



Saint Paul's Hospital Millennium Medical Collage
Department Of Emergency and Critical Care Medicine

Assessment of knowledge, attitude and practice on cardio pulmonary resuscitation among interns of saint Paulo's millennium medical college and Tikur Anbessa specialized hospital.

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Addis Ababa, Ethiopia

December, 2023



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**Assessment of Knowledge, attitude and practice on CPR among interns of
SPHMMC and TASH, Addis Ababa Ethiopia**

**A thesis submitted to the department of emergency medicine and critical care,
in partial fulfillment of specialty training**

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Abstract

Background Cardiopulmonary arrest is a major public health problem. Cardiopulmonary resuscitation (CPR) is an important life-saving technique, consisting of chest compression and rescue breathing and used to treat victims of cardiopulmonary arrest by helping to maintain oxygenated blood circulation in the body. The chance of survival after cardiopulmonary arrest may be increased with quality CPR that mainly depends on the sufficiency of the knowledge, attitude and skill/practice of health professionals who deliver the CPR. This study evaluates the knowledge, attitude and practice among medical interns of SPHMMC and Tikur Anbessa Specialized Hospital in performing CPR.

Methods: A cross sectional study was conducted from October 2023 to November 2023, among medical interns of SPHMMC and TASH. Structured questionnaires of 2020 American health association guidelines for CPR and basic life support (BLS). Online Google form software was used for data collection on the knowledge, attitude and practice in performing CPR among study participants who fulfilled the inclusion criteria.

Results: A total of 257 medical interns were fill on the online Google form with response rate of 74.49 % from total numbers interns 345(105 & 240, SPHMMC/TASH respectively). Of the respondents, 133 (51.8%) were males and the rest 124 (48.2%) were females. Majority of the medical intern 206(80.1%) belongs to 24-25 age group with number of male 133(51.8%) and female 124(48.2%) respectively. From knowledge score of the respondents (n=257), 93(36.2%) have adequate knowledge and 37.7% have good practice with majority of them 91.5% have positive attitudes with respect to CPR. Factors like sources of knowledge, ED attachments and sex have association with knowledge of medical interns that have participated in the study.

Conclusion: The study revealed inadequate knowledge and bad practice about CPR among medical interns. Majority of the participants had positive attitude. At institution, medical interns' knowledge and attitude scores were more/less comparable.

Keywords: Cardiac arrest, BLS, CPR, Medical intern

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LIST OF ACRONYMS

SPMMC saint Paul Hospital Millennium Medical Collage.

TASH Tikur Anbessa Specialized Hospital

ACLS Advanced Cardiac Life Support

BLS Basic Life support

CA Cardiac Arrest

CPR Cardiopulmonary Resuscitation

ER Emergency Room

KAP Knowledge Attitude and Practice

MD Medical Doctor

MICU Medical Intensive Care Unit

No. Number

Q Question

SCD Sudden Cardiac Death

SD Sudden Death

SPSS Statistical Package for Social Science

VF Ventricular Fibrillation

VT Ventricular Tachycardia

X² Chi Square

EMCC- Emergency Medicine and Critical Care

WHO- World Health Organization

CHAPTER 1: Introduction

1.1. Background

Cardiopulmonary resuscitation is a vital component of Basic Life Support (BLS) and Advanced Life Support (ALS). Cardiopulmonary resuscitation is a combination of rescue breathing and chest compression, which is delivered to the victims who are thought to be in cardiac arrest (1).

Cardiopulmonary resuscitation is an important medical procedure which is performed in an effort to manually preserved intact brain function until further measures are taken to restore normal spontaneous blood circulation and breathing in a person in cardiac arrest. Being important members of the health care team; medical students are deemed to passes the basic skills and expertise which are needed to perform CPR (1). The ability to respond quickly and effectively to cardiac arrest situation rests on health care team and medical students being competent in emergency lifesaving procedure of cardiopulmonary resuscitation (1).

Cardiopulmonary resuscitation (CPR) may be a series of life saving actions that improve the prospect of survival following asystole. It is an emergency procedure which is sought in an effort to return life of a person from cardiac arrest. Cardiopulmonary arrest is a major public health problem (2); (3). It is more common in low socio-economic areas (4); (5) and is one of the most common unfortunate incidents that may occur in and out of the health facilities (6); (7); (8). Cardiopulmonary resuscitation (CPR) is an important life-saving technique (11) and consists of chest compression and rescue breathing (12). It is an emergency procedure used to treat victims of cardiopulmonary arrest which can help to maintain oxygenated blood circulation in the body (12). CPR will be continued until the heart can be restarted (12). The quality of CPR mainly depends on the sufficiency of the knowledge, attitude and skill of health professionals who deliver the CPR (13); (14); (15); (16).

1.2. Statement of the Problem

The very frustrating and shocking experience for medical community and to the families left behind is Sudden Death (SD) in young person. Half of sudden cardiac death that has occurred is considered to be in good health status young individuals (1). Cardiac arrest is leading cause of death all over the world. WHO estimated that more than 17.5 million people died from cardiovascular diseases such as heart attack and stroke in 2012 and more than three out of four occur in low income countries (17). CPR can be life-saving when provided by well-trained person. Several researches have showed that prompt delivery of CPR has served as an important predictor of survival; and might almost double the chance of survival. The probability of survival from asystole falls by 10-15% per minute without treatment. However, in well performed CPR likely shifts this curve towards a higher probability of survival (18).

Many surveys done on knowledge, attitude and skill/practice of Interns towards CPR in India revealed that, their knowledge and practice status is low and they were not confident to do CPR (19); (20).

Sudden cardiac death (SCD) may occur at any time, at any place to any person. So knowledge of Basic Life support (BLS) and practice of simple CPR techniques ensures the survival of the patient long enough till experienced medical help arrives. In most cases CPR by itself is sufficient for survival (18). Ideally, everyone should know BLS and CPR, but its awareness to medical personnel is invaluable as they face many such situations in their life especially for budding doctors who will have tackled this kind of emergencies in their medical practice. So qualifying Medical Interns with knowledge, attitude and practice/skill of CPR are paramount to significantly save the life of cardiac arrest victims.

1.3. Rationale of the Study

Cardiac arrest continues to be a serious explanation for death in much of the patient today. Although there are studies done on Medical Interns with other health professionals in other universities, there are still few studies done on assessments of knowledge, attitude and practice (KAP) and associated factors towards CPR among Medical interns in Ethiopia particularly in Addis Ababa. The mortality rate associated with cardiac emergencies can significantly be decreased by addressing the gap in knowledge and practice of basic life support (BLS) skills among health professionals.

