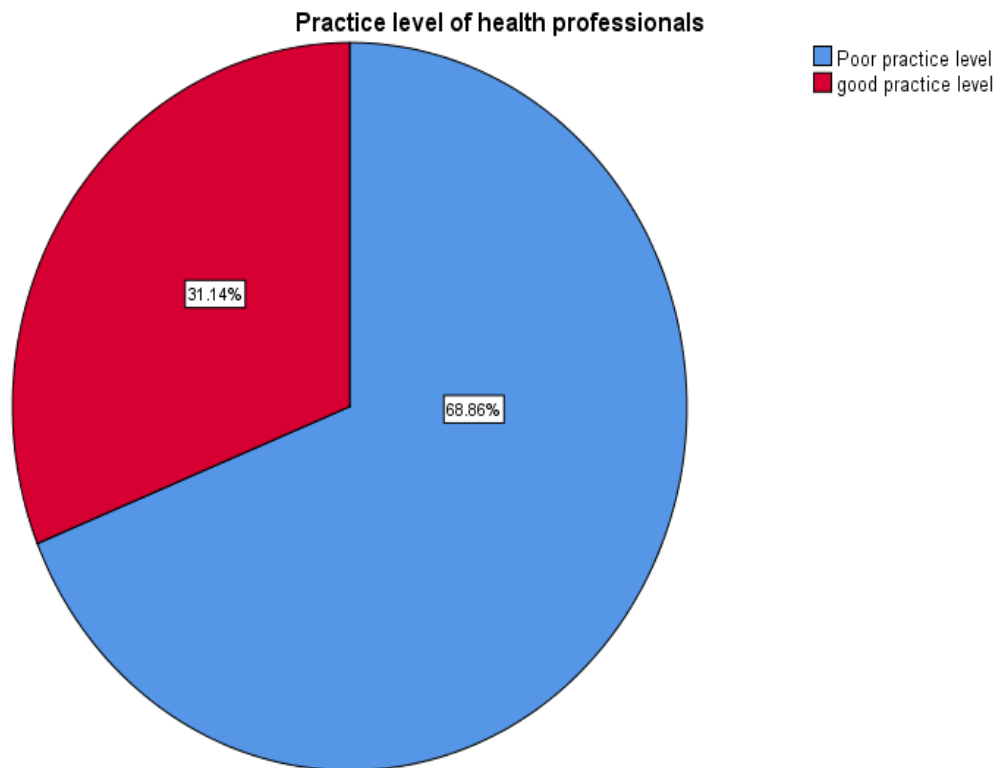


Figure 5 Practice level of CPR among health care professionals at SPHMMC, AA, and Ethiopia 2021

Table 5 : Correct response to practical questions of CPR by health care professionals towards cardiopulmonary resuscitation at St. Paul's hospital MMC, Ethiopia, 2021

Practice Questions	Frequency.	Percent
Duration of pulse check for a victim at a time before start of CPR	200	57.14
Preferred sit to check pulse for a victim	279	79.71
How frequent adrenaline given?	219	62.57
The first step in chain of survival	174	49.71
After 5 cycle of CPR?	122	35.47

5.6. Factors associated with knowledge of CPR

Bivariate analysis was done to determine the association of the knowledge of CPR and independent variables. The variable sex, occupation, attending CPR training and reading CPR guideline are associated with knowledge of CPR ($p\text{-value}<0.25$). In multivariable analysis four variables are associated with knowledge of CPR.

The odds of knowledge of CPR is 2.74 times higher age group above 30 years ($\text{AOR}=2.74$, 95% CI (1.00, 7.53)) compared to age groups 21-25 years. The odds of knowledge CPR is 1.83 times higher in males ($\text{AOR}=1.83$, 95% CI (1.02, 3.28)), as compared to female. The odds of knowledge of CPR is 3.31times higher in those who have read the CPR guideline ($\text{AOR}=3.31$, 95% CI (1.52, 7.19) as compared to those who have not read the guideline. The odds of knowledge of CPR is 2.81 times higher in those who have training on CPR ($\text{AOR}=2.81$, 95% CI (1.56, 5.06)) as compared to those who have not trained. The odds of knowledge CPR is 3.6 times higher in residents ($\text{AOR}=3.60$, 95% CI (1.80, 7.18)), as compared to BSC holders (table 6).

