WOLKITE UNIVERSITY

COLLEGE OF MEDICINE AND HEALTH SCIENCES

DEPARTMENT OF NURSING

PRACTICE OF CARDIO PLUMONARY RESUSCITATION AND ASSOSIATED FACTORS AMONG CLINICAL PRACTIONERS WORKING IN GURAGE ZONE PUBLIC HOSPITALS, SOUTH WEST ETHIOPIA, 2023: MULTICENTER STUDY

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A RESEARCH THESIS TO BE SUBMITTED TO WOLKITE UNIVERSITY COLLEGE OF MEDICINE AND HEALTH SCIENCES DEPARTEMENT OF NURSING FOR THE PARTIAL FULLFILMENT OF BACHELOR OF SCIENCE DEGREE IN NURSING

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WOLKITE, ETHIOPIA

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ABSTRACT

Background: Cardiopulmonary resuscitation is one of the most basic life-saving medical procedures that is performed on a patient who is experiencing an emergency cause. Cardiac arrest is one of the world's leading causes of death. To increase survival from cardiac arrest, clinical practitioners should have a fundamental understanding of basic life support and advanced cardiac life support techniques. However, knowledge and skills gap among health professionals with regard to cardiopulmonary resuscitation and management strategies for cardiac arrest is a global problem. As a result, assessing practice of Cardiopulmonary resuscitation and associated factors among clinical practitioners is critical, as they manage of trauma and critically ill patients.

Objective: To assess Practice of cardiopulmonary resuscitation and associated factors among clinical practitioners working in Gurage zone public hospitals, South West Ethiopia, 2023.

Method: Cross-sectional study design was employed to assess, practice of cardiopulmonary resuscitation and associated factors among clinical practitioners working in Gurage zone public hospitals, South West Ethiopia from April 1/4/2023 up to April 21/4/20231. A simple random sampling technique was used to select three (3) hospitals from six public hospitals found in Gurage zone. After selection of 3 hospitals (WKUSH, Butajira, Gunichire) list of clinical practitioner's nurses, physicians and midwifes was taken from Human and resources administration office of the hospitals and study participants were selected by using random sampling method. The study was including 354 clinical practitioners. Finally, the data was entered and analyzed using SPSS version 25.

Result: 354 clinical practitioners in the study with response rate 96.2%, and among them 47.2%, 54.5%, and 37.9% had good knowledge, a favorable attitude, and good practice towards cardiopulmonary resuscitation, respectively. Setting, work experience knowledge and attitude towards cardiopulmonary resuscitation was significantly associated with Cardiopulmonary resuscitation practice on multivariate logistic regression ($p \leq 0.05$).

Conclusion: This study identified that practice of cardiopulmonary resuscitation is poor, only 37.9 % had good practice among clinical practitioners working in Gurage zone public hospitals as a result, further training is required to achieve desired outcome.

Key words: Practice, cardiopulmonary resuscitation, Clinical practitioners.

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ACRONYMS & ABBREVIATIONS

ACLC	Advanced Cardiac Life Support
AED	Automated External Defibrillator
AHA	American Heart Association
BLS	Basic Life Support
CA	Cardiac Arrest
CPA	Cardio Pulmonary Arrest
CPR	Cardiopulmonary Resuscitation
CVD	Cardiovascular Disease
EMS	Emergency Medical Services
HCPs	Health Care Providers
MCQ	Multiple Choice Questions
PEA	Pulseless Electrical Activity
SCA	Sudden Cardiac Arrest
SD	Sudden Death
PICU	Pediatric Intensive Care Unit
VF	Ventricular Fibrillation
VT	Ventricular Tachycardia
WHO	World Health Organization
WKU	Wolikite University
WKUSH	Wolikite University Specialized Hospital

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1. INTRODUCTION

1.1 Background

Cardiopulmonary resuscitation (CPR) is a resuscitative medical technique that combines rescue breathing and chest compressions to maintain oxygenated blood flow to the brain and maintain brain function until additional steps are taken to restore normal spontaneous blood circulation and breathing in a person who is experiencing cardiac arrest [1].

A number of life-saving techniques, including cardiopulmonary resuscitation (CPR), are being used in contemporary medicine to improve survival after sudden cardiac arrest (SCA) [2]. Because quality immediate pre-hospital first aid is not given before vital functional impairments occur, over 2,000 children worldwide die every day from easily preventable emergencies[3].

The majority of cardiac arrests are caused by primary cardiac arrest (also known as non-asphyxia arrest), which is typically characterized by a loss of electrical activity in the heart. Secondary cardiac arrest (also known as obstructive arrest) is caused by respiratory failure, which is characterized by a lack of oxygen in the blood and occurs when victims drown or suffocate, as well as other less common but equally serious conditions like drug overdose[4].

The existence of less advanced technology, as well as a lack of knowledge and expertise, can have a negative impact on patients management and the likelihood of patient survival [5]. Sufficient knowledge and expertise of health care workers in CPR exercise and techniques will prevent permanent organ damage and improve the odds of survival of a cardiac arrest victim [6, 7].

Therefore, performing CPR requires all of one's energy, sufficient knowledge and skills, as well as a desire and positive attitude to assist victims [8]. Therefore, to increase survival from cardiac arrest, health professionals should perform high-quality CPR and have a basic understanding of the principles of both basic life support (BLS) and advanced cardiac life support (ACLS)[9].

Advanced cardiac life support includes recognition of the signs of sudden cardiac arrest (SCA), heart attack, and complete airway obstruction as well as cardiopulmonary resuscitation (CPR) and defibrillation with an automated external defibrillator (AED)[10]. Advanced cardiac life support training was provided to healthcare personnel so they could deliver quality care throughout their careers [11].However, there is a global issue with the lack of knowledge and expertise among

medical professionals in CPR and cardiac arrest management strategies[12, 13].Depending on early and prompt recognition of events and efficient resuscitation techniques carried out by CPR teams, cardiac arrest patient survival rates and improved quality of care range from 2% to 49%[14].

Cardiac arrest is described as the absence of a carotid pulse, normal respiration, and any other signs of cardiac activity[15]. It's crucial to remember that brain damage from oxygen deprivation for 6 to 10 minutes is expected before death, which is most likely to happen. Brain damage from 0 to 4 minutes is essentially non-existent, but brain damage from 4 to 6 minutes is quite likely[16]. Blood that has been oxygenated is circulated throughout the body by the heart. The brain has two sets of major arteries that branch out. They bring a constant supply of oxygen and carbohydrate. For around three minutes, the brains can function on emergency energy.

If resuscitation is not initiated soon after a cardiac arrest, the brains quickly exhaust their reserve of oxygen. Causing harm everywhere; incontinence, spasticity, personality changes, trouble walking, speech difficulties, and memory issues (severe). CPR should therefore be initiated as soon as possible, ideally within two minutes[17]. To increase survival from cardiac arrest, health professionals should have a fundamental understanding of basic life support (BLS) and advanced cardiac life support (ACLS) techniques[18].

There is a rising global need for CPR training. Standardized CPR instruction is still not common in developing nations, including ours. The level of awareness, understanding, and application of health workers' resuscitation techniques was only briefly discussed in a few publications from underdeveloped nations[19]

According to evidence from the literature, there are roughly two key elements that improve patients' quality of life and help in-hospital resuscitation be more successful. For instance, the accessibility of basic and sophisticated life support systems, efforts to perform immediate defibrillation, and the efficiency of CPR [14, 15, 20]. It has been hypothesized that high-quality CPR increases the likelihood of survival after CA, provided that practitioners maintain the essential elements of CPR that minimize chest compression interruption, perform chest compressions frequently and deeply enough, enable chest compressions expansion, and avoid access ventilation[20].