In Addis Ababa, insufficient data are present which addresses the knowledge, attitude and practice of medical students, doctors, and paramedical staff regarding this highly effective and easy maneuver. This study aims to investigate the knowledge, attitude and practice in performing CPR among medical interns of Tikur Anbessa Specialized Hospital (TASH) and SPHMMC which will help in understanding the deficits and for further formulating medical education protocol/curriculum and it provides an update possibly new information regarding knowledge, attitude, and practice of medical interns towards CPR in Ethiopia specifically in Addis Ababa.

Additionally, it can serve as source of information for other researchers and health care professionals who will be interested on the related field.

CHAPTER 2: Literature Review

2.1. Knowledge of Medical Interns towards CPR

Knowledge in this document refers to a familiarity, awareness, or understanding of medical interns, with regard to CPR facts. Study from India revealed that 36% of Medical interns had poor knowledge score (19). Knowledge of BLS/CPR is poor in medical students. A significant portion of trainees don't acquire adequate knowledge during a single session of coaching CPR. An organized curriculum for BLS and its protocolized training is the need of the hour in medical education (18). Another study done in India also indicated inadequate knowledge (45.25%) among medical interns (23), regarding knowledge and practice/skills of BLS/CPR were poor in medical interns although they have shown an excellent attitude towards it. Significant knowledge gap was found which was depicted in proportions and knowledge score. Self-grading regarding BLS among 22.7% of participants was above average. Initiating BLS/CPR was low in 67% of the study participants with lack of professional training considered to be the main cause of that (24). Studies conducted in Iran and New Zealand showed that the knowledge of interns and newly qualified doctors were substandard (17); (21); (22).

In Egypt, CPR certification is not required for graduation from the medical school nor for registration in the Egyptian Medical Syndicate following graduation. Therefore, it can be hypothesized that both medical students and junior doctors in Egypt have inadequate knowledge of CPR and have neutral or negative attitudes towards the practice.

According to study done on medical student in Jimma University about (227) 93.3% of the respondents had excellent knowledge about CPR with which, fifth year 88(36.1%), fourth year 83(34.2%) and interns 56(23%) respectively. 6.7% of them had poor knowledge (20). The study done at AAU showed that the overall knowledge score were very low among medical interns. Only 19(8.7%) from TASH and 6(2.8%) from YHMC of medical interns have good and very good knowledge regarding CPR.

2.2. Attitude of Medical Interns towards CPR

Study from India which was done on medical interns and nursing interns revealed that almost all of the participants (99%) viewed that BLS is important and suggested that it should be part of the teaching curriculum. According to this study, 51% of the study participants haven't performed

CPR voluntarily while 47% participants that are (30% MBBS and 64% nursing interns) have performed CPR voluntarily (19).

Almost all of respondents of Jimma University (98.3%) belief that CPR training before graduation is vital, which is higher in comparison to review wiped out Singapore, which accounts 85.5. 93.8% of the respondents found to have positive attitude as compared to 7.4% of respondents noticed with negative attitude (20). However, study conducted in University of Gondar Teaching Hospital showed that the overall attitude scores of health science graduates students including medical interns were poor (57.1%) and concluded that training on CPR for graduate health professionals needs to be given emphasis (25).

2.3. Practice of Medical Interns towards CPR

According to study done in Malaysia, 82.9% said they had attended cases of CPR and 17.1% admitted that they had never attended any cardiac arrest before (19). Another study conduct in Nigeria, out of 53 respondents, 85% had been actively involved in the resuscitation of patients 41.54% were rarely involved in the resuscitation of patients while 4.62% had never been involved in the resuscitation of patients (26).

In Ethiopia, study that has been done Jimma University showed that from a total respondents, 19.7% of medical students were practicing CPR of which 2.5% fifth year; 16.8% were interns whereas the rest is fourth year. In all 196 (80.7%) students were not practicing CPR. According to study from University of Gonder, skill level of graduate health professionals with reference to CPR were insufficient (25).and another study from India revealed that 42% of MBBS interns had poor practice score (20).

Knowledge of CPR is an important part of medical student's training but there is still some routine training included in post graduate physician in developing countries like Ethiopia, thus, medical graduates when they become general practitioner or post graduate often face difficulty in emergency situations.

