

Assessment of Knowledge, Attitude and Practice towards CPR among Nurses Working in Wolaita Sodo University Teaching Hospital Wolaita Sodo, Southern Ethiopia, 2017

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Abstract

Cardiopulmonary resuscitation (CPR) is the restoration of cardiac output and pulmonary ventilation following cardiac arrest and apnea by using artificial respiration and manual closed chest compressions or open cardiac massage. Worldwide, there are greater than 17.5 million cardiovascular deaths each year, and the prevalence of coronary heart disease is increasing. Thus the assistance provided by the health care team requires speed, efficiency, scientific knowledge and technical skills to perform the needed procedure. The aim of this study was to assess knowledge, attitude and practice towards cardiopulmonary resuscitation among nurses working in Wolaita Sodo teaching hospital, Southern Ethiopia. A descriptive cross sectional study designed was used. Self-administered structured questionnaire conducted among a total 98 nurses working in Wolaita sodo teaching hospital by using Simple random sample (lottery method) technics. Data was collected from April 01, 2017 to April 30, 2017. Supervision had done on daily basis. The Data were first checked manually for completeness and then coded and entered in to EpiData version 3.1. The entered data were transferred to SPSS version 20. The data were cleaned by visualizing, calculating frequencies and sorting. Frequencies and proportions were computed for description of the study population. Among 98 participants 55 (56%) are BSc nurse and the rest 43 (44%) are diploma nurse. of all participants 44 (44.9%) those who have training and the rest 54(55.1%) are not trained on CPR. The untrained participants have scored poorly as compared to trained participants in theoretical knowledge and practice of CPR And Most of the participants of both trained and untrained group were having very good attitude towards CPR. Knowledge and practice skills of CPR were not adequate in participants. A significant Portion of trainees do not acquire adequate knowledge in a single session of training. An organized curriculum for BLS and its protocolized training is the need of the hour in medical education.

Keywords: *Cardiopulmonary resuscitation, Knowledge, Attitude, practice, Assessment, WSU*

I. INTRODUCTION

Cardiopulmonary resuscitation (CPR) 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 [1].

CPR has been and is now utilized as a standard first line management for a variety of acute life threatening medical conditions where death is likely if immediate intervention is not carried out ever since the advent of modern CPR, several countries in collaboration with professional bodies or associations (European Resuscitation Council, American Red Cross, American Heart Association, Australian Resuscitation Council, the Heart and Stroke Foundation of Canada, the Resuscitation Council of Southern Africa and Resuscitation Councils among many others) have come up with standardized guidelines and/or algorithms for conducting CPR [2].

Now a day cardiopulmonary arrest is a major public health problem [1, 2] and many patients sustained cardiac arrest in two years [3]. It is more common in low socio-economic areas [4–5]. Cardiopulmonary arrest is one of the most common unfortunate incidents that may occur in and out of the health facilities [6–10]. Cardiopulmonary resuscitation (CPR) is a lifesaving technique [11] and consists of chest compression and rescue breathing [12]. The quality of cardiopulmonary resuscitation depends on the sufficiency of the knowledge of health professionals and facilities [13–16]. Increasing survival of patients from cardiopulmonary arrest requires improvement in resuscitation education [17]. A study conducted in India showed that the knowledge of nursing students and interns about basic life support (BLS) was very poor [18]. Throughout the world by 2020 it also predicts that the number of fatalities from these conditions Worldwide, there are greater than 17.5 million cardiovascular deaths each year, and the prevalence of

