

*Full Length Research Paper*

# Factors involved the application of CPR for victims of cardiac arrest

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Cardiopulmonary resuscitation (CPR) is an important medical procedure which is needed for individuals who face sudden cardiac arrest. Sudden cardiac arrest is a life-threatening condition and a leading cause of death among adults over the age of 40 years in the United States and other countries. Reports showed that about 1,000,000 people die of cardiac arrest every year in the United States and Europe. To assess knowledge, attitude and associated factors of cardiopulmonary resuscitation among anesthetists working in governmental and private hospitals in Addis Ababa, Ethiopia. Institutional based cross-sectional study design was conducted in Addis Ababa governmental and private hospitals from March to August, 2014. Simple random sampling was used and structured questionnaires on cardiopulmonary resuscitation which is adopted from American Heart Association were distributed. The questionnaire had 20 items related to anesthetists' knowledge regarding cardiopulmonary resuscitation and 8 items related to their attitude towards cardiopulmonary resuscitation. Anesthetists were divided on the base of their age, gender, experience, private and governmental hospitals, training they took previously and level of education. Descriptive statistics were employed to analyze the data using SPSS version 20 and participants' level of attitude was measured by using a Likert scale. Percentages were worked out and the results were interpreted. From a total of 150 anesthetist participants, 140 of them or 93.3% scored below 84%. Those participants who were trained by CPR specialists, trained very recently, have higher degree and higher experience scored higher than their counter parts in items of level of knowledge. The level of knowledge on cardiopulmonary resuscitation among anesthetists working in Addis Ababa governmental and private hospitals was found to be poor (93.3%) according to 84% American Heart Association reference for CPR certification.

**Key words:** Anesthetists, attitude, cardiopulmonary resuscitation, knowledge.

## INTRODUCTION

Cardiopulmonary resuscitation (CPR) is a series of life saving actions that improve the chance of survival

following cardiac arrest. It is an emergency procedure which is sought in an effort to return life to a person in

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cardiac and respiratory arrest (Travers et al., 2010; Butterworth et al. 2013). In 2010, the American Heart Association (AHA) and International Liaison Committee on Resuscitation (ILCR) stressed the importance of high quality CPR (sufficient rate and depth, allowing the full chest recoil without excessively ventilating) and also the order of interventions was changed for all age groups except newborns from the airway, breathing and circulation (ABC) to circulation, airway and breathing (CAB). The main reason is to minimize the loss of time by opening the victim's airway, which is the most difficult part of CPR particularly for laypersons (Anon, 2015; Hazinski and Field, 2010).

Sudden death accounts for one third of all non-traumatic deaths. Most of the deaths occur outside the hospital (Elazazay et al., 2012). Seventy-five percent of sudden non-traumatic deaths are attributed to cardiovascular disease. The remaining 25% are assigned to non-cardiac causes. The incidence of sudden death reaches about 0.26% (Botha et al., 2012; Roshana et al., 2012). Cardiopulmonary resuscitation (CPR) is an important part of the emergency medical care system (Go et al., 2014).

Anesthetists are at the forefront of cardiac arrest teams when cardiac arrest occurs in the hospital. So, adequate knowledge and attitude make them confident and competent in their ability to manage patients in need of CPR. The West African sub-region is confronted with the problem of inadequate training due to fiscal restraints and a lack of teaching personnel (Gabbott et al., 2005; Ibironke et al., 2008). Anesthetists face cardiac arrest patients in their day to day activities in the operating room (OR) and outside the OR. So, this study was conducted among anesthetists to assess their knowledge, attitude and associated factors for the application of CPR for victims of cardiac arrest.

## MATERIALS AND METHODS

Institution based cross-sectional study design was conducted in Addis Ababa governmental and private hospitals from June 1-30, 2014.

### Study site

Addis Ababa is located in the central part of Ethiopia, which is the capital city of Ethiopia and the largest city of all cities, with a total population of 3,384,569 according to the 2007 population census with an annual growth rate of 3.8%. As a chartered city, Addis Ababa has the status of both a city and a state. It is home to Addis Ababa University. Addis Ababa has 14 governmental and more than 20 private hospitals.