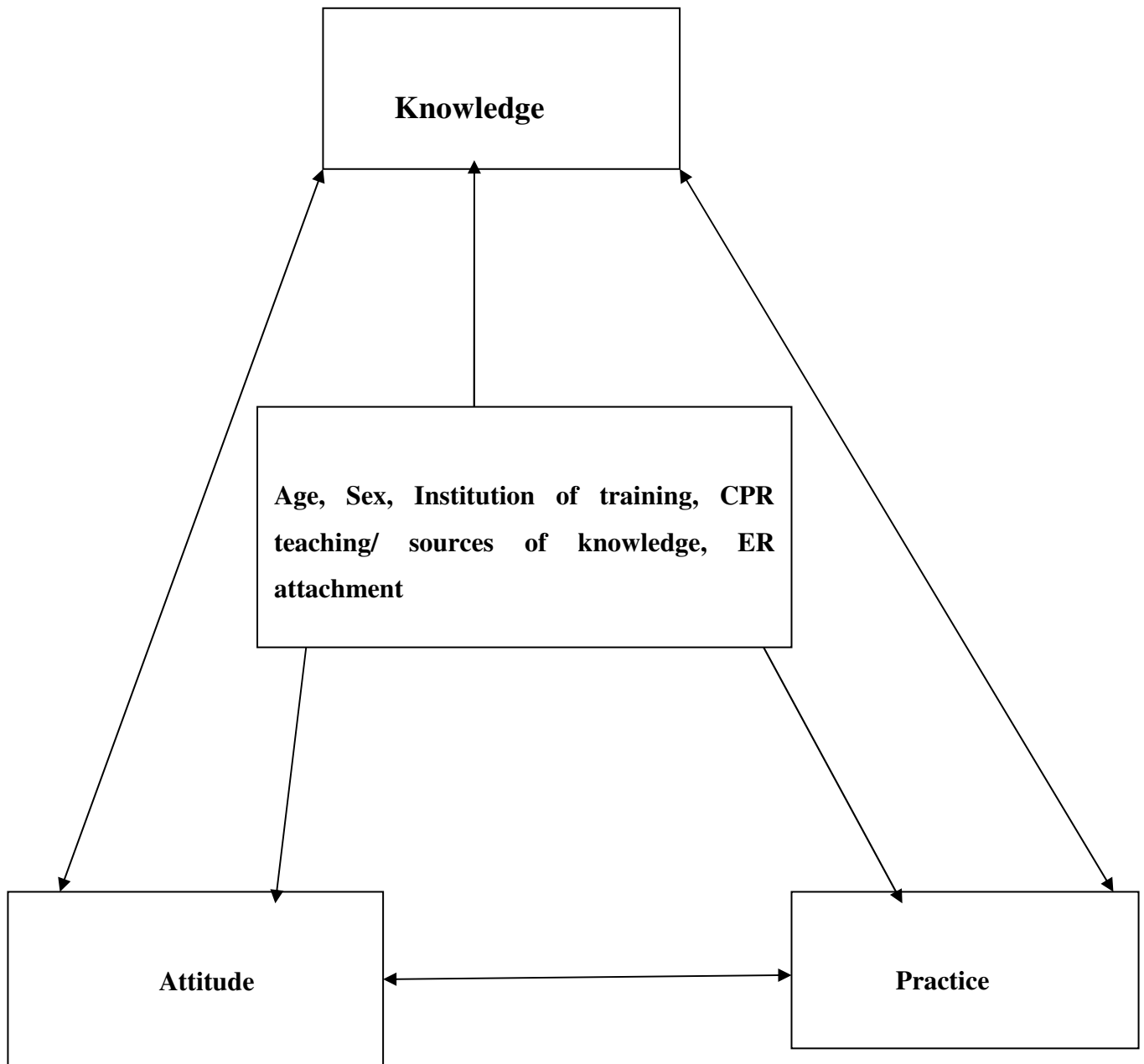


Figure 1: Conceptual framework of KAP on CPR at SPHMMC and TASH, 2023.

CHAPTER.3. Objective

3.1 General Objective

- ✓ To assess the knowledge, Attitude & practice on CPR among medical interns in SPHMMC and Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia, 2023.

3.2 Specific Objectives

- ✓ To explore knowledge level on CPR among medical interns in SPHMMC and Tikur Anbessa Specialized Hospital (TASH).
- ✓ To evaluate attitudes of medical interns in TASH and SPHMMC on performing CPR.
- ✓ To assess practice level regarding CPR among medical interns in TASH and SPHMMC.

CHAPTER 4: Methodology

4.1. Study Area and Period

The study was conducted at St. Paul's Hospital Millennium Medical College and Tikur Anbessa hospital from October 1, 2023 – November 30, 2023. SPHMMC is established in 1968 by the late Emperor Haile Sillase as Saint Paul Hospital. It is a specialized teaching hospital located in the north-western part of Addis Ababa, the capital of the country. Its catchment population is well over 7 million, making it one of the largest referral centers in the country. As a tertiary center, it receives patients from every corner of the country, most of whom coming from the central areas of the country.

TASH is located in Addis Ababa, capital city of Ethiopia, which is the biggest specialized hospital in the country and receives many patients from the city of AA and all over the country. 11 years back TASH started emergency medicine specialty program which is first of its kind in the country. Currently the ED is giving service as independent department.

4.2. Study Design:

This is an institutional based descriptive cross-sectional study, which was conducted on SPHMMC and TASH medical interns using structured questionnaire based on American health association guidelines for CPR and basic life support (BLS).and theoretical practice Test of National Health Care Provider Solutions. Questions were used to assess the knowledge, attitude, and practice among study participants in performing CPR

4.4. Study Population:

4.4.1. Source Population

4.3.1. Source of Population

All medical interns of SPHMMC and Addis Ababa University College of health Science Tikur Anbessa Specialized Hospital those were practicing internship.

4.3.2. Sample Population

4.3.2. Study population

All medical interns of AAU, College of Health Science TASH and SPHMMC those that practicing their internship.

4.4.3 Inclusion Criteria

All medical interns who were practicing their internship at the two institutions (SPHMMC and TASH) during the study period.

4.4.4. Exclusion criteria

1. Not giving consent or unable to participate in the study for different reasons
2. Interns absent from work or on leave during data collection period

4.5. Sample Size Determination and Sampling Procedure

4.5. Sample size Determination and Sampling Technique

4.5.1 Sample size Determination

Sample size determination was based on available number of all medical interns participating in the study from the two institutions (TASH & SPHMMC) during data collection period.

4.5.2. Sampling Technique

All medical interns who fulfilled the inclusion criteria were selected purposively.

4.5.3 Data collection methods and Data collection tool

Data was collected by anonymous online Google form standard questionnaire which consists of socio-demographic information and related factors, Knowledge (10), Attitude (5) and Practice (10) questions that obtained and modified from 2020 AHA guidelines for CPR and ECC and BLS practice test of National Health Care Provider Solutions.

Knowledge and practice questionnaire were structured as multiple choice questions and attitude based questions were structured as yes/no/not sure pattern. Data was collected in the same questionnaire as marked response and was used for data analysis. Equal marks were given for each question and scores was converted to percentage scale for each of the knowledge, attitude and practice questions of CPR.

4.4.4 Data Collection Procedure

Data was collected by a structured questionnaire with software Google form online after verbal consent was taken. The questionnaire was filled by Medical interns. Then the data was checked for completeness and validity.

4.5 Variables

Variables are determinant factors related.

4.5.1 Dependent variable

Knowledge, Attitude, Practice

4.5.2 Independent variables

Age, Sex, Institution of training, CPR teaching, ER attachment

4. 6. Operational Definitions

Attitude: - Refers to manner, disposition, feeling, position, etc., of interns regarding to CPR for selected emergencies to the structured attitude questionnaire used for this study and those who answered below 70% were considered as negative attitude and those answer 70% and above to the attitude questions on CPR were considered to have positive attitude.

Knowledge: based on ten questions assessing the knowledge of respondents about cardiac arrest management, those scoring $\geq 70\%$ were deemed to adequate knowledge and those scoring $< 70\%$ inadequate knowledge

Practice: - Refers to academic application of knowledge and skills on CPR and classified as bad and good based on practical scoring.

Advanced life support:- is cardiopulmonary resuscitation technique that is performed after Basic Life Support (BLS) is maintained using electronic device and drugs.

Basic life support: - is managing air way, breathing and circulation for patients with cardiac arrest without drug administration.

Medical interns: - are medical students who have passed qualification exam and are working under supervision by qualified medical doctors (physicians) and will become general practitioner after completing internship practices.

4.7 Data Quality Control

Based on the finding possible amendments were made on the questionnaires. After wards data was collected by the principal investigator on daily basis throughout the data collection period. After completion of the data collection, each questionnaire was checked for completeness.