coronary heart disease is increasing [3]. Individuals in the community at least the health professionals should know how to perform CPR as they encounter such situation very often, health professionals are expected to be competent to resuscitate from their first posting. In the United States BLS training has been recommended for all health professionals since 1966 especially for those who are involved in resuscitation. Demand for courses of BLS/CPR is ever increasing worldwide. However in developing countries there is still no standard of resuscitation training is not routing. Up to present few reports have addressed current level of awareness and knowledge in the area among Health Professionals in developing countries [15-16]. Cardiac arrests are more common than you think, and they can happen to anyone at any time. Nearly 383,000 out-of-hospital sudden cardiac arrests occur annually, and 88 percent of cardiac arrests occur at home. Many victims appear healthy with no known heart disease or other risk factors. According to the Road Traffic Safety Annual Report, there has been a steady annual overall increase (with minor reversals in some years) in the number of road and traffic accidents that have been occurring Botswana. In 2007, about 3% (497) of the total number of people involved in such accidents (19,487) were killed, and about 39% (7,639) were listed as casualties. Some of these, as well as an unknown number of adults and children encountering other medical accident and/or surgical emergencies, might have required CPR interventions. Thus many patients' lives and well-being might depend on Health Professionals' CPR knowledge and skills [17]. Because Cardio pulmonary resuscitation is a lifesaving procedure, performed to preserve patients to life until further management is going to follow. Study that was undertaken by a university clinical team in London showed that the retention of knowledge and skills during and after training in CPR is difficult and requires a more systematic training, as well as methods that will ensure better retention of skills and information [19]. The aim of this study was to assess the knowledge, attitude and practice towards CPR among diploma & BSc nurse nurses working in Wolaita Sodo Teaching hospital.

II. METHODS AND MATERIALS

A. Study Area and period

Wolaita Sodo University Teaching Hospital is situated at Wolaita Sodo town found in East to the town. The town has one governmental and one private hospital and three health centers. It is 165km far from Hawassa, SNNPR and 396km from Addis Ababa Ethiopia. Wolaita Sodo University Teaching Hospital is established in 1920 E.C as a Zonal Hospital in Wolaita zone, Sodo town.

The total numbers of beds in the hospital were 255, which is on medical, pediatrics, surgical, gynecology and obstetrics ward. The total number of staffs in the hospital was 437. Out of these 257 were health

professionals including specialists, General practitioners, Health officers, Nurses, Lab technicians and pharmacists. Of them total numbers of nurses are 122 (48 BSc and 74 diploma nurses).

The study was conducted in Wolaita Sodo University Teaching Hospital from April 01, 2017 to May 30, 2017 GC.

B. Study design

Descriptive cross sectional study design was used.

C. Study Population

All selected Nurses working in Wolaita Sodo University Teaching Hospital

D. Sample size determination and sampling technique

Determined by single proportion population formula $n = \frac{(Z^{2. \alpha} / 2) p(1-p)}{d^2}$ by using 70% prevalence of anemia, 95% confidence interval, 5% margin of error and 10% non-response rate

$$n = \frac{(1.96)^2 \times 0.7(1 - 0.7)}{(0.05)^2}$$
$$n = 322$$

Since the source populations were less than 10,000, by using finite population correction formula the final sample size was: $n_f = \frac{n}{1 + \frac{n}{N}} = 98$ and 10% of sample

size is added for non-respondent rate

E. Data collection tools and procedure

The study was conducted using self-administered questionnaire or format which was prepared in English. Then, questionnaire was given to the participants. The questionnaire was designed to obtain information which help for the study.

F. Data quality control

During data collection, regular supervision and follow up was made by the data collectors and supervisors. The data was cross checked for completeness and consistency of collected data on daily basis. Once the data had been collected and checked for completeness, consistency and accuracy, it was sorted, categorized and summarized. Then, entered the data into the computer using developed data entry format, coded for each category of variables and again was cross checked for errors.

G. Data processing and analysis

Data was first checked manually for completeness and then coded and entered in to Epiinfo version 3.1. The entered data was transferred to SPSS version 20 for further processing. The data was cleaned by visualizing, calculating frequencies and sorting. The data was analyzed by using SPSS version 20 statistical software. Frequencies and proportions were computed for description of the study population in relation to socio-demographic and other relevant variables.

Finally the results were presented in the form of tables, figures and sentence (text).