Cardiac arrest requires prompt treatment, and any delay reduces patient 's chances of survival[21].The attitudes of healthcare professionals (HCPs)towards cardiopulmonary recovery situations can influence their behavior in such situations. Attitude is seen as an important part of competence[22].Previous real-world CPR experience was associated with positive attitudes toward CPR[23].

1.2 Statement of the problems

In/out of hospital Cardiac arrest is major public health concern and cause mortality globally. A greater number of survivors have been seen when cardiac arrests are witnessed. Survival can even be three times increased when cardiac arrests are managed by persons able to provide immediate basic life support. However, only an insignificant number of cardiac arrest victims receive adequate life-saving cardiopulmonary resuscitation (CPR), thus indicating the need for improvement [24, 25].

Basic life support provides a basic level of care for treating patients, especially those with life threatening illnesses or injuries. Ideally, everyone should know about BLS/CPR. However, scientific knowledge and proper CPR techniques for health professionals are a critical part that makes the difference between life and death, especially after cardiorespiratory arrest[26].

Adequate knowledge and skills of basic life support (BLS) and cardiopulmonary resuscitation (CPR) are significant global concerns to ensure that health care professionals can provide essential life-saving care in life-threatening situations [27].Although demand for BLS courses continue to grow in industrialized countries. However, training in developing countries is generally not practiced[25, 28].

CPR can be life-saving when supplied with the aid of well-trained person. Several researches have confirmed that instantaneous shipping of CPR has served as a vital predictor of survival; and would possibly nearly double chance of survival. The chance of survival from a systole falls via 10-15% per minute barring treatment. However, nicely carried out CPR probably shifts this curve in the direction of a greater chance of survival[29].

Globally, there are 20 to 140 cases of sudden cardiac arrest for every 100,000 persons, and the survival rate ranges from 2% to 11% [20].In the developed world, the incidence of in-hospital cardiac arrest attended by a resuscitation teams and receiving CPR is approximately 2 per 1000

admissions[30]. Surveys conducted in the Northeast reveal that 24.36% of physicians and 53.45% of paramedics do CPR [29].

A study accomplished in England revealed that, out of the 828 patients who had gone through cardiopulmonary resuscitation, only 162 sufferers who are estimated at 20% survived right to discharge. Among those who survived to discharge, 5 of them went to a vegetative state, and 51 of them died a few days following discharge[31].Study an Indian reveal, 48% of nursing trainees had practices of CPR [32].

In Nigerian study showed that , 65.2% nurses had performed cardiopulmonary resuscitation on patients[33]. In Ethiopia study shows 31.8% nurses do CPR[34].The chain of survival was initiated to make certain timely attention of a CA and instantaneous initiation of CPR, and defibrillation. However, no matter the efforts, the incidence and outcomes of CA following interventions have remained unexplored in the Sub- Saharan countries[35].

As a result , knowledge and skills gap among clinical practitioners with regard to CPR and management strategies for cardiac arrest is a global problem[12].The mortality followed by cardiac arrest has been attributed to poor knowledge and practice of CPR[36].

In Gurage zone, insufficient data are present which addresses clinical practitioners CPR practice level. So, the study was aimed to explore the practice of CPR and associated factors among clinical practitioners working at Gurage zone public hospitals, Ethiopia.

1.3 Significance of study

This study was focus on assessments of clinical practitioners practice, as well as associated factors of CPR, and was provide an update and possibly new information regarding Practice and associated factors of clinical practitioners towards CPR. The study will be assist Hospitals, Patients, policymakers (curriculum designers), stakeholders, practitioners, public health, individuals, government and researcher.

To Hospitals it will provide baseline evidence for action towards practice of CPR. Also, the data will help in mapping of emergency service provision in general wards.

To patients, it will help preventing premature death in patients who go into cardiac arrest. To the health professionals enable them see the need to go for training to acquire the necessary skills, knowledge and attitude in cardiopulmonary resuscitation.

To the public, the result will serve as a source of information on the appropriate strategies towards the prevention, control and management of heart diseases and cardiac arrest which result in sudden deaths. CPR has the potential to save lives in other life-threatening emergencies such as stroke, respiratory arrest, trauma, and drowning and airway obstruction.

To policy makers, it will be help in the formulation of policies and laws on life saving first aid measures. And guide teaching; provide managers a basis for advocacy for in service training for health professionals. To stakeholders like private or governmental health training centers, the study will help improve teaching-learning processes and clinical intervention strategies. To government, to come out with health measures aimed at providing the necessary facilities and materials for practitioners to enable them practice cardiopulmonary resuscitation. To researchers, findings from this study will serve as baseline data for further research.

2. LITERATURE REVIEW

2.1 Practice of Cardiopulmonary Resuscitation

According to a study among Indian nurses, 66% of nurses had inadequate skills. In an item-by-item skill evaluation, 62% of nurses made errors or skipped tasks such as asking for assistance, doing a quality chest compression (rate, depth, and recoil of the chest), reassessing the pulse (77%), or placing the automated external defibrillator pads correctly (62%)[37]. On another study a study conducted in Kenya, Nakuru County Referral Hospital among Health care providers revealed that majority 61.1% had poor CPR practice[38].

According to study conduct in Vijayawada a tertiary care institute on nursing and medical showed that 42% of MBBS interns had poor practice score and 52% of nursing interns had poor practice score [32].On other study done in Nigeria to assess Knowledge, Attitude and Practice of Cardiopulmonary Resuscitation among Nurses in Babcock University Teaching Hospital showed that 65.2% had practiced CPR on patients [33].On other study conducted in Ghana showed that (52.8%) Nurses had fair practice on CPR [39].

According to study conducted in Ethiopia at Debre Markos Referral Hospital, revealed that, more than half of medical practitioners 60.9% have safe practices and all anesthesiologists 100% used safe practices. However, majority nurses (91.8%) had unsafe practices for CPR[40].On other study carried out in Ethiopia among health professionals working at Mekelle University revealed that just 220 (89.80%) of the participants had expertise doing cardiopulmonary resuscitation[41].Another study among medical interns in Ethiopia revealed that of the study participants, 18 (8.2%) had outstanding practice, 85 (39.0%) had good practice, 52 (23.8%) had mediocre practice, and 63 (28.9%) had bad practice regarding CPR[42].

Another study done in Ethiopia among nurses at the Mizan Tepi University Teaching Hospital, Tepi General Hospital, and Gebretsadik Shawo Hospital found that 31.8% of the nurses at the three hospitals were effective CPR practitioners. Before beginning CPR, 62.9% of participants checked the patient's pulse, and 53.6% made sure the patient was lying down on a sufficiently hard surface, according to the survey. Also, 35.7% of participants have administered CPR to a patient who experienced a cardiac emergency [34].On another study conducted in Ethiopia among nurses working in ambulances under the authority of fire and emergency prevention and rescue in a pre-

hospital care setting revealed that more than half of the participants, 68 (52.7%) and 73(56.6%), had inadequate BLS knowledge and practice levels, respectively[43].

On another study conduct on nurses working at emergency units of federal hospitals in Addis Ababa, Ethiopia showed that among the 193 respondents, 64.2% had poor practice, whereas only 69(35.8%) of participants had good practice towards basic life support [44].