4.8 Data Processing and Analysis

After the data collection the data was cleared, coded and entered to computer by using SPSS version 20.0.0 for analysis. Data analysis included descriptive statistics, frequency, percentage, and mean.

4.9. Ethical Consideration

Ethical clearance was obtained from SPHMMC, department of emergency medicine and critical care, Research Review Board Committee. Informed verbal consent was obtained from respondents prior to their enrollment into the study. In addition, all the responses was kept confidential and anonymous by assuring that any personal information was never passed to any individuals or institutions during the study period as well as during dissemination of the study result.

4.10. Dissemination of the Result Plan

The results of this study will be disseminated to SPHMMC, department of emergency medicine, Addis Ababa University College of health science library, Ministry of health and Ministry of science and higher education. Further effort will be made to publish the findings on national or international journals.

CHAPTER 5: RESULT

5.1 Socio-demographic characteristics of respondents:

A total of 257 medical interns were fill on the online Google form, 91 (35.4 %) were from SPHMMC and 166 (64.6%) from AAU, TASH with response rate of 74.49 % from total numbers interns 345(105, & 240, SPHMMC/TASH respectively). Of the respondents, 133 (51.8%) were males and the rest 124 (48.2%) were females.

Majority of the medical intern 206(80.2%) belongs to 24-25age group from this 70(76.9%) were SPHMMC while 136 (81.9%) were TASH. From this age group male accounts 42.9% and 56.6 in SPHMMC and TASH respectively.

Table 1:-Socio-demographic characteristics of medical interns at SPHMMC and TASH, assessment of knowledge, attitude and practice on cardio pulmonary resuscitation, 2023

Variable		SPHMMC		TASH	
		Frequency	Percent	Frequency	Percent
Age	23	3	3.3	3	1.8
	24	34	37.4	51	33.1
	25	46	50.5	85	51.2
	26	8	22.9	27	16.2
Sex	Male	39	42.9	94	56.6
	Female	52	57.1	72	43.4

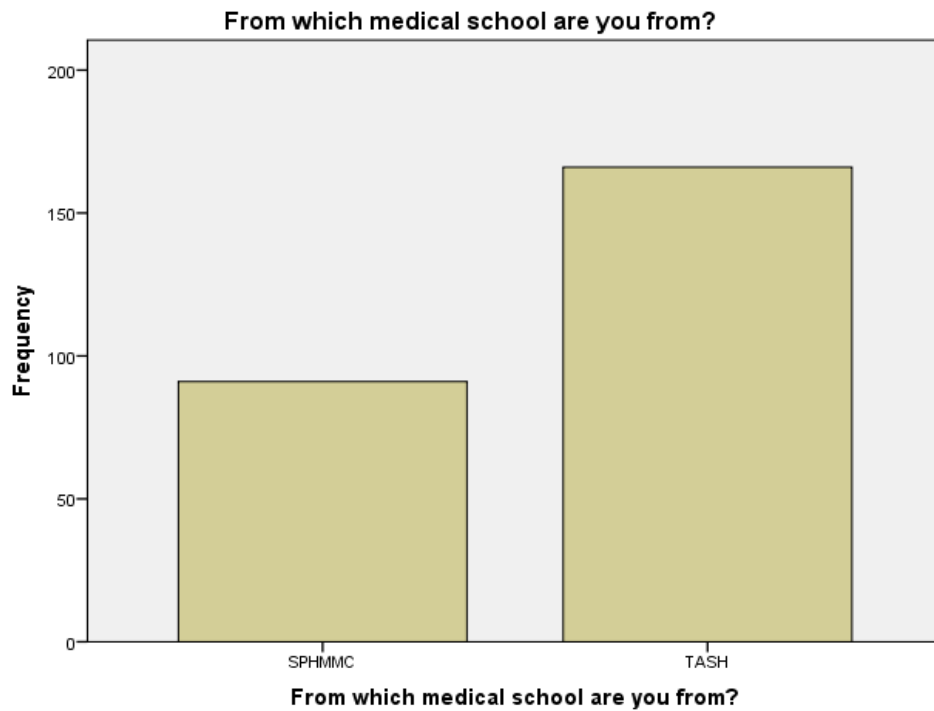


Figure 1: from which medical school, assessment of knowledge, attitude and practice on cardio pulmonary resuscitation among interns

5.2. Attachment to ER

Majority of the medical interns at both institutions (SPMMC, 82(90.1%) and TASH 152 (91.6%)) had ER attachment during data collection period.

Table 2: ED attachment of medical interns at both institutions, for assessment of knowledge, attitude and practice on cardio pulmonary resuscitation, 2023

ED attachment		
ED attachment	Frequency	Percent
No	23	8.9
Yes	234	91.1
Total	257	100.0

5.3. Sources of CPR Knowledge

Majority 116 (45.1) of the medical interns had got CPR knowledge from multiple sources from institutions, 19.5% from video, 11.3% from practice while 10 (3.9%) had not got CPR knowledge from any form of sources.