H. Ethical consideration

Ethical clearance was obtained from Wolaita sodo University Ethical Review Bored and for confidentiality of information a written consent also was given to the participants and the information obtained should be used only for the study purpose. The instruments and procedures was not cause any harm to the study subjects, the community, the data collectors and supervisors to be involved in the study.

III. RESULTS

A. Socio-demographic characteristics

As table shown below from the total of 98 participants 57% (n=56) were male, 43 % (n=42) were female and 59% (n=58) age group of 25-29 yrs. The level of qualification in participants is BSc 44 % (n=43) and the rest 56 % (n=55) are diploma nurses and around 52% (n=51) of participants’ service year was 6-10 years and 44.9 % of them had training on CPR.

Table 1, Socio-demographic characteristics of respondents (n = 98) in WSUTH, SNNP Region, May, 2017

Variables	Frequency (%)
Sex	
Male	56 (57)
Female	42(43)
Age	
20-24	10(10.2)
25-29	58(59.2)
30-34	17(17.3)
35-40	9(9.2)
>40	4(4.1)
Qualification	
Diploma	55(56)
BSc	43(44)
Service year	
<5	37(37.8)
6-10	51(52)
>10	10(10.2)
Had training on CPR	
Yes	44(44.9)

No	54(55.1)
Times of training	
<1year	2(2)
1-2 years	8(8.2)
>2years	34(34.7)

B. Participants’ knowledge about CPR

As table shown below Among 98 participants 92.9 % (n=91) had information about CPR 97 % (n=95) had information about ABC or CAB order. Around 38.8 % (n=38) didn’t know the reason why they apply CPR and only 28.5 % (n=28) know defibrillation is involved in CPR. From the respondents only 55.1 % (n =54) answered correct depth of CC.

Table 2, Participants knowledge on about CPR (n = 98) in WSUTH, SNNP Region, May, 2017

Variables	Frequency %
Have had any information about CPR	
Yes	91(92.9)
No	7(7.1)
Where did you get the information	
pre-service training	35(35.7)
In service training	35(35.7)
Others	21(21.5)
Have you know about ABC& CAB	
Yes	95(97)
No	3(3)
For which cardiac arrest CPR applied 1st	
Correct answer	59(60.2)
Incorrect answer	30(30.6)
I don’t know	9(9.2)
How much depth you compress the chest	
Correct answer	54(55.1)
Incorrect answer	37(37.8)
I don’t know	7(7.1)
How you put hand on sternum	
Correct answer	61(62.2)
Incorrect answer	27(27.6)
I don’t know	10(10.2)