### Data source

Anesthetists working in governmental and private hospitals were

used as a source of information. The samples were derived by using single population proportion formula with the assumption, Confidence interval (CI) -95%, proportion (P) -50%, marginal of error (d) -5 and 10% non-response rate. It became 422. By using

$$n1 = \frac{n}{1+\pi} \quad n1 = \frac{422}{1+\frac{422}{250}} = 156$$

correction formula, the minimum sample size. Then, simple random sampling was used to obtain the study participants (Figure 1). All governmental and private hospitals found in Addis Ababa were included in the study. Based on the number of anesthetists in each institution, number of study participants was assigned proportionally. And then, simple random sampling method was conducted within each hospital. Pretested and structured English prepared questioner which is adopted from AHA guideline was used.

## Analysis

Data were collected and checked for completeness and accuracy and it was sorted and summarized. Then, the data was entered into EPI- version 7, using developed data entry format, coded for each category of variables. After coding the data, it was entered, and analyzed by using SPSS version 20. Descriptive analysis was labelled through tables, graphs and frequency.

## RESULTS AND DISCUSSION

### Socio demographic information

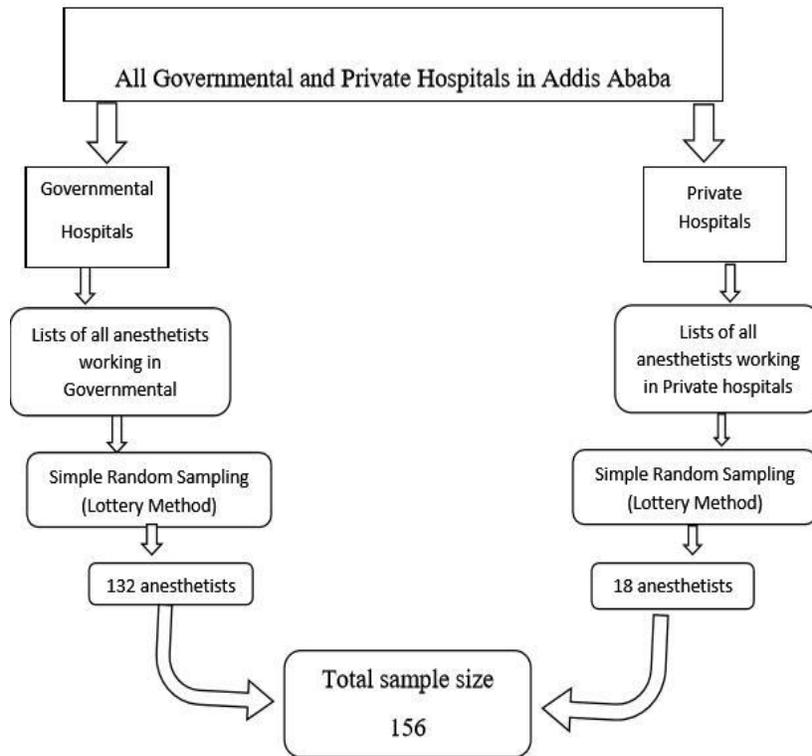
One hundred and fifty-six questionnaires were distributed, out of which 150 were returned with fully completed. Among these, 81 (54%) of the participants were male and 86 (57.3%) were in the age of between 20 and 30 years. One hundred thirty-two (88%) of the participants were from government hospitals. One hundred and twenty-six (84%) of the participants were BSc. degree holder. Socio-demographic characteristics of the participants were summarized in (Table 1).

### Knowledge of CPR

One hundred and forty (93.3%) of the participants scored below 84% of the knowledge questions (Table 2).

### Attitude on CPR

The participants' level of attitude was measured by using a Likert scale. Most of the participants, 60%, with mean 0.95, completely agree that training has to be repeated often, and it is the responsibility of their employee. Thirty two percent (mean 2.09) of them completely agree that their lack of self-confidence influences them in initiating CPR and 48% of them completely agree that lack of



**Figure 1.** Schematic presentation of sampling procedure of knowledge, attitude and factors associated with CPR on anesthetists working in governmental and private hospitals in Addis Ababa, Ethiopia, 2014.