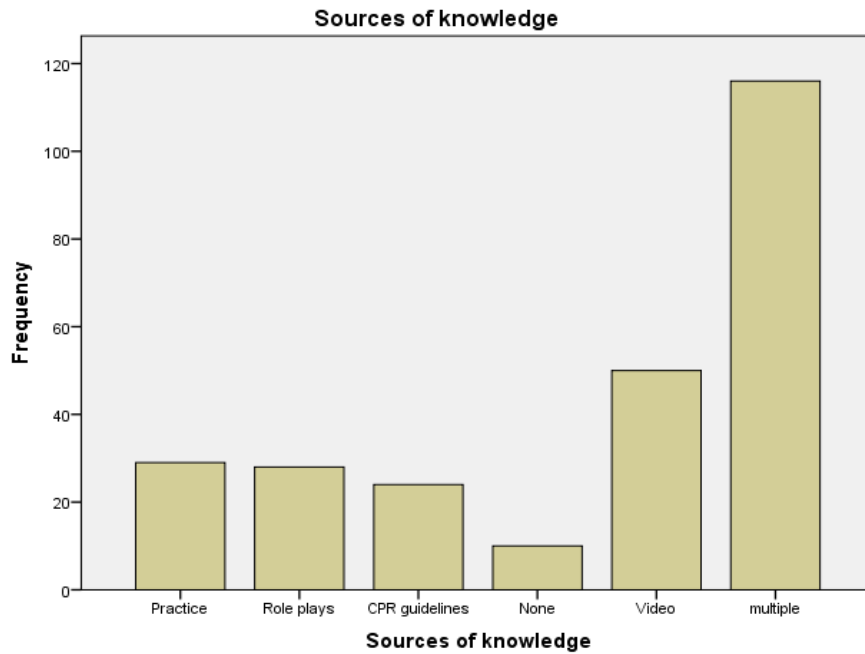
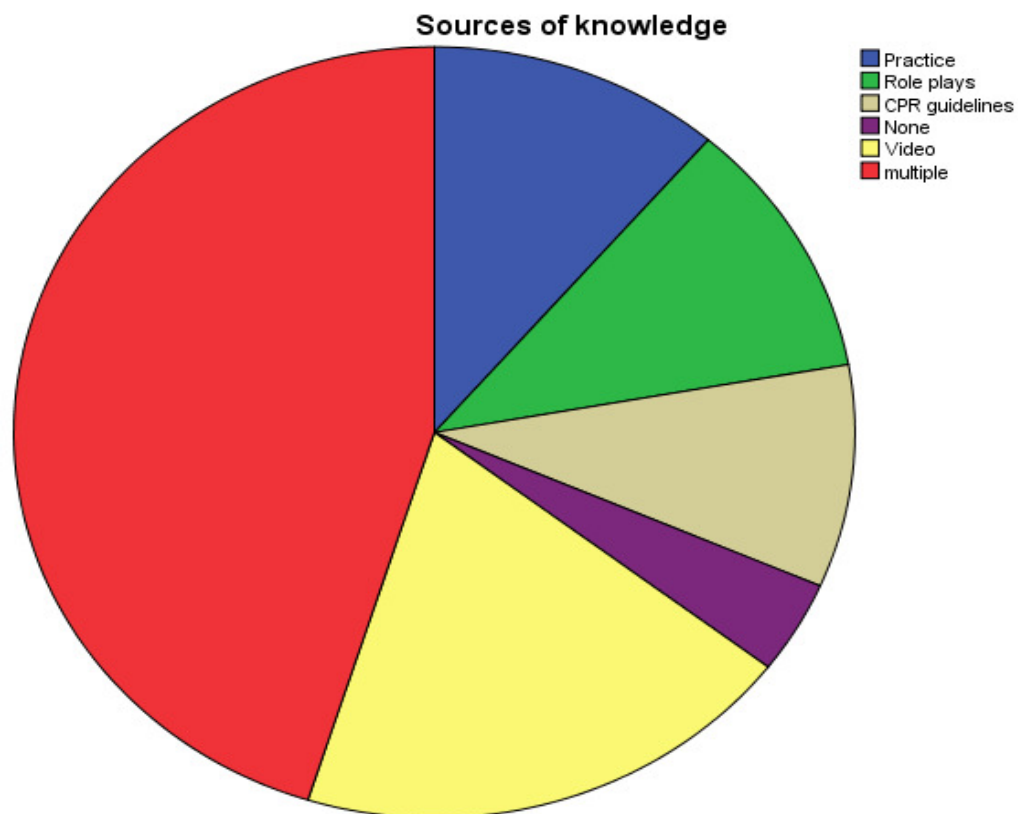


Figure 2: sources of knowledge on CPR of medical interns, assessment of knowledge, attitude and practice on cardio pulmonary resuscitation among interns



Immediate action for somebody not responding even after shaking and shouting at him.



Figure: 3 immediate actions for somebody not responding after shaking and shouting to him of medical interns, 2023.

5.4 Assessment of Medical interns' knowledge regarding CPR

Out of 91 SPHMMC medical interns only 14(15.3%) responded correctly about a possible consequence of ventilation with high pressure and /or rate while 29(17.4%) medical interns of TASH responded correctly. On the other hand 79(86.8%) from SPHMMC and 149(89.7%) from TASH responded correctly to questions about first response to a friend having sudden choking symptoms while eating but responsive. If they find someone unresponsive in the middle of the road, interns of SPHMMC 56(61.5%) have responded that, they will look for safety first while 122(73.4%) TASH interns responded that they will look for safety. Around 60(38.2%) from SPHMMC and 97(61.8%) from TASH know proper location for chest compression.

Most of the medical interns,158(61.3%) knew the position of pregnant women during CPR, supine position with firm wedge to support right side of the pelvis and thorax where as 79(30.7%) said as left lateral position and 20(7.7%) supine position with firm wedge to support left side of the thorax.

Majority of the respondent 178(69.3%) if they found for someone unresponsive in the middle of the road first response was look for safety, 67(26.1%) do open the airway and 12(4.7%) Start chest compression.

Table 3 Summary knowledge score of the respondents (n=257) of medical interns, on CPR, at SPHMMC and TASH, 2023.

Knowledge score	Frequency	Percent
Adequate knowledge	93	36.2
Inadequate knowledge	164	63.8

Table 4: Assessment of knowledge on CPR among medical interns at SPHMMC &TASH, 2023.

Questions	Frequency	Percent
Have you ever had formal training on CPR		
Yes	65	25.3
No	192	74.7
Sources of knowledge		
Practice	29	11.3
Role plays	28	10.9
CPR guidelines	24	9.3
None	10	3.9
Video	50	19.5
Multiple	116	45.1
Your first response for someone unresponsive in the middle of the road		
Open airway	24	9.3
Start chest compression	8	3.1
Look for safety	222	86.4
Give two breathing	3	1.2
Correct rate of chest compression for adults		
100–120 compressions/min	194	75.5
60-100 compression/min	44	17.1
Can be vary	19	7.4
First response for choking but responsive while eating,		
Do Heimlich Maneuver	228	88.7
Do chest thrust maneuver	1	.4
The finger sweep and try to remove it	18	7.0
Give water	10	3.9
Consequence of ventilation with high pressure/rate		

Abdominal distention	43	16.7
Risk of aspiration	35	13.6
Decrease venous return	114	44.4
Chest wall trauma	59	23.0
Other	6	2.3
Maneuver used to open airway if not trauma suspected		
Inset the finger into the mouth and pull the tongue forward	10	3.9
Jaw thrust	20	7.8
Head tilt	10	3.9
Head tilt and chin lift	217	84.4
Immediate action for somebody not responding even after shaking and shouting at him		
Put him in recovery position	76	29.6
Early CPR	76	29.6
Activation of EMS and get AED	105	40.9