Table 6 Multivariate logistic regression showing factors associated with knowledge of CPR among HCP at St. Paul's hospital MMC, Ethiopia, 2021

	Knowledge	COR (95% CI)	AOR (95% CI)	P-value	
	Poor	Good			
	N^o (%)	N^o (%)			
Age in years					
21-25	70(28.34)	12(11.65)	1	1	
26-30	133(53.85)	66(64.08)	1.06(0.38, 1.74)	1.89(0.83, 4.30)	.126
Above 30	44(17.81)	25(24.27)	1.19(0.41, 1.98)	2.74(1.00, 7.53)	.049
Sex					
Male	119(48.18)	75(72.82)	2.88(1.75, 4.75)	1.83(1.02, 3.28)	.04
Female	128(51.82)	28(27.18)	1	1	
Year of experience					
<2 yrs.	78(31.58)	28(27.18)	1	1	
2-5 yrs.	111(44.94)	56(54.37)	1.096(0.55,2.1 5)	1.23(0.63,2.38)	.534
>5yrs	58(23.48)	19(18.45)	1.54(0.83, 2.83)	0.934(0.39, 2.23)	.877
CPR training					
Yes	110(44.53)	68(66.02)	2.42(1.499, 3.906)	**2.81(1.56, 5.06)	.001
No	137(55.4)7	35(33.98)	1	1	
Have you ever read					
Yes	159(64.37)	93(90.29)	5.147(2.55, 10.389)	**3.31(1.52, 7.19)	.002
No	88(35.63)	10(9.71)	1	1	
Educational status					
BSC	143(57.89)	29(28.16)	1	1	.
general practitioner	49(19.84)	13(12.62)	1.30(0.63, 2.71)	0.72(0.31, 1.67)	.455
Residents	55(22.27)	61(59.22)	5.46(3.18, 9.39)	3.60(1.80, 7.18)	0.001

5.7. Factors associated with attitude of CPR among health care professionals

Bivariate analysis was done to determine the association of the attitude of CPR and independent variables. The variable sex, occupation, attending CPR training and reading CPR guideline are associated with attitude of CPR (p-value<0.25). In multivariable analysis two variables are associated with attitude CPR.

The odds of attitude of CPR is 2.68 times higher age group above 30 years (AOR=2.68, 95% CI (1.03- 6.99) compared to age groups 21-25 years. The odds of attitude of CPR is 3.28 times higher in those who have read the CPR guideline (AOR=3.28, 95% CI (1.81, 5.93)) as compared to those who have not read the guideline (table 7).

Table 7 Multivariate logistic regression showing factors associated with attitude of CPR among HCP at St. Paul's hospital MMC, Ethiopia, 2021

	Attitude	COR (95% CI)	AOR (95% CI)	P-value	
	Poor	Good			
	N ^o (%)	N ^o (%)			
Age in years					
21-25	23(27.06)	59(22.26)	1	1	
26-30	49(57.65)	150(56.60)	1.19(0.66, 2.13)	1.17(0.60, 2.29)	.631
Above 30	13(15.29)	56(21.13)	1.67(0.77, 3.63)	2.68(1.03,6.99)	.043
Sex					
Male	39(45.88)	155(58.49)	1.66(1.01, 2.71)	1.10(0.63,1.90)	.724
Female	46(54.12)	110(41.51)	1	1	
Year of experience					
<2 yrs.	25(29.41)	81(30.57)	1	1	
2-5 yrs.	35(41.18)	132(49.81)	1.55(0.80, 2.99)	1.09(0.57, 2.11)	.778
>5yrs	25(29.41)	52(19.62)	1.81(0.99, 3.32)	1.43(0.193,1.9 8)	.45
CPR training					
Yes	42(49.41)	136(51.32)	1.07(0.662,1.7 6)	0.84(0.47,1.51)	.573
No	43(50.59)	129(48.68)	1	1	
Have you ever read					
Yes	45(52.94)	207(78.11)	3.17(1.89, 5.31)	**3.28(1.81, 5.93)	
No	40(47.06)	58(21.89)	1	1	0.001