**Table 1.** Socio demographic characteristics of anesthetists in Addis Ababa, 2014.

Variables	Category	Frequency	Percentage (%)	Total (n=150)
Age	20-30	86	57.3	150
	31-40	35	23.3	
	41-50	23	15.3	
	≥51	6	4	
Gender	Male	81	54	150
	Female	69	46	
Hospital	Government	132	88	150
	Private	18	12	
	Certificate	2	1.3	
Level of Education	Diploma	11	7.3	150
	BSc degree	126	84	
	Masters	11	7.3	
Service year(years)	<5	66	44	150
	5-10	55	36.7	
	10-15	6	4	
	15-20	10	6.7	
	≥20	13	8.7	
Any training taken	Yes	107	71.3	150
	No	43	28.7	

**Table 2.** Knowledge of CPR among anesthetists in Addis Ababa in 2014.

Variables on CPR	Correctly answered (n=150)	Percentage (%)
Cardiac arrest is the sudden stoppage of heart	146	97.3
What causes cardiac arrest on the most common level	54	36.0
To assess cardiac arrest of the adult patient, the health professionals should	105	70.0
The most reliable sign to assess an absence of heart action in adult victims is feeling the pulse at the artery.	134	89.3
How do you check patient responsiveness at the start of CPR?	49	32.7
For adult victims, one man rescuer should provide CPR in cycle of.	117	78.0
Proper compression depth for an adult victim's chest is.	72	48.0
Chest compression only CPR should be used to.	65	43.3
When providing adult chest compressions.	88	58.7
According to the 2010 American Heart Association and European Resuscitation Council CPR Guidelines, when performing adult CPR, the proper order to assist the victim is:	67	44.7
When providing quality chest compressions the rescuer should	97	64.7
For the victims suspected of cervical spine injury, the proper technique to open the airway is	97	64.7
If the victim is not breathing, pinch the nose, make a seal over the mouth and give:	18	12.0
Proper hand placement for chest compressions is:	68	45.3
The rescue breath-chest compression ratio during two rescuer adult CPR	78	52.0
What is the definition of cardiac arrest?	28	18.7
What is the importance of full chest recoil during compression?	18	12.0
The most common airway obstruction is.	110	73.3
Never interrupt CPR for more than.	65	43.3
When is it acceptable to stop performing CPR	23	15.3
<b>Level of Knowledge</b>		
Good knowledge	10	6.7
Poor knowledge	140	93.3

**Table 3.** Attitude of anesthetists in Addis Ababa in 2014.

Questions on attitude	Mean scores	Standard deviation
Do you think that the fear of further harming a heart attack victim influences you greatly in initiating resuscitation?	1.91	1.554
Do you think that your lack of self-confidence influences you in initiating resuscitation?	2.09	1.569
Do you think that lack of training influence you in initiating resuscitation?	1.14	1.452
Do you think that doctors are responsible for initiating CPR?	2.37	1.565
Would you do mouth-to-mouth resuscitation for all patients?	2.59	1.317
Do you think lack of legal coverage of the state influences your decision to begin resuscitation?	1.81	1.411
Do you think fear of catching some disease influences your decision to begin resuscitation?	2.25	1.382
Do you think that training has to be repeated often, and it is the responsibility of your employer?	.95	1.408

training influences them in initiating CPR (Table 3). The study shows that 6.7% were found to score a good level of knowledge, this is comparable to the study conducted in Bahrain on nurses which is 7% (Marzooq and Lyneham, 2009). However, the result is lower than that of the study conducted in South Africa, 40.6% (Botha et al., 2012). This might be due to the later study conducted on specialist who may have more experience than the present study participants.

Level of knowledge was greatly affected by the trainer's profession who trained the anesthetists. Those trained by CPR specialist show more level of knowledge than their

counterparts. This shows that training by the appropriate specialty have great influence on the level of knowledge among anesthetists. Those participants trained within the last 12 months have score higher result on the level of knowledge than their counterparts. In a similar study on other health professionals, it was found that recent training increased the mean score on CPR knowledge (Roshana et al., 2012).

## Conclusion

The level of knowledge on cardiopulmonary resuscitation

among anesthetists working in Addis Ababa governmental and private hospitals was found to be poor. More than ninety-three percent of them scored below 84%, according to American heart association reference for CPR certification, all health professionals should score 84% and above on standardized knowledge questions to be certified on CPR.

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## CONFLICT OF INTERESTS

The authors have not declared any conflict of interest.

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