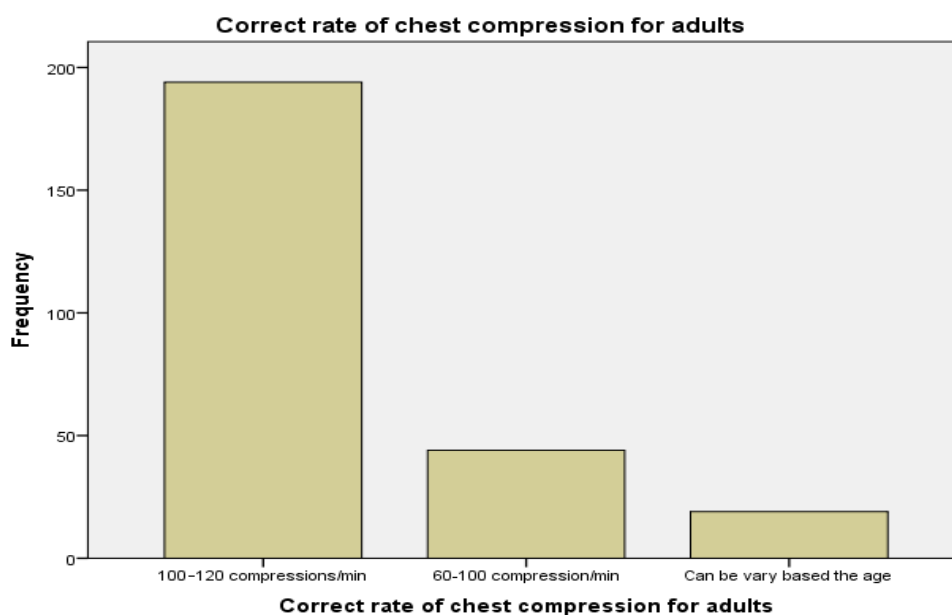


Figure: 4 show the rate of chest compression for adults, assessment of knowledge, attitude and practice on CPR, among medical interns of SPHMMC and TASH, 2023.

5.5 Assessment of Medical interns' Attitude regarding CPR

Most medical interns, 84(92.3%) from SPHMMC and 159(95.7%) from TASH responded that basic life-saving is necessary. On the other hand 54(59.3%) medical interns from SPHMMC and 105(63.2%) from TASH were believe of CPR increase the survival rate.(Table 5).

Table 5:- Attitude regarding CPR among medical interns at SPHMMC & TASH, Assessment of knowledge, attitude and practice on cardio pulmonary resuscitation among interns, 2023.

Variable	Frequency	Percent
Confident of recognizing a person in need of CPR		
Definitely	71	27.6
Likely	147	57.2
Unlikely	7	2.7
Definitely not	23	8.9
I do not know	9	3.5
Believe of CPR increase the survival rate		
Definitely	88	34.2
Likely	138	53.7
Unlikely	12	4.7
Definitely not	9	3.5
I do not know	10	3.9
Necessary of CPR		
Not sure	6	2.3
No	8	3.1
Yes	243	94.6
Think of CPR training should be a part of your curriculum		
No	10	3.9
Yes	247	96.1
Layperson or trained in BLS to try to resuscitate you		
No	17	6.6
Yes	240	93.4

5.6. Assessment of Medical interns' Practices regarding CPR

52(57.1%) medical interns from SPHMMC and 107(64.4%) from TASH have responded/ know the components of high-quality CPR. On the other hand, 81(89%) from SPHMMC whereas 150(90.3%) from TASH have responded to check pulse on carotid/ femoral artery in adult cardiac arrest. But around 120(46.7%) have not did CPR previously

Table 6: Practice assessment on CPR among medical interns at SPHMMC & TASH, 2023

Rate of administering breaths in advanced airway 2-rescuer CPR.	F	%
Every 5-6 seconds	110	42.8
Every 2-3 seconds	33	12.8
Every 30 compression	114	44.4
Not high-quality CPR		
100–120 compressions/min	9	3.5
Compress depth 2–2.5 in. (5–6 cm)	33	12.8
Allow for complete chest recoil	15	5.8
Avoid hyperventilation/ avoid interruption in less than 10 seconds	41	16.0
Use of defibrillator	159	61.9
Compression to ventilation ratio for the two rescuer giving CPR		
30:2	167	65.0
15:2	77	30.0
Ever 2-3 seconds	8	3.1
30:1	5	1.9
Where you check pulse in adult cardiac arrest		
Carotid/ femoral pulse	210	81.7
Radial pulse	34	13.2
Brachial pulse	13	5.1
How often should rescuers switch roles when performing 2-rescuer CPR		
Every 2 minutes/When fatigued	207	80.5
Every 20 minutes/ until ROSC achieved	26	10.1
After each cycle	24	9.3
Have you ever did CPR		

No	120	46.7
Yes	137	53.3
ED attachment		
No	23	8.9
Yes	234	91.1

5.7 The level of CPR knowledge and practice of the study participants

According to Knowledge level grading system, used among the participants Score of knowledge (out of 10 score) 93(36.2%) have adequate knowledge about CPR. While around 37.7% of the participants from the ten practical score have adequate skill/good part. This practical score is slightly more SPHMMC which is, 39.6% /36.7% SPHMMC and TASH respectively.

5.8 The level of knowledge by place of practicing internship

Among 91 participant interns of SPHMMC 34(37.4%) have adequate knowledge while from AAU,TASH 59(35.5) out of 166 participant medical interns have adequate knowledge about CPR.

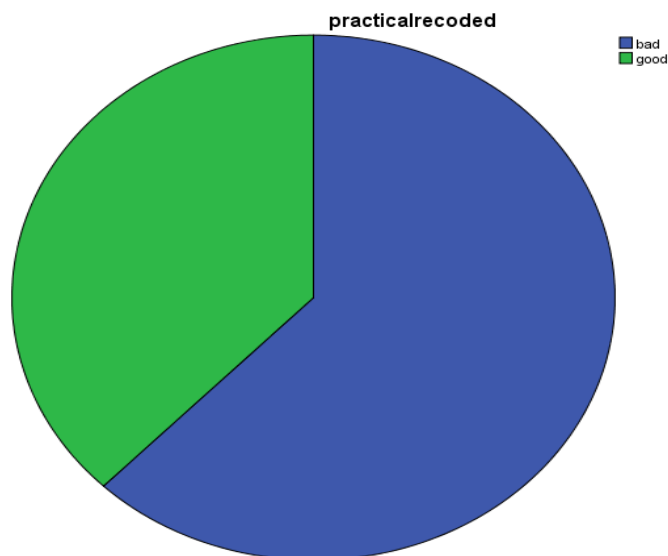


Figure 6: show level practice on CPR of medical interns, SPHMMC and TASH, assessment of knowledge, attitude and practice on cardio pulmonary resuscitation, 2023.