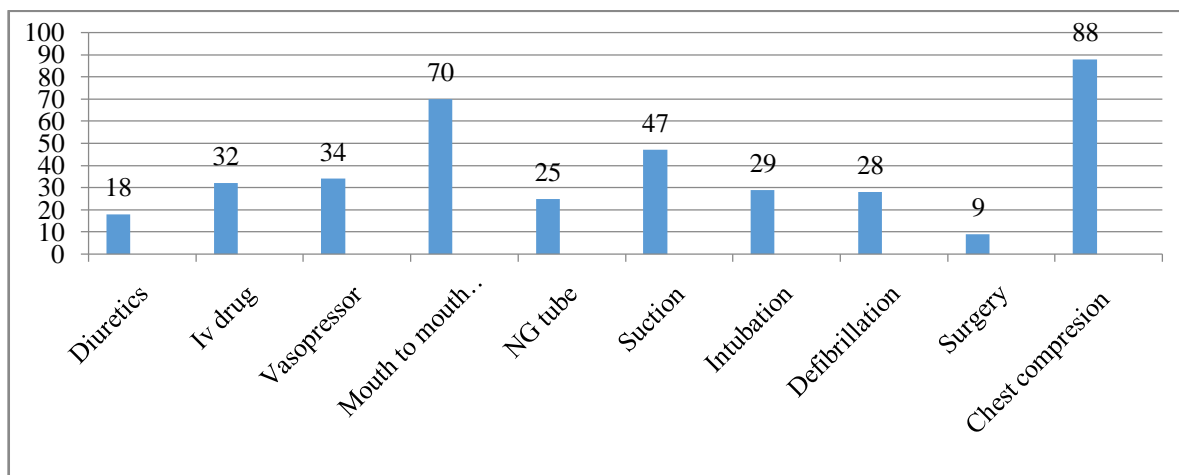


Figure 1, Participants' response for what is involved in CPR in WSUTH

In the above graph illustrated participants answered about what is involved in CPR. So, CC involvement 89.9%(n=88), diuretics 18.3%(n=18), Iv drugs 32.6%(n=32), vasopressin 34.6%(N=34), Mouth-mouth 71.4%(n=70) NGT 25.5%(n=25), suction 47.9%(n=47), intubation 29.5%(n=29) and for defibrillation 28.5%(n=28), surgery 9.2%(n=9) respondents answered.

C. Participants' Attitude toward CPR

As shown on the table below among 98 participants were asked about the importance of CPR 25.5 % (n=25) disagreed while 74.5 % (n=73) agreed. On the other hand 28.6 % (n=28) disagreed and 71.4 % (n=70) agreed on prolongation of life.

Table 3, Participants Attitudes on about CPR (n = 98) in WSUTH, SNNP Region, May, 2017

Variables	Frequency (%)
Is CPR important	
Agree	73(74.5)
Disagree	25(25.5)
Does it prolong life	
Agree	70(71.4)
Disagree	28(28.6)
Can patient survive after CPR performed	
Agree	69(70.4)
Disagree	29(29.6)

D. Participants' practice on CPR

As shown table 5.4 below, Out of 98 participants 82.7 % (n=81) were applied CPR and 17.3% (n=17) never applied it. From participants who applied CPR 28.4 % (n=23) correctly applied CC and 64.2 % (n=52) were wrongly applied and 7.4 % (n=6) do not remember how they apply. About 58 % (n=47) applied CPR on firm surface while 39.5 % (n=32) were applied on smooth surface and the remained didn't remember where they applied CPR. Also 59.2 % (n=58) answered correctly while 33.7%(n=33) for one rescue compression and breathing ratio for adult and 36.7 %

(n=36) correctly answered while 54.1%(n=53) answered incorrectly for compression and breathing ratio for two rescue and 43.9%(n=43) answered correctly while 39.8%(n=39) incorrectly answered and rests do not know compression ventilation ratio for neonate.

Table 4, Participants' practice about CPR (n = 98) in WSUTH, SNNP Region, May, 2017

Variables	Frequency (%)
Have you ever applied CPR	
Yes	81(82.7)
No	17(17.3)
On w/c part of the chest applies it	
Correctly answered	23(28.4)
Incorrectly answered	52(64.2)
I don't Know	6(7.4)
On w/c surface do you apply	
Correctly answered	47(58)
Incorrectly answered	32(39.5)
I don't Know	2(2.5)
Compression-ventilation ratio for one rescue	
Correctly answered	58(59.2)
Incorrectly answered	33(33.7)
I don't know	7(7.1)
How much for two rescue persons	
Correctly answered	36(36.7)
Incorrectly answered	53(54.1)
I don't know	9(9.2)
Compression and ventilation ratio in neonate	
Correctly answered	43((43.9)
Incorrectly answered	39(39.8)
I don't Know	16(16.3)

IV. DISCUSSION

This study was to explore the present knowledge of nurse staffs toward CPR so as to make a plan for CPR training. The result of this study shown that most of study participant has not received enough and satisfactory training as they were not able to retain information relevant to applying CPR. This conclusion stems indicate s from 98 participants n=23 were trained and n=13 were trained two years ago. And the other thing a great percentage of the respondents didn't answered correctly to the questions on the last guideline of European Resuscitation Council(ERC) and AHA that were relevant to the appropriate ratio of thoracic compression to ventilation.