2.2 Factors that influence the practice of cardiopulmonary resuscitation

2.2.1. Socio-demographic factors

Educational level: According to study conducted in India shows that there was significant association of BLS skill and service education[37].According to a study among healthcare professionals carried out in Nakuru County Referral Hospital, there was a significant association between respondents' education level and CPR practice (p=0.011). Cross-tabulation revealed that respondents with higher education (degree and/or master's) were three times more likely to have good CPR practice compared to other respondents[38].

Another study carried out in Ghana shows that nurses' good CPR practices were strongly influenced by their education level. According to the findings, nurses with post-basic education are six times more likely than certificate nurses to have good practice[39].According to a study conducted in Ethiopia, education levels was significantly (p 0.05) correlated with nurses' behavior toward BLS. According to the findings, nurses with master's degrees were 7.6 times more likely to conduct BLS than nurses with only nursing diplomas[44].On another study conducted in Ethiopia shows that good practice of BLS were higher among nurses with a nursing degree nurses with a diploma[34].

Setting: According to study conducted in India shows that With regard to skill of BLS subjects posted in different departments, the nursing officers from ICU and emergency department had better knowledge and skill compares to other department[37].According to study conducted in Ethiopia shows that assigned ward were independent predictors of CPR good practice, the likelihood nurses good practice was higher among assigned to the emergency department compared with those assigned to the outpatients department[34].

Work of Experience: According to study conducted in India shows that there was significant association of BLS skill and experience[37].According to study conduct in Ghana showed that years at work and lack of experience significantly influenced the good practice of CPR among the nurses. As result shows nurses with lack of experience have 53% reduce odds of practicing CPR as compared to those with experience[39].

On other study conduct in Ethiopia shows that year of experience were significantly associated with the practice of nurses towards BLS. As result shows nurses' Who had >10 years of Clinical experience were 12 times more likely to practice BLS as compared to those who had only <1years clinical experience [44].An further study conducted in Ethiopia among nurses found that experience was a significant predictor of successful CPR practice. According to the findings, nurses with more than 10 years of experience and those with 6 to 10 years of experience engaged in better practices than nurses with 1 to 5 years of work experience [34].

2.2.2. Level of knowledge about CPR

According to study conducted in Kenya among health care providers revealed that there was a significant relationship between CPR knowledge and CPR practice. According to the finding shows that respondents with high knowledgeable care providers were four times more likely to have good practice[38].

On other study conducted in Nigeria revealed that significant relationship exist between knowledge and practice of cardiopulmonary resuscitation among nurses of 79.2% of the respondents who had good knowledge of cardiopulmonary resuscitation practiced cardiopulmonary resuscitation, and 76.5% of those who had poor knowledge did not practice CPR[33].

In Ghana study showed that Nurses with good knowledge on CPR surprisingly were identified to have 63% reduce odds of practicing CPR as compared to those with poor knowledge in CPR, which was statistically significant as[39].

According to study conducted in Ethiopia showed that knowledge were factors found to be significantly associated with practice of nurses to wards BLS at p-value of <0.05. Study revealed that knowledgeable nurses were two times more likely to perform BLS skills as compared to those with in adequate knowledge[46].On other study showed that knowledge status of BLS were

significantly associated with the practice of nurses towards BLS at the p-value of ≤0.05. knowledgeable nurses were three times more likely to perform BLS skills than those with poor Knowledge[44].

On other study conduct in Ethiopia also showed that knowledge level on BLS were showed significant association with the BLS practice with p-value less than 0.05. As showed knowledgeable nurses were 8.33 times more likely to perform BLS practice as compared to those with inadequate knowledge[43].

2.2.3. Attitude of clinical practitioners

Attitude is defined to as the affective domain that contains the "learner's" values, beliefs, and role expectations that may affect the management of patients[47].

According to study conducted in Ethiopia federal hospital among nurses working at adult emergency unit revalued that has no significant association exist between attitude and practice of CPR[44]. On another study finding conducted in Ethiopia among nurses in pre hospital settings of fire and emergency revalued that had no significant association between attitude towards CPR and CPR practice[43].

2.3 Conceptual framework

The framework explains how CPR practices can affect by the following determinants: Socio-demographic Factors, knowledge about CPR and Attitude towards CPR. The Socio-demographic factors include age, sex, Profession, Education level, seating and work experience. Level of knowledge about CPR (abbreviation of BLS, Basic concept of BLS…) and clinical practitioners Attitude towards CPR also determinants of CPR practice.

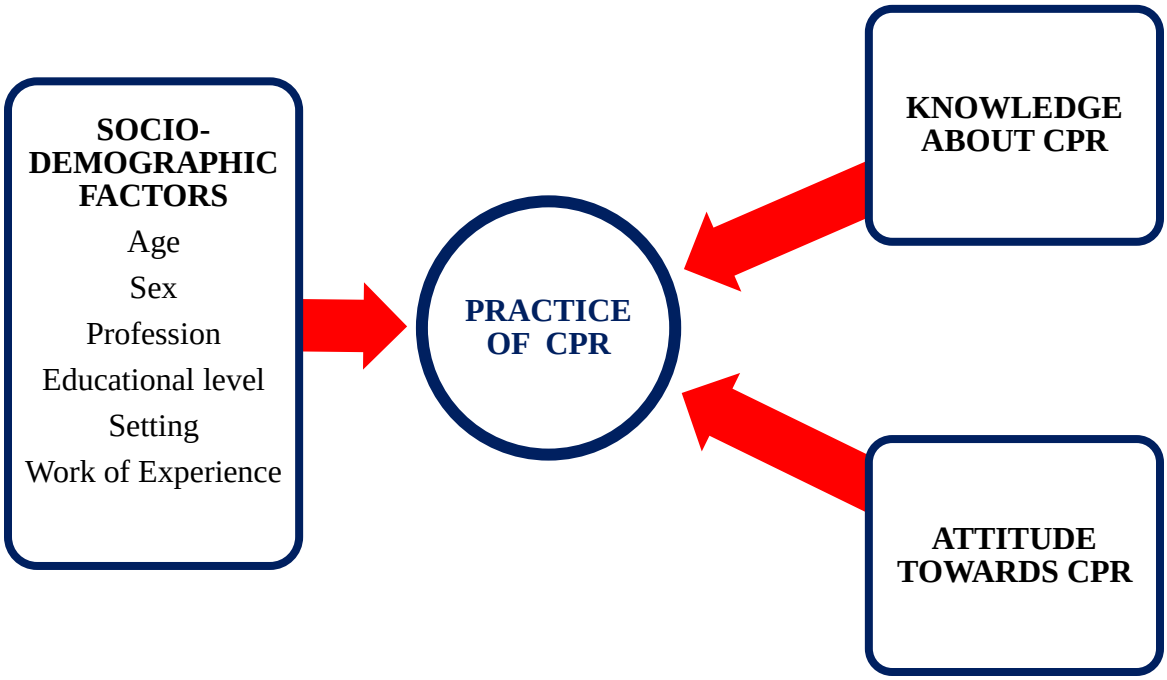


Figure 1: Conceptual Framework on assessment of Practice cardiopulmonary resuscitation and associated factors among clinical practitioners working in Gurage zone hospitals, South West Ethiopia, 2023. (Adapted from[44]and modifications are done to address the areas of interest based on our Literature review.)