5.9 Factors associated with CPR knowledge among medical interns

Factors like sources of knowledge, ED attachments and sex have association with knowledge of medical interns that have participated in the study.

Table 7 Distributions of association between sources of knowledge, which institution and knowledge level about CPR among medical interns at SPHMMC and TASH, 2023

Variables	Coefficient-B	Std. Error	Df	Sig.	AOR	95% CI-(AOR)	
						Lower Bound	Upper Bound
Practice	0.533	0.429	1	0.014	1.703	0.735	3.945
Role plays	-0.352	0.493	1	0.475	0.703	0.268	1.847
CPR guidelines	-0.48	0.526	1	0.041	0.619	0.221	1.734
None	0.898	0.677	1	0.185	2.455	0.651	+9.26
Video	0.003	0.355	1	0.043	1.003	0.5	2.011
Multiple							
SPHMMC	0.172	0.284	1	0.543	1.188	0.681	2.072
TASH							
ED-attach No	0.177	0.466	1	0.005	1.193	0.478	2.976
ED-yes							
Formal-No	-0.541	0.338	1	0.11	0.582	0.3	1.13
Formal-Yes							

Table 8. Distributions of association between socio-demographic characteristics and knowledge level about CPR among medical interns at SPHMMC and TASH, 2023

Variables			Knowledge level		X2-Value	P-value
			inadequate	Adequate		
Age of the respondent	23	% within Age	83.3%	16.7%	4.721	0.193
		% within knowledge level	3.0%	1.1%		
	24	% within Age	63.5%	36.5%		
		% within knowledge level	32.9%	33.3%		
	25	% within Age	59.5%	40.5%		
		% within knowledge level	47.6%	57.0%		
Sex of the respondent	Male	% within Age	77.1%	22.9%	12.985	0.000
		% within knowledge level	16.5%	8.6%		
	Female	% within Sex	53.4%	46.6%		
		% within knowledge level	43.3%	66.7%		
From which medical School is you from?	SPHMMC	% within Sex	75.0%	25.0%	0.084	0.771
		% within knowledge level	56.7%	33.3%		
	TASH	% within school	62.6%	37.4%		
		% within knowledge level	34.8%	36.6%		
		% within school	64.5%	35.5%		
		% within knowledge level	65.2%	63.4%		

CHAPTER 6: DISCUSSIONS

Cardiac arrest can be managed effectively by having proper knowledge and practice of basic life support (BLS) skills. However, it has been globally reported that the knowledge of doctors regarding cardiopulmonary resuscitation (CPR) and BLS is sub-standard.

This study showed that the overall knowledge score (out of 10 score) 93(36.2%) have adequate knowledge on CPR and 164(63.8%) have inadequate knowledge among medical interns. Slightly it was better at SPHMMC, (39.6%) and 36.7% at TASH medical interns knowledge regarding CPR. It may relate with institutional difference. This finding is better than the study done in Jimma University specialized hospital in which only 23% of interns has good knowledge [20]. Similar with another study done in northwest Ethiopia, university of Gondar Comprehensive Specialize hospital 25.1% and. The study done at Tikur Anbessa Specialized Hospital and Yekatit 12 Hospital Medical College showed that the overall knowledge score were very low among medical interns. Only 19(8.7%) from TASH and 6(2.8%) from YHMC of medical interns have good and very good knowledge regarding CPR and but the study on resident knowledge the score was 56.4%, showed the higher result.

This finding is in close similarity to a study done in Sri Lanka [28] and Singapore [29]. The study conducted at Egypt on junior doctors and medical students showed 31.7%/6.2% have adequate knowledge CPR, but 95% and 91% positive attitude on CPR respectively. Studies conducted in Iran and New Zealand showed that the knowledge of interns and newly qualified doctors were substandard. Another study from India also indicated (45.25%) inadequate knowledge among interns [23].

Overall positive attitudes were seen in 91.52% of respondents found to have good attitude with respect to CPR. This finding comparable with study done at medical interns of Jimma University (93.8%) found to have positive attitude with respect to CPR. This result is slightly higher than the study finding done in India which reported 86%.

Generally, the study finding reflected that, the participants had positive attitude towards CPR. Majority of the respondents 247(96.1%) believe CPR training should be a part of your curriculum. This finding is almost similar to study that has been done on medical students of Jimma University (98.3%) and AAU, TASH (97.3%). But it is higher when compared to study done in Singapore, which accounts for 85.5%.

In this study, a total of 137(48.4%),of medical interns were practicing/did CPR previously of which 31.8% were from SPHMMC and 65% were from TASH medical interns. It may relate different internship attachment time, SPHMMC at their begging and TASH at end of the attachment during data collection period. This is higher when compared with other studies as only 19.7% of participants practiced CPR in a study done at Jimma University may related with participants were clinical attaching students and interns. Similarly only 12.9% of medical interns practiced CPR in India study.

Overall 37.7% of the respondents from both institutions were score greater than 70% out of ten practical scoring parts. Majority of them 210(81.7%) correctly respond where to check pulse for possible arrested patients. Majority of the respondent 159 (61.8%) knew use of defibrillator is not the component of high-quality CPR but 16% of them respondent said avoid hyperventilation/ interruption in less than 10 seconds is not a part of high-quality CPR. Around 65(71.4%) from SPHMMC and 129(77.7%) from TASH were right regarding correct rate of chest compression for adults and 40(44%) from SPHMMC and 36(21.7%) from TASH were respond immediate CPR as first response to unresponsive person. Factors like sources of knowledge, ED attachments and sex have association with knowledge of medical interns that have participated in the study.

Even though Immediate response to a cardiac arrest challenging in resource limited and developing countries, having the basic knowledge, skill and attitude is an essential part of medical service providers. Often medical interns are the first line health care personnel who encounter emergency situation in tertiary health care setting attached to medical universities. Therefore CPR skill and knowledge are essentials for medical interns.

CHAPTER 7: CONCLUSION AND RECOMMENDATION

7.1. Conclusion

The study revealed inadequate knowledge and bad practice about CPR among medical interns. Majority of the participants had positive attitude. In institution, medical interns' knowledge and attitude scores were more/less comparable, but regarding practice, slightly better in SPHMMC. Overall this finding is similar with study done at some different Ethiopian university, but comparable finding regarding with attitude. This showed that there are differences among medical interns who have got CPR knowledge and practice from single source and those who have got from combination of multiple sources. According to American heart association reference for CPR certification all health professional should score 84% and above on standardized knowledge question to be certified on CPR. Factors like sources of knowledge, ED attachments and sex have association with knowledge of medical interns that have participated in the study.