5.8. Factors associated with practice of CPR in health care professionals

Bivariate analysis was done to determine the association of the practice of CPR and independent variables. The variable educational status, work station, attending CPR training and reading CPR guideline are associated with practice of CPR ($p\text{-value}<0.25$). In multivariable analysis three variables are associated with practice of CPR.

The odds of practicing CPR is 3.8 times higher in second year residents (AOR=3.8, 95% CI (1.64, 8.84)) and 2.44 times higher in first year residents (AOR=2.44, 95% CI (1.09, 5.45)) compared to those who have BSC degree. The odds of practicing CPR is 3.46 times higher in working at ICU (AOR=3.46, 95% CI (1.46, 8.17)), 3.52 times higher in working at Emergency OPD (AOR=3.52, 95% CI (1.63, 7.62)), and 3.53 times higher in working at OR (AOR=3.53, 95% CI (1.64, 7.59)) as compared to working at ward. The odds of practicing CPR is 2.84 times higher in those who have read the CPR guideline (AOR=1.84, 95% CI (1.417, 5.691)) as compared to those who have not read the guideline. The odds of practicing CPR is 2 times higher in those who have training on CPR (AOR=2.01, 95% CI (1.13, 3.57)) as compared to those who have not taking training on CPR (table 8).

Table 8 Factors associated with practice of CPR among health care professionals at St. Paul's hospital MMC, Ethiopia, 2021

	Practice of CPR		COR (95%CI)	AOR (95%CI)	P-value
	Poor	Good			
	N ^o (%)	N ^o (%)			
Age in years					
21-25	55(23.31)	25(23.15)	1.068(0.52, 2.16)	1	.
26-30	134(56.78)	63(58.33)	1.105(0.60,2.01)	0.74(0.36,1.50)	.405
Above 30	47(19.92)	20(18.52)	1	0.62(0.24,1.57)	.314
Sex					
Male	124(52.54)	67(62.04)	1.47 (0.92, 2.35)	0.95(0.55,1.65)	.859
Female	112(47.46)	41(37.96)	1	1	.
Educational status					
B.SC.	126(53.39)	42(38.89)	1	1	.
MSC	7(2.97)	5(4.63)	2.14(0.64,7.11)	1.869(0.5, 6.99)	.353
General practitioner	37(15.68)	11(10.19)	0.89(0.42, 1.90)	0.61(0.16,2.33)	.472
1st year resident	37(15.68)	23(21.30)	1.865(0.99, 3.49)	2.44(1.09,5.45)	.03
2nd yrs. and above residents	29(12.29)	27(25.00)	2.79(1.49,5.24)	**3.80(1.64, 8.84)	.002
Year of experience					
<2 yrs.	72(30.51)	34(31.48)	1	1	.
2-5 yrs.	112(47.46)	51(47.22)	0.96(0.57,1.63)	0.867(0.46,1.64)	.66
>5yrs	52(22.03)	23(21.30)	0.94(0.495,1.77)	0.89(0.38, 2.08)	.783
Work station					
Ward	100(42.37)	21(19.44)	1	1	.
OR	48(20.34)	34(31.48)	3.37(1.77,6.42)	**3.53(1.64, 7.59)	.001
Emergency OPD	33(13.98)	26(24.07)	3.75(1.87,7.53)	**3.52(1.63,7.62)	.001
Recovery Room	13(5.51)	4(3.70)	1.465(0.54,4.94)	1.63(0.43,6.16)	.468
ICU	30(12.71)	18(16.67)	2.85(1.34,6.05)	3.46(1.46, 8.17)	.005
Other (Isolation and COVID)	12(5.08)	5(4.63)	1.98(0.63,6.23)	2.48(0.66,9.37)	.179
CPR training					
Yes	106(44.92)	66(61.11)	1.93(1.21, 3.06)	2.01(1.13, 3.57)	.017
No	130(55.08)	42(38.89)	1	1	.
Have you ever read					
Yes	152(64.41)	94(87.04)	1	.352(0.18,0.71)	
No	84(35.59)	14(12.96)	0.27(0.14,0.50)	2.84(1.417, 5.691)	** .003