3. OBJECTIVES

3.1 General objectives

To assess Practice of cardiopulmonary resuscitation and associated factors among clinical practitioners working in Gurage zone public hospitals, South West Ethiopia, 2023.

3.2 Specific objective

To assess level of cardiopulmonary resuscitation practice among clinical practitioners working in Gurage zone public hospitals, South West Ethiopia, 2023.

To identify factors affecting cardiopulmonary resuscitation Practice among clinical practitioners working in Gurage zone public hospitals, South West Ethiopia, 2023.

4. METHODS AND MATERIALS

4.1 Study area and period

The study was conducted in Gurage zone Hospitals from April 1 up to April 21. Gurage zone is located 158 km south of Addis Ababa capital city of Ethiopia. Zone has Seven Hospitals; Five primary hospitals (Mehal Amba, Quantie, Attat, Gunchire and Buei), one general hospital (Butajira generalized hospital) and one specialized hospital (Wolikite University Specialized Hospital (WKUSH)).The study setting was in 3 hospitals at Wolikite University Specialized Hospital, Butajira generalized hospital and Gunchire hospital. Attat primary hospital is 187km far from Addis Ababa, capital city of Ethiopia and owned by the Ethiopian Catholic Church and managed and financed by medical mission sisters. The hospital services an area of 800,000 peoples and had 5 doctors, 44 nurses and 14 midwives. Wolikite University Specialized Hospital is found in Wolikite town which is 158 km far from Addis Ababa. Hospitals service the community as well as the university for the purpose of giving education for students of medicine and health Science College and had 12 doctors, 119 nurses and 28 midwives. Butajira generalized hospital is found in the Butajira town of the Gurage zone, located 143km from Addis Ababa and the hospital had 22 doctors, 110 nurses and 26 midwives. Gunchire hospital had 6 doctors, 47 nurses, 9 midwifes.

4.2 Study design

An institutional -based cross-sectional Study was employed among clinical practitioners working in Gurage zone Hospitals, South west Ethiopia.

4.3. Source of population

All clinical practitioners who are working in Gurage zone Hospitals, South west Ethiopia.

4.4 Study population

All clinical practitioner who are working in Gurage zone Hospitals and that fulfill the eligibility criteria.

4.5 Inclusion and Exclusion criteria

4.5.1. Inclusion criteria

Clinical practitioners of Medicine, Nursing, and Midwifery who are currently working in Gurage zone Hospitals for at least 6 months.

4.5.2. Exclusion criteria:

Clinical practitioners who have work experience of less than 6 month were excluded.

4.6 Sample size determination and sampling procedure

4.6.1 Sample size determination

The required sample size of the study is determined using a formula to estimate single population proportion with the following assumption;

Confidence interval assumed 95%,

Margin of error 5%,

Proportion = 31.8% taken from similar study conducted in Ethiopia[34].

So, $n = z^2p(1-p)/w^2$

Where, n= required sample size Z= critical value for normal distribution at 95% confidence interval which is equal to 1.96(at alpha 0.05), P= an estimate of the proportion of practice of CPR (31.8%) W= Margin of error which is 5%.

$$n = \frac{z^2p(1-p)}{w^2}$$

$$n = \frac{(1.96)^2 0.318(1-0.318)}{0.05^2} = 334$$

Then finally we considering 10% non-respondents from the participant

n=334 + (334*0.1) =368

Therefore, our sample size will include 368 health professionals.

4.6.2 Sampling Procedure

There are seven hospitals in Gurage zone. A simple random sampling technique was used to select three (3) hospitals from six public hospitals found in Gurage zone. After selection of 3 hospitals (WKUSH, Butajira, Gunichire) list of clinical practitioners, nurses, physicians and midwifes with their working site was taken from Human and resources administration office of the selected

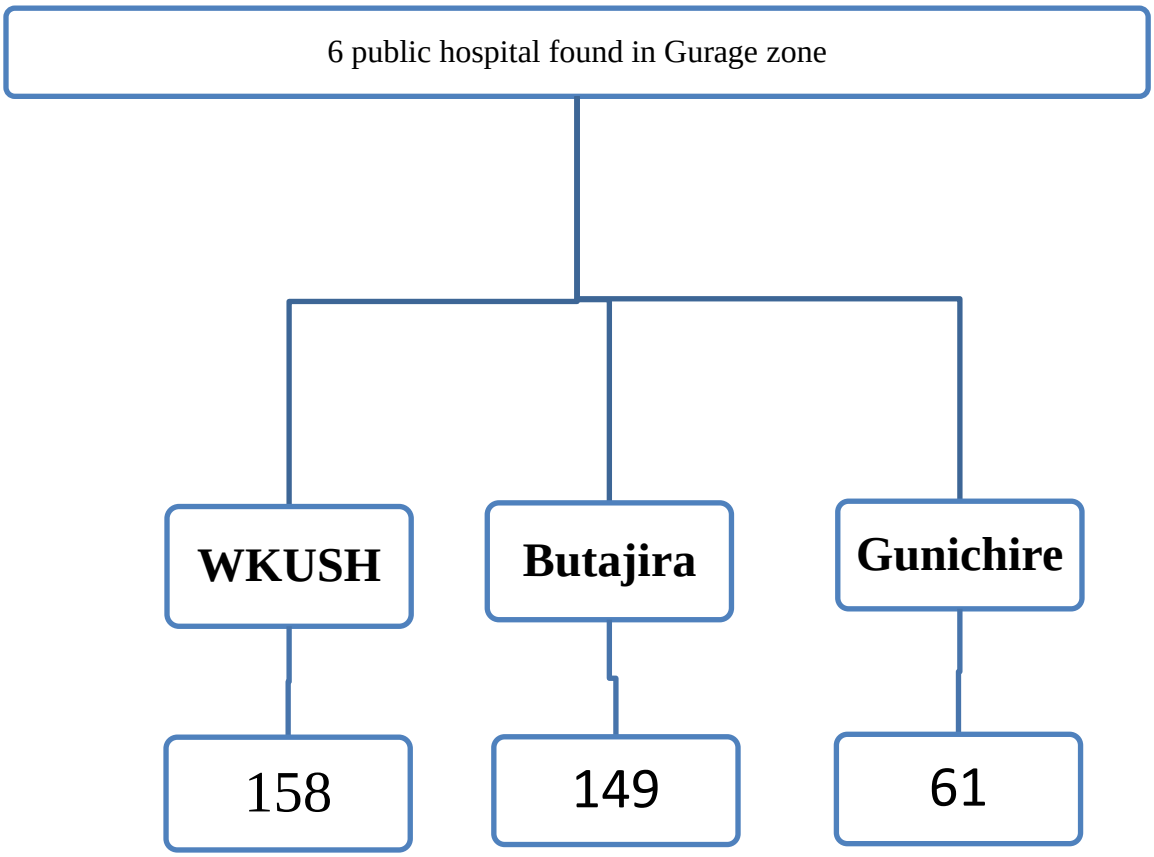
hospitals and study participant were selected by using random sampling method and the study was included 368 clinical practitioners.

Total number of HP (Nurses, Physicians & midwifes) include in schematic presentation

WKUSH= 159

Butajira= 158

Gunchire = 62



TOTAL: 368 Health Professionals

Figure 2: Schematic presentation of sampling procedure

4.7 Variables

4.7.1. Dependent variable

- Cardiopulmonary resuscitation practice

4.7.2. Independent variables

- Socio-demographic factor: (Sex, Age, Profession's, Education level, setting, work experience)
- Level of knowledge
- Attitude

4.8 Data collection instrument

Structured self-administered questionnaires were used to collect data from respondents in order to asses' practice of CPR and associated factors among clinical practitioners. The data for this study was collected through a four-section questionnaire adopted after an extensive review of different literatures [29, 40, 42, 43].