7.2. Recommendation

According to the result of this study, proposed recommendations are: Structured CPR training program incorporating lectures, role plays, practices and guidelines should be prepared to train and educate medical interns.

7.3. Limitation of the study

There was no utilized simulation based assessment that make difficult to evaluate the practice of study participants in applying CPR technique correctly. Data were collected nearly at the beginning of internship which may affect their knowledge and practice of the SPHMMC. There were relatively moderate non responder rates using online Google form data collection.

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9. Assurance of Principal Investigator

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

Name of the student: _____

Signature: _____

Date: _____

Approval of the Clinical Advisor

Name of the primary advisor: _____

Signature: _____

Date: _____

Approval of the Clinical Advisor

Name of the primary advisor: _____

Signature: _____

Date: _____

Approval of the Public Health Advisor

Name of the primary advisor: _____

Signature: _____

Date: _____

10. ANNEX: Questionnaire

I. Socio-demographic characteristics related questions

- 1. Age-**
- 2. Sex-**
 - A- Male**
 - B- Female**
- 3. From which medical school are you from?**
 - A- SPHMMC**
 - B-TASH**

II. Questions knowledge regarding CPR

- 1. Have you ever had formal teaching on CPR (Cardiopulmonary Resuscitation)?**
(Marking with, multiple responses are allowed)
 - A. Yes**
 - B. No**
- 2. If no, what is/are your source of knowledge**
 - a. None**
 - b. Lectures**
 - c. Practices**
 - d. Role plays**
 - e. CPR Guidelines**
- 3. A possible consequence of ventilation with high pressure/rate?**
 - A-Abdominal distention**
 - B- Risk of aspiration**
 - C- Decrease venous return**
 - D-Chest wall trauma**
- 4. If you find someone unresponsive in the middle of the road, what should your first response be? (NB: You are alone)**
 - a. Open airway,**
 - b. Start chest compression,**
 - c. Look for safety,**
 - d. Give two breathing**

5. If you confirm somebody is not responding even after shaking and shouting at him, what will be your immediate action?
 - a. Put him in recovery position
 - b. early CPR
 - c. activation of EMS/ the emergency medical response system/ and get an automatic external defibrillator (AED)
 - d. rapid defibrillation
 - e. effective ALS
6. Proper location for chest compression
 - a. Left side of the chest
 - b. Middle upper two-third of sternum
 - c. Lower one-third of sternum
7. The correct depth of compression in Children during CPR
 - a. 2–2.5 in. (5–6 cm)
 - b. One-third of chest diameter
 - c. Half- chest circumference
8. You and a friend are walking when you see an elderly man collapse in front of you. There are no hazards around. You assess the man and determine that he is unconscious and is not breathing. You should direct your friend to: ...
 - a) Check the pulse
 - b) Begin CPR
 - c) Activate the emergency response system
 - d) Open the airway
9. The correct rate of chest compression for adults and children
 - a. 100–120 compressions/min.
 - b. 60-100 compression/min
 - c. Can be vary based the age

10. Suddenly your friend starts expressing symptoms of choking but responsive while eating, what will be your first response

- a. Do Heimlich Maneuver**
- b. Do chest thrust maneuver**
- c. The finger sweep and try to remove it**
- d. Give water**

11. Maneuver used to open airway if not trauma suspected

- a. Inset the finger into the mouth and pull the tongue forward**
- b. Jaw thrust**
- c. Head tilt**
- d. Head tilt and chin lift**

12. Position of pregnant women during CPR

- a. Supine position with firm wedge to support left side of the thorax.**
- b. Supine position with firm wedge to support right side of the pelvis and thorax.**
- c. Left lateral position**
- d. Right lateral position**

III. Questions Attitude regarding CPR

1. Are you confident of recognizing a person in need of CPR-

- a. Definitely,**
- b. Likely,**
- c. Unlikely,**
- d. Definitely not,**
- e. I don't know**

2. Do you believe that CPR increase the survival rate of patients who faced cardiac arrest-

- a. Definitely,**
- b. Likely,**
- c. Unlikely,**
- d. Definitely not,**
- e. I don't know**

3. Do you think CPR is necessary?
 - a. Yes
 - b. No
 - c. can't say or not sure
4. Do you think that CPR training should be a part of your curriculum?
 - a. Yes
 - b. No
 - c. Not sure
5. Would you want other lay person or trained in CPR to try to resuscitate you if you are in need of CPR-
 - a. Yes
 - b. No

IV. Questions Practices regarding

1. Have you ever worked/attached at ED(emergency department)
 - A-yes
 - B- No
2. Have you ever done CPR previously?
 - A. yes
 - B. No
3. Adult Chain of Survival include all of the following EXCEPT:-
 - A. Recognition and activation of the emergency response system,
 - B. Immediate high-quality CPR,
 - C. Rapid defibrillation,
 - D. Basic and advanced life support
 - E. Advanced life support and post arrest care
 - F. None

4. How often should rescuers switch roles when performing 2-rescuer CPR?
 - a. Every 2 minutes/When fatigued
 - b. Every 20 minutes/ until ROSC achieved
 - c. After each cycle
5. The initial Basic Life Support (BLS) steps for adults:
 - a. Recognition and call for help, then assess circulation, begin cardiac compressions, defibrillate,
 - b. Begin cardiac compressions, recognition and call for help, defibrillate, assess circulation.
 - c. A-B-C (airway, breathing chest compressions,)
6. Where should you attempt to perform a pulse check in adult who found unresponsive?
 - a. Carotid/ femoral pulse
 - b. Radial pulse
 - c. Brachial pulse
7. The compression to ventilation ratio for the two rescuer giving CPR to victims of adult:
 - a. 30:2
 - b. 15:2
 - c. Every 2-3 seconds
 - d. 30:1
8. In an adult with an advanced airway in place during 2-rescuer CPR, breaths should be administered how often?
 - a. Every 5-6 seconds
 - b. Every 2-3 seconds
 - c. Every 30 compression

- 9. If you do not want to give artificial respiration by direct contact with the mouth during CPR work, you can do the following:**
- a. Mouth-mask ventilation and chest compression**
 - b. Chest compression only**
 - c. Mask ventilation with chest compression**
 - d. No CPR**
- 10. The characteristics of high-quality CPR include which of the following, except?**
- a. 100–120 compressions/min.**
 - b. Compress depth 2–2.5 in. (5–6 cm),**
 - c. Allow for complete chest recoil ,**
 - d. avoid hyperventilation/ avoid interruption in less than 10 seconds**
 - e. use of defibrillator**