6. Discussion

Cardiac arrest in a hospital is not uncommon and high quality CPR can change patients' outcome. Accordingly; health care professionals practicing in these hospitals should have adequate knowledge, positive and favorable attitude as well as good practice of cardiopulmonary resuscitation. Despite CPR training and certification is obligatory for employment in health care field in other countries, there is no such mandate in Ethiopia(4,17)

Unfortunately, the current study revealed that there is a significant knowledge deficiency among HCPs towards CPR with knowledge level of 29.4 %. In line with this study poor level of knowledge was reported among health care providers in other studies, done in Brazil (8), Botswana (9), Nigeria (23) and Ethiopia (11). Another cross sectional study done in tertiary hospital in Tanzania showed a significantly lower level of knowledge 16% among 350 health cadres compared to this study (19).

Compared to this study a lower knowledge level was reported in a study done at Gondar, among HCP, 25.1% (95% CI 21.2 to 29.3) had good knowledge towards CPR (11).The possible explanation for this slight variation might be most of the study participants did not involved in regular CPR training and less habit of reading international guidelines compared to the current study. According to the study done in Addis Ababa among anesthetists ,knowledge deficiency was reported(6.7%) which is significantly lower than the current study, it might be due to most of the participants included in the study were BSC holders and who didn't took regular CPR training (22)

Despite the knowledge deficiency shown in this study, (75.71%) of the study participants had positive and good attitude towards cardiopulmonary resuscitation. This finding is higher than study done in India among nurses medical students, these may be due to most of study participants are nurses and medical students who had lower educational and training level (12). A study done in Gondar showed that lower positive attitude level (60.8%) compared to the current study this may be because of the lower level training and reading habit of CPR guideline (11).From this study most of the study participants strongly belief that CPR training should be given to all health professionals. In Egypt of 60 junior doctors that participated in the study up to

95% reported positive attitudes towards CPR training. Most of the study participants are willing to provide chest compression. (24).

The current study revealed that good practice level of the study participants was 109(31.10%) 95%CI (26.2 -36.0) which low and sub optimal. A cross sectional study done in Tanzania suggests that the level of CPR skills displayed by all HCP was poor despite the fact that most providers reported having performed CPR in the past (19).

A survey done among 3044 healthcare professionals in Sweden theoretical knowledge and self-assessed ability to perform cardiopulmonary resuscitation the overall rating of self-assessed abilities to perform CPR were low (13). A study done at Gondar and Bahirdar showed that 28.4% good practice of BLs which comparable to the current study (21). Most of the study participants knew the where to check pulse for cardiac arrest victim in this study.

According to this study knowledge level of HCPs strongly associated with reading CPR guideline .It showed that those health professionals who read guidelines were more knowledgeable than who did not (AOR=3.31, 95% CI (1.52, 7.19). More over current study revealed that Knowledge level also associated with CPR training CPR (AOR=2.81, 95% CI (1.56, 5.06). Other studies supporting this findings are study done in Uganda (17), Botswana (9) and Ethiopia (21). According to this study occupation, age and sex of health professionals significantly associated with knowledge level of CPR as shown in multivariate logistic regression analysis.

According to this study reading international guideline associated with positive attitude level (AOR=3.28, 95% CI (1.81, 5.93) other studies reported similar finding (11,17). From this study practice level of CPR associated with educational level, being 1st year and 2nd year and above resident 2.44 and 3.8 times better practice of CPR as compared to BSC holders. The possible explanation for this may be academic learning and extensive reading of guideline among residents compared to BSC holders.