Section A: The first part of the questionnaires contains 6 questions which will assess the socio-demographic factors of the respondents and developed by investigators.

Section B: The second part of the questionnaire contains 16 MCQs which assess the knowledge of respondent towards CPR that adopted from previous research conducted in Addis Ababa Ethiopia[43].

Section C: The third part the questioner contains 8 question which asses Attitudes of health professional's towards CPR that adopted from previous research conduct in Debre Markos Referral Hospital, Ethiopia[40].

Section D: The forth part the questioner also contains 10 MCQs which assess practice level of health professionals that adopted from previous research conduct in Addis Ababa ,Ethiopia[42] and this tool also found in previous research conducted in India to asses CPR practice level of junior doctors and students[29].

4.9 Method of data collection

4.9.1 Data collection procedure

Three data collectors, two (2) BSc nursing students for data collections and one BSc nursing student as supervisor were selected from outside of the investigators. The purpose of the study was explained to them to minimize bias and confusion during data collection. The supervisor and data collectors were trained for one day on basic principles of data collection, on questionnaire and how to gather information using interview by investigators. An additional training on data completeness, cross-checking and correction actions was given to the supervisor. Accordingly, the supervisor continuously was following and supervises data collectors. The supervisor was collected and cross-check the completeness of questionnaires received from data collectors and took corrective measures accordingly. In addition, the supervisor was report and discuss with the investigator on a daily basis throughout the data collection period. Finally, the data was compiled, cleaned and entered at the end of each data collections day.

4.9.2 Data collection technique

After developing structured self-administered questionnaire, English version questionnaire was used to collect data from participants. In the selected areas of study, clinical practitioners, who work at the various areas was assess through open and closed-ended questionnaire. Consent was taken from respondents who were eligible for the study and Data was gathered through questionnaire. The English version questionnaire was pretest on 19(5%) clinical practitioners, of sample working outside study hospital prior to the actual data collection.

4.9.3 Data quality assurance

Before conducting actual data collection, the tool was be pretested on 5% of sample on clinical practitioners working outside selected hospitals found in siltie zone at WCSH. The pretest aimed to assure the study participants can understand the questions and to check the sequence of the tool. Based on the result of pretest necessary amendment was made such as spelling errors, redundant words. The training was given for data collectors and supervisors on the intention of the study, approach to contact with study participants, and data collection techniques by investigators. Completeness, precision and coherence of data were verified by supervisor who also was provided feedback accordingly throughout data gathering time. Finally, data was code, clean, enter, and check for completeness before analysis.

4.10 Data processing and analysis

A questionnaire was checked for completeness and consistency after data collection. The data entered and analyzed by using SPSS version 25. Bivariate logistic regression and multiple logistic regressions were used to identify associated factors & the strength of association by using odd ratios with 95% CI. Frist in Bivariate logistic regression Variables that had p value $\leq$ 0.25 was identified and then those variables were entered in to multivariable logistic regression model. In a Multivariable logistic regression model using adjusted odds ratio (AOR) independent predicators of CPR practices to identify and variables that had P-Value $\leq$ 0.05 were taken as statistically significant. Descriptive statistics was used to see frequency, mean, standard deviation and percentage then finally obtained results was present by using simple frequency tables, graphs and charts as appropriate.

4.11Ethical consideration

Ethical letter was obtained from Wolkite University, college medicine and health science department of nursing. At the time of data collection, a verbal consent was asked from the participants given the right to do so. Confidentiality and privacy of respondent was ensured by not included the names of respondents and by ensured to participants that their identification not public and the objective of this study was clarified to respondents which may helped to keep the confidentiality of the respondents throughout the research process.

4.12. Operational definitions

Poor knowledge: who score less than 8(less than 50% of 16 question items) was consider having poor CPR knowledge[43].

Good knowledge: those who got score equal or above 8 was consider having good knowledge on CPR[43].

Favorable attitudes: who scoring ≥70% deemed to attitude questions[40].

Unfavorable attitudes: those who scoring <70% to attitude questions [40].

Good Practice: who score above mean score of BLS practice questions[44]..

Poor practice: who score less than or equal mean score of CPR practice questions [44].

5. RESULTS

5.1 Socio-Demographic Characteristics of health professions

368 samples had planned for the study, and 354 clinical practitioners were participated in the study with response rate of 96.2% and all 354 were included in the analysis. As expressed in table 1, more than half of the participants 218(61.6%) were female and 237 (66.9%) age were 26-30 years and the mean age (SD) was 29.85±2.72yr. When looking professions around of respondent 271 (76.6%) were Nurses and 265(74.9%) respondents had BSC degree. When looking setting and year of Experience more than half of respondent 208(58.8%) and 213(60.2%) were work on ward and had 1–5-year clinical experience respectively.

Table 1: Socio-demographic characteristics of clinical practitioners working in Gurage zone public hospitals, SNNPR, Ethiopia 2023.

Variables		Frequency	Percent (%)
Sex	Male	136	38.4
	Female	218	61.6
Age	≤ 25	9	2.5
	26-30	237	66.9
	31-35	100	28.2
	≥ 36	8	2.3
Profession	GP	22	6.2
	Nursing	271	76.6
	Midwifery	61	17.2
Education level	Diploma	29	8.2
	BSc (Bachelor of Science)	265	74.9
	MSc (Master of Science)	38	10.7
	MD (Doctor of Medicine)	22	6.2
Setting (current work station)	Ward	208	58.8
	Out Patient Department	18	5.1
	Emergency	69	19.5

	ICU	22	6.2
	Labor and Obstetrics	37	10.5
Work experience	<1	28	7.9
	1-5	213	60.2
	6-10	92	26.0
	>10	21	5.9

5.2. The overall knowledge of participants

Out of the total of study participants, around 187(52.8%), greater than half of clinical practitioners had poor knowledge, while the remaining 167(47.2%) scored good Knowledge towards CPR (see figure 3 below).

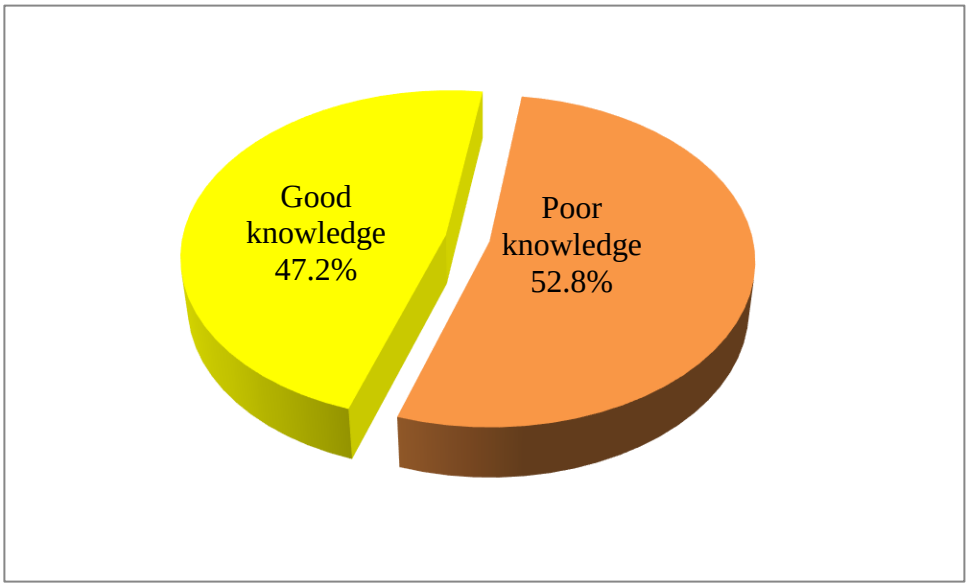


Figure 3: Cardiopulmonary resuscitation knowledge status of the clinical practitioners working in Gurage zone public hospitals, SNNPR, Ethiopia 2023(N=354).

5.3 The overall attitude of clinical practitioners

Clinical practitioners asked to score eight questions on a five-point Likert scale related to CPR. Among the 354 respondents, 193(54.5%) had a favorable attitude, whereas 161(45.5%) of participants had an unfavorable attitude towards CPR (see figure 4 below).

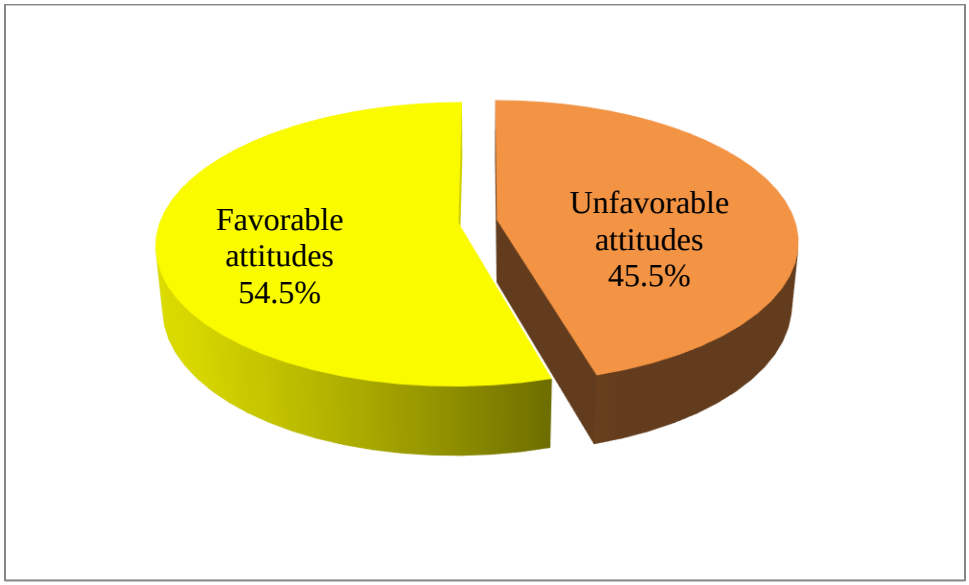


Figure 4: Cardiopulmonary resuscitation attitude status of the clinical practitioners working in Gurage zone public hospital, SNNPR, Ethiopia 2023

5.4. The overall practice of participants

Clinical practitioners that asked to score 10 practice-related questions towards CPR. Among the 354 respondents, 220(62.1%) had poor practice, whereas only 134(37.9%) of participants had good practice towards CPR (see figure 5 below).

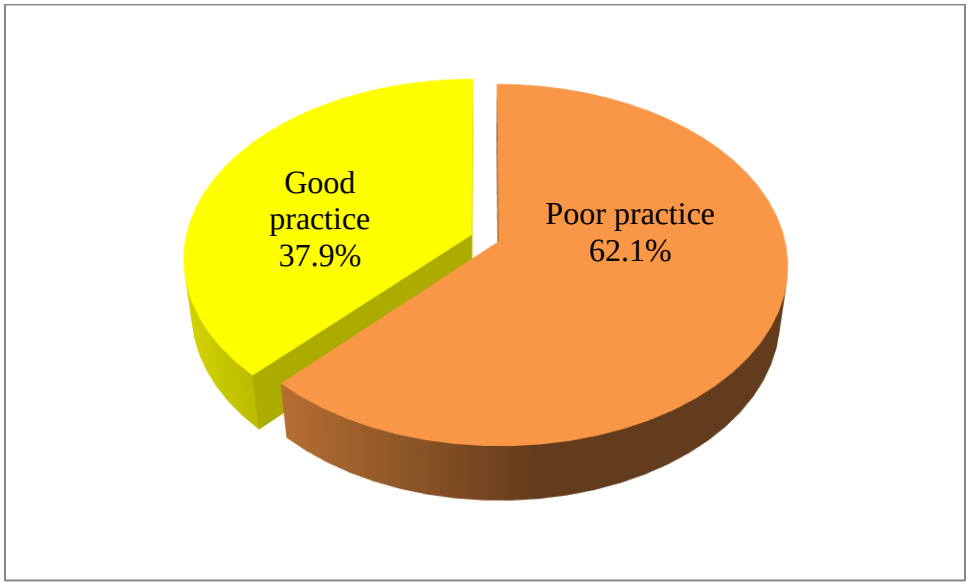


Figure 5: Cardiopulmonary resuscitation practice level of clinical practitioners working in Gurage zone public hospitals, SNNPR, Ethiopia 2023.

5.5 Factors associated with the practice of cardiopulmonary resuscitation

On Bivariate logistic regression analysis: six variables (Profession, Education level, setting (current work station), Work experience in hospital (in years), Knowledge, and Attitude) were associated with the dependent variable at a p-value ≤0.25. From them, on multiple logistic regression analysis four variables (Setting (current work station), Work experience, Knowledge, and Attitude) were significantly associated with the practice of clinical practitioners towards CPR at the p-value of ≤0.05. In addition, the study revealed that clinical practitioners working Setting on Emergency were Four times more likely to practice CPR than Labor and Obstetrics [AOR=4.301, 95%CI (1.455 - 12.710)]. And also, a clinical practitioner working setting on ICU were Four times more likely to practice CPR than on labor and obstetrics [AOR=4.196, 95%CI (1.133 - 15.537)]. A clinical practitioner who had working experience of >10 year were seven times more likely to practice of CPR than who had <1 year of working experience [AOR=6.969, 95%CI (1.456 - 33.361)]. Knowledgeable clinical practitioners were Five times more likely to practice CPR than those had poor knowledge [AOR=4.778, 95%CI (2.718 - 8.401)]. A clinical practitioners who had favorable attitude were Two times more likely to practice CPR than those who had unfavorable attitude [AOR=1.754, 95%CI (1.036 - 2.967)].(see Table 2 below)

Table 2:Bivariate and Multivariate analysis of factors associated with the practice of cardiopulmonary resuscitation among clinical practitioners working in Gurage zone public hospitals, SNNPR, Ethiopia 2023.