. In addition the level of CPR practice is associated with common work setting area, odds of practicing CPR is 3.46 times higher in working at ICU (AOR=3.46, 95% CI (1.46, 8.17)), 3.52 times higher in working at Emergency OPD (AOR=3.52, 95% CI (1.63, 7.62)), and 3.53 times higher in working at OR (AOR=3.53, 95% CI (1.64, 7.59)) as compared to working at the ward

,it may be due to frequent case exposure in ICU as well as associated with CPR training and reading guideline. This finding in line with study done in Ethiopia (21) and Uganda (17).Additionally this study revealed that regular training and Reading CPR guidelines is crucial to improve the quality of CPR practice.

7. Strength and limitation of the study

Strength of the study

- ❖ Cardiopulmonary resuscitation is a team work and this study assessed KAP different teams of health professionals
- ❖ Multiple logistic regressions employed to control the effect of confounders.
- ❖ It is first study in SPHMMC regarding KAP of CPR used as baseline for further studies.

Limitation of the study

- ❖ The study is cross-sectional and cannot establish cause and effect relationship.
- ❖ This study used practice based theoretical questions to assess practice level of health professionals it, may not reveal the exact psychomotor skill of CPR among health professional because manikin and video based simulation assessment of practical skill and proficiency in resuscitation is beyond this study capacity.
- ❖ There might be social desirability bias among respondents in answering the knowledge, attitude and practice questions.

8. Conclusion

This study identified that the knowledge and practice level among health care professionals in our institution is poor and suboptimal even though they have good and positive attitude towards cardiopulmonary resuscitation. CPR training, reading CPR guideline, age and educational level significantly associated with Knowledge level of CPR similarly attitude level of health professionals affected by reading and their age. Moreover, Practice level of CPR associated with level of CPR training, work setting and reading guideline. So that ,continuous and regular training, improving reading habit of CPR guideline and making work setting rotation is very crucial to improve KAP of CPR

9. Recommendation

Based on the finding of this study the following recommendations are forwarded:

- ❖ To St. Paul's HMMC to schedule CPR training, lectures, seminars and demonstrations regularly for health professionals to improve knowledge and practice of CPR among health professionals.
- ❖ To MOH and policy makers to, prioritize, and clearly articulate, a policy regarding compulsory CPR education and provision of training and certifications for degree registration and to prepare CPR Guideline at national level which may improve professionals KAP level of CPR.
- ❖ To health care professionals to read updated guideline, to attend online American heart association trainings to improve their knowledge and practice of CPR.

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11. Annex : Questionnaires

St. Paul’s hospital medical millennium college department of anesthesiology, critical care and pain medicine

Dear respondent read the following details fill the blank space or choose the correct answer
The purpose of this study is to gather information that can help improve the quality of health regarding cardiopulmonary resuscitation.

You are being asked to complete questionnaire to assist us in that regard. We expect it will take you approximately few minutes to complete the questionnaire.

Confidentiality: The identities of all people who participate will remain anonymous and will be kept confidential. We are very grateful for your participation

Contact information about the study if you have any questions or require further information about the study you may contact Dr. Samuel Shisema 0910021867

Your participation is entirely voluntarily and you may refuse to participate or withdraw from the study at any time. Your consent to participate in this study is assumed once you have completed the questionnaire.

Do you like participate in this study? A. yes..... B. NO

Sign of respondent.....

Sign of data collectors.....

THANK YOU!!!

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Part I: Socio Demographic Characteristics Of Health Care Professional

Answer each questions by choosing the appropriate letter or write down your response in the space provided.

1 .Age

2. Sex: Male.... Female.....

3. Your level of education/Occupation?

A) Resident B, General practitioner C Nurse ..BS.....MSC....

D Anesthetist BSC.....MSC..... E Midwives BSC,,,,,,MSC.....

4 Resident physician i) Year of residency.....

5. Total year of experience after graduation? A < 2yrs B 2-5 yrs C > 5 yrs

6 Your commonly work setting area? A) Ward B) OR C) Emergency OPD D) Recovery Room E, ICU f) other

7 Have you ever taken CPR training? A) Yes... B) NO.....

8 Have you ever read CPR guidelines before? A) Yes... B) NO.....

Part II: Question concerning the knowledge of health care professionals regarding CPR.