Variables		Practice		COR (95% CI)	AOR (95% CI)	P-Value
		Poor	Good			
Profession	Physician	7(31.8%)	15(68.2%)	3.54 (1.257 - 9.975)	1.24(0.065-23.38)	0.888
	Nursing	175(64.6%)	96(35.4%)	0.906 (0.510 - 1.610)	0.614(0.300-1.256)	0.181
	Midwifery	38(62.3%)	23(37.7%)	1	1	
	Diploma	18(62.1%)	11(37.9%)	1	1	

Education level	BSc (Bachelor of Science)	181(68.3%)	84(31.7%)	0.759 (0.343 - 1.679)	1.14(0.436-2.981)	0.79
	MSc (Master of Science)	14(36.8%)	24(63.2%)	2.805 (1.033 - 7.614)	1.875(0.549-6.407)	0.316
	MD (Doctor of Medicine)	7(31.8%)	15(68.2%)	3.506(1.089 - 11.291)	1.787(0.106-30.055)	0.687
Setting (current work station)	Ward	147(70.7%)	61(29.3%)	1.504 (0.651 - 3.476)	2.186 (0.835 - 5.720)	0.111
	Out Patient Department	13(72.2%)	5(27.8%)	1.394 (0.382 - 5.089)	1.903 (0.413 - 8.761)	0.409
	Emergency	22(31.9%)	47(68.1%)	7.744 (3.049 - 19.671)	**4.301 (1.455 - 12.710)**	**0.008***
	ICU	9(40.9%)	13(59.1%)	5.236 (1.649 - 16.626)	**4.196 (1.133 - 15.537)**	**0.032***
	Labor and Obstetrics	29(78.4%)	8(21.6%)	1	1	
Work experience in hospital (in years)	<1	17(60.7%)	11(39.3%)	1	1	
	1-5	139(65.3%)	74(34.7%)	0.823 (0.366 - 1.848)	1.864 (0.661 - 5.252)	0.239
	6-10	60(65.2%)	32(34.8%)	0.824 (0.345 - 1.970)	1.200 (0.396 - 3.637)	0.747

	>10	4(19%)	17(81%)	6.568 (1.742 - 24.766)	**6.969 (1.456 - 33.361)**	**0.015***
Knowledge	Poor knowledge	152(81.3%)	35(18.7%)	1	1	
	Good knowledge	68(40.7%)	99(59.3%)	6.323 (3.913 - 10.217)	**4.778 (2.718 - 8.401)**	**0.0001***
Attitude	Unfavorable attitudes	110(68.3%)	51(31.7%)	1	1	
	Favorable attitudes	110(57%)	83(43%)	1.627 (1.051 - 2.521)	**1.754 (1.036 - 2.967)**	**0.036***

N: B: COR: crude odds ratio, AOR: adjusted odds ratio, * indicates significant at p-value ≤ 0.05

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6. DISCUSSION

Clinical practitioner is believed to be knowledgeable, have good attitude and are competent in caring for patients. In hospitals deterioration of patients can be gradual and preventable if health professionals manage their patients closely using their knowledge and skills in resuscitation [6, 7].

Cardiopulmonary arrest is a major health problem worldwide and is common especially in areas with low income, which may be associated with inadequate medical care and facilities[48, 49]. Hence good cardiopulmonary resuscitation (CPR) knowledge, skill and favorable attitude are extremely important in preventing cardiac arrest and reviving the life of a patient who suddenly collapsed. However, clinical practitioner often fails to provide high quality CPR. Also, poor-quality CPR has been shown to have similar outcomes to patients receiving no CPR [50].

In this study clinical practitioners who had good practice to wards CPR were 37.9%. This finding consistent with study conduct in Kenya 38.9%[38],Ethiopia 35.8%[44].

This study finding higher than study conduct in Ethiopia, Amhara regional referral hospital 28.4% [46]. The possible explanation for variation might be related to study period, the above study conducted at 2016 G.C before seven years ago.

However, the finding lower than study conduct in Nigeria 65.2%[33],Ghana 52.8%[39]. The possible explanation for variation might be related to CPR Training, sampling method and sample size, the above study's Ghana were conducted using convenience sampling method and Nigeria study sample size were (135) and conducted on small study participants.

The current study found a statistically significant association between the respondents' Setting (current work station), with the practice of clinical practitioners towards CPR in the multivariate logistic regression analysis.

A clinical practitioners working Setting on Emergency and ICU were Four times more likely to practice CPR than Labor and Obstetrics. This finding consistent with study conduct in India [37], Ethiopia [34]. The possible explanation for this might be that most of the time patients visiting emergency and ICU departments are those who are severe cases which require cardiopulmonary resuscitation to sustain the life of the victims. As a result, health professionals assigned to the emergency and ICU department have more chances to face patients who need CPR procedures and

perform the maneuvers repeatedly than health professionals assigned to another ward. Also, it was found in the multivariate binary logistic regression analysis respondents of work experience were significantly associated with CPR practice.

A clinical practitioner who had working experience of >10 years were seven times more likely to practice of CPR than who had <1 year of working experience. This finding consistent with study conduct in Ethiopia [34].Experience has an impact to apply the knowledge into practice. Those experienced health professionals face a lot of challenges in health settings which provide the courage, strength, and skill to apply cardiopulmonary resuscitation.

As it was found in the multivariate binary logistic regression analysis knowledge were significantly associated with CPR practice. Knowledgeable clinical practitioner were Five times more likely to practice CPR than those had poor knowledge. This finding consistent with study conduct in Kenya [38],Nigeria [33],Ghana [39],Ethiopia [43],[34],[46]. The possible explanation might be that in order to practice the procedure the grounding is the theoretical knowledge which means knowing might be the driving force to apply it into practice.

As it was found in the multivariate binary logistic regression analysis attitude were significantly associated with CPR practice. A clinical practitioner who had favorable attitude were Two times more likely to practice CPR than those who had unfavorable attitude. The Finding different from study conduct in Ethiopia [44].The possible explanation for variation might be the study conducted by include only nurse health profession and the sample size small while current study conduct by include three health professions and include the study participant two times of that one.

7. CONCLUSION AND RECOMMENDATION

7.1 Conclusion

In this study, over half of the clinical practitioners have poorly practiced cardiopulmonary resuscitation (CPR). Clinical practitioners practice of CPR was substantially correlated with factors, knowledge, attitude, work experience and setting (current workplace). Therefore, it is strongly advised that all clinical practitioners have good knowledge and attitudes towards CPR and regular rotation of working place, training and updated information regarding CPR in hospitals are very essential.

7.2 Recommendations

For researchers

Further study required by using cohort study design.

For all hospitals

To provide opportunities for employees' work setting on Emergency and ICU.

To open training opportunities regularly

For clinical practitioners

To keep update their knowledge and attitude by read latest CPR guideline.

9. STRENGTH AND LIMITATIONS

9.1 Strengths of the study

- ✓ This study was the first Gurage zone survey of practice of CPR and its associated factors.
- ✓ We obtained a high response rate which is 96.2%.

9.2 Limitations of the study

- ✓ The use of only a questionnaire, which acts as a measure of mainly theoretical knowledge, is a limitation of this study. On the other hand, practical performance necessitates both theoretical and psychomotor abilities.
- ✓ Since the study design of this study is cross section which does not show the cause and effects of association between dependent and independent variables.
- ✓ Data were gathered through anonymous self-report method, which could have negatively influenced the reliability of our data.

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ANNEXS -1 English version questionary

WOLKITE UNIVERSITY COLLEGE OF MEDICEN AND HEALTH SCIENCE

DEPARTEMENT OF NURSING

English informed consent /assent form

Participant Code_____ Date: DD/MM/YY

____/_____/_____.

INFORMATION SHEETS

We are comes from Wolkite university. We will be conducting a study on factors affecting practice of CPR among health professionals working in Gurage zone for a partial fulfillment requirement of a BSC degree in Nursing. We here to assess factors affecting practice of CPR among health professionals working in Gurage zone. We would appreciate your participation in this study and selected to participate in this study. So you are kindly requested to respond to all statements or questions based on the instruction given. Your information is used only for research purposes and is kept confidential. The following is some general information about the study.