1 What is abbreviation of BLS?

A. Best life support C. Basic lung support B. Basic life support D. Basic life service

2. According to AHA 2020 CPR guideline Sequence of new BLS.

- A. Circulation, Airway and breathing
- B. Air way, breathing and circulation
- C. Breathing, circulation and airway

3 What is the compression breath ratio of infant while you do CPR with 2 CPR providers?

A,, 30;2 B,15:2 C 25;2 D 20:2

4 The appropriate site of chest compression for adult palm placed midline on the lower 1/3 of the sternum. A, True B, False

5 According to AHA recommendation location of chest compression in pregnant women is the same as non pregnant. A true B, false

6 According to AHA 2020 guideline early administration of adrenaline for non shock able rhythm is recommended

A TRUE B, false

7 Depth of compression in adults during CPR

A. 4cm B, 5cm c above 6cm

8 What is the maneuver used to open air way if trauma suspected patient?

A. Insert the finger into the mouth and pull the tongue for ward

B. Jaw thrust

C. Head tilt D. Head tilt chin lift

9 Dose of adrenaline during Adult CPR.

A, 1mg B, 2mg C, 0.5mg

10 The rate of chest compression recommended per minute?

A. 70-80 B. 100-120 C. 120 -150 D. i don't know

11 What does abbreviation AED stands for?

A. Automated external defibrillation C. Advanced electrical defibrillator

B. Automated electrical defibrillation D. advanced external defibrillator

12 which one is Non- shockable rhythms

A. Ventricular fibrillation and ventricular tachycardia

B. Pulse less electrical activity and asystole.

C. i don't know

13 when do you deliver shock for shockable rhythms

A. two minute after CPR starts nd

B. As soon as the defibrillator arrives

C. After 10 cycles of CPR

D. i don't know

14. When do you assess for return of spontaneous circulation in order to avoid interruption?

A. every one minute B. every two minute C. after 20 minute D. i don't know

15 which one is component of high quality adult cpr

a, compression rate 100-120

b compression depth 5cm

c minimizing interruptions

d all

Part III Question concerning the practice of Health care professionals regarding CPR

1 If you found a patient in the ward and you suspected cardiac arrest for how long you check the pulse before you start CPR?

A, 10-15 sec B, 5-10sec C, 30Sec D, 1minut¹⁴

2 When you assessing unconscious victim for pulse which of the following is the best artery to check?

A. Radial C. Carotid
B. Femoral D. Brachial

3) How often do you give Adrenaline for while you do CPR?

A) Every 1minut B) every 2 minute C) every 3-5minut

4 When you find someone un responsive in the middle of the road , what will be your first response?

A. Open air way C. Look for safety
B. Start chest compression D. Give two breathing

5 You just performed 5 cycles of CPR on adult, you reassess for a pulse. No puls what is your next action?

A call for help B immediately resume CPR C search for AED D,,none

Part IV Question on Attitude of HCP regarding CPR

Questions	Strongly disagree	Disagree	Nuetral	Agree	Strongly agree
1 Confident in recognizing a victim who needs CPR					
2 CPR possibly can increase the survival rate of patients who faced cardiac arrest					
3 All health professionals can do CPR					
4 All health professional should get BLS training before graduation.					
5 HCP should get CPR training every 5yrs and get certified					
6 Establishing a CPR team has good outcome for a cardiac arrest team					
7 Willing to provide chest compression to a victim					

ASSURANCE OF PRINCIPAL INVESTIGATORS

We the undersigned agree to accept all responsibilities for the scientific and ethical conduct of the research project. We will provide timely progress report to my advisor and seek the necessary advice and approval from my primary advisors in the course of the research. We will communicate timely to my advisors all stakeholders involved in the study including any source of funding for this research.

Name of the student(s): _____

Signature: _____

Date: _____

Approval of the Advisor

Name of the advisor: _____

Signature: _____

Date: _____