Objectives of the study: This study aimed to assess factors affecting practice of CPR among health professionals working in Gurage zone 2023.

Confidentiality: All information obtained from you will be kept private and will not be shared with any third parties; your name will not be recorded on the question sheet, ensuring that you will not be known for any reason**.**

Consent: Your willingness to take part in the study will determine your participation. You have the option to either not participate at all or to stop participating at any time after you have begun. **Rights as a participant:** Please feel free to contact me if you have any questions about the study. It is entirely up to you whether you participate in this study. In addition, I hope you will take part in this survey because your opinions are extremely valuable. **Informed consent, are you voluntarily participating in this study? A. Yes: B. No**

Email: deramk95@gmail.com , duretiisrael47@gmail.com , betelhemabebe20@gmail.com

General instruction: *For close ended questions choose the appropriate response that reflect answer and encircle the code immediately answers box. For open ended question, give response accordingly.*

SECTION A: socio-demographic variable Questions

NO	Questions	Response	
1	Sex	Male	1
		Female	2
2	Age in a year _____		
3	Profession	Physician	1
		Nursing	2
		Midwifery	3
4	Education level	Diploma	1
		BSc (Bachelor of Science)	2
		MSc (Master of Science)	3
		MD (Doctor of Medicine)	4
5	Setting (current work station)	Ward	1
		Out Patient Department	2
		Emergency	3
		ICU	4
		Labor and Obstetrics	5
6	Work experience in hospital (in years)	<1	1
		1-5	2
		6-10	3
		>10	4

SECTION B: **Knowledge assessment questions**

NO	Questions	Answer options	Answer code
1	What does the abbreviation BLS stand for?	Best Life Support.	1
		Basic Lung Support.	2
		Basic Life Support.	3
		Basic Life Services.	4
2	Basic concept of BLS	Recognizing and treating life threatening condition.	1
		Taking complete history	2
		Coming to definitive diagnosis problem	3
3	If you find someone unresponsive in the middle of the road, what will be your first response? (Note: You are alone there)	Open airway	1
		Start chest compression	2
		Look for safety	3
		Give two breathings	4
4	If you confirm somebody is not responding to you even after shaking and shouting at him, what will be your immediate action?	Start CPR	1
		Activate EMS	2
		Put him in recovery position	3
		Observe	4
5	Where is the exact location for chest compression?	Left side of the chest	1
		Right side of the chest	2
		Centre of the chest on lower half of breast bone	3
		Xiphisternum	4
6	What is the location for chest compression in infants?	At the inter mammary line	1
		One finger breadth below the nipple line	2
		One finger breadth above the nipple line	3
		At Xiphisternum	4

7	How do you give rescue breathing in infants?	Mouth-to-mouth with nose pinched	1
		Mouth-to-mouth and nose	2
		Mouth-to-nose only	3
		Mouth-to-mouth without nose pinched	4
8	What is recommended a ventilation rate of breaths per minute for adults?	8-10 breathe per minute	1
		10-12 breath per minute	2
		20-30 breath per minute	3
		1-10 breath per minute	4
9	What is depth of compression in adults during CPR?	At least 2 inches	1
		2½ – 3 inches	2
		1 – 1½ inches	3
		1½ inch	4
10	What is depth of compression in Children during CPR?	2 inches	1
		2 - 2½ inches	2
		1 - 1½ inches	3
		½ – 1 inch	4
11	What is depth of compression in neonates during CPR?	1½ – 2 inches	1
		2- 2½	2
		1 inch	3
		approximately 1½ inch	4
12	The rate of chest compression in adult and Children during CPR	Below 100 / min	1
		Approximately 100 / min	2
		80 / min	3
		100-120 / min	4
13	What does abbreviation AED stands for?	Automated External Defibrillator	1
		Automated Electrical Defibrillator	2
		Advanced Electrical Defibrillator	3
		Advanced External Defibrillator	4
14	What does abbreviation EMS stands for?	Effective Medical Services	1
		Emergency Management Services	2

		Emergency Medical Services	3
		External Medical Support	4
15	If you and your friend are having food in a canteen and suddenly your friend starts expressing symptoms of choking but responsive, what will be your first response?	Give abdominal thrusts	1
		Give chest compression	2
		Confirm foreign body aspiration by talking to him.	3
		Give back blows	4
16	If you observe infant in chocking but responsive, what will be your action/s?	Give Back blow	1
		Give abdominal thrusts	2
		Give chest thrusts	3

SECTION C: Attitude Related Question towards CPR

NO	Attitude-assessment variables	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	strongly agree (5)
1	I have adequate training					
2	BLS training before practice					
3	ACLS(Advanced cardiac life support) training before practice					
4	CPR training every 2 years					
5	Include CPR course in the curriculum					
6	Willing to give mouth-to-mouth ventilation					

7	Health workers do not understand the principles behind CPR					
8	Hope of survival after CPR					

SECTION D: Practice Related Question towards CPR

NO	Questions	Answer options	Answer code
1	The 5 links in the adult Chain of Survival include all of the following EXCEPT:	Early CPR	1
		Integrated post cardiac arrest care	2
		Advanced airway placement	3
		Rapid defibrillation	4
2	How often should rescuers switch roles when performing 2-rescuer CPR?	After each cycle	1
		After 2 cycles	2
		After 5 cycles	3
		After 10 cycles	4
3	The initial Basic Life Support (BLS) steps for adults are:	Assess the victim, give 2 rescue breaths, defibrillate, start CPR	1
		Assess the victim, activate EMS & get AED, check pulse, start CPR	2
		Check pulse, give rescue breaths, assess the victim, defibrillate	3
		Assess the victim, start CPR, give 2 rescue breaths, defibrillate	4
4	Where should you attempt to perform a pulse check in adult?	Carotid	1
		Brachial	2
		Ulnar	3
		Temporal	4
5		15:1	1

	The compression to ventilation ratio for the lone rescuer giving CPR to victims of ANY age is:	15:2	2
		30:1	3
		30:2	4
6	The proper steps for operating an AED are:	On the AED, attach electrode pads, shock the patient, analyze the rhythm	1
		On the AED, attach electrode pads, analyze the rhythm, clear the patient, deliver shock	2
		Attach electrode pads, check pulse, shock patient, analyze rhythm	3
		Check pulse, attach electrode pads, analyze rhythm, shock patient	4
7	The 2010 AHA Guidelines for CPR recommended BLS sequences of steps are: -	Chest compressions, Airway, Breathing	1
		Airway, Breathing, Check Pulse	2
		Airway, Breathing, Chest Compressions	3
		Chest compression, Airway placement, Breathing	4
8	Signs of severe airway obstruction include all of the following EXCEPT?	Poor air exchange	1
		High-pitched noise while inhaling	2
		Unable to cry	3
		May wheeze between coughs	4
9	In an adult with an advanced airway in place during 2-rescuer CPR, breaths should be administered how often?	Every 5 seconds	1
		Every 5-6 seconds	2
		Every 6-8 seconds	3
		Every 10-12 seconds	4

10	The critical characteristics of high-quality CPR include which of the following?	Starting chest compressions within 10 seconds of recognition of cardiac arrest	1
		Push hard, push fast	2
		Minimize interruptions	3
		All of the above	4