In study conducted by Soo-II oh et al.[20] 47 professional nurses were tested on their skill of CPR 3 times at an interval of 4 months. From the results, it was confirmed that re-education clearly affects nurse's knowledge and skills by maintaining their knowledge and enhancing their skills.

A good example of this is represented by the result of the study done by preuschetal. [21] w/c stressed the importance of training even experienced staffs with the goal of adopting the guideline for resuscitation and applying them properly in time it become necessary and there is also strong association b/n training on CPR and information about CPR (P=000).

As to questions on CC in adult, all of the participants had knowledge about CC is important component of CPR but n=52 were wrongly applied and only n=54 answered correct depth of CC. It shows they were not administered high quality of CPR. According to AHA high quality CPR and early defibrillation were increase survival rate of the victims. Early defibrillation within 3-5 minutes of collapse can produce survival rate of 49-75%. [22]

The finding was similar that of studies conducted in health professionals of the Kist Medical Collage Hospital, these study shown that half of the respondents could identify that the right location of the hands for CC is center of the chest b/n two nipples. However, only 30% of the participants knew that the recommended depth of CC in an adult even if they knew appropriate CC in neonate. But the current study shows that from 98 participants, only 43.9% responded correct depth of CC in neonate w/n performing CPR.

There was a little difference b/n two studies is b/c of among the respondents there were anesthiologist and other health professionals who had training on BLS & ALS within six months [23] as stated by cooper etal there was significant improvement in knowledge and skills of people who have taken BLS course 6 months ago after taking a short course. Therefore, above reference and my finding also recommend periodical re-informant by such refreshers training to attain adequate CPR skills and to maintain continued competency in techniques [24].

In line with other studies conducted in junior Doctors in Hospital University Sains Malaysia and Hospital

Raja Perempuan Zaina 11, Kota Kelantan Malaysia w/n asked" How many cardiac arrest cases have you attended throughout your working period ?" 35(50%) said they had attended more than 5cases, 23(32.9%) had attended fewer than 5 cases and 12(17.1%) admitted that they had never attended any cardiac arrest before. Only 10(14.3%) respondents said that they were confident of managing resuscitation cases.

The majority of the participants (48, 68.8%) had undergone BLS training, but only 8(11.4%) had been trained in ACLS. As many as 42(60%) of the participants admitted that they had never handled a defibrillator before. It was found that questions that address the fundamental facts of BLS were answered correctly by more than 70% of the participants. Although this doesn't necessarily mean that the participants had good theoretical knowledge, it does imply that the participants should up to date with their BLS knowledge. This is further supported by the fact that 68.8% of our participants undergone BLS.

The current study revealed that the questions that address the fundamental BLS were answered correctly by more than 60% of the participants. But there is still defect it in important component of CPR/BLS for example out of 98, 34.6% agreed on need of vasopressin only 30.6%(n=30) correctly answered for the interval to administer adrenaline during CPR, 29.5%(n=29) for intubation and 28.5%(n=28) for defibrillation. Only 77.6 %(n=76) know rate of rescue breath per cycle although this does not necessarily mean that the participants had good theoretical knowledge .Still the difference is b/c of training refreshments.

V. CONCLUSION

The dynamic nature of resuscitation demonstrated the need for continues up dates for those already that trained and newly graduated and join Hospitals or other health facilities needs integration of course in curriculum in health care training institution so that all students receive the training for health professionals to be able to deliver essential service that they provide and in order to retain the respect that the public best own on them is imperative that they are seen to be competent in what they do. So this research document has shown the disparity between the expected and the actual performance of health professionals in our Hospital. Finally, the average health professionals lack adequate knowledge and practice in CPR.

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REFERENCE

- [1] Williams & Wilkins. Stedman's concise medical and Allied Health Dictionary, 1997, 199:760.
- [2] <http://wiredspace.wits.ac.za/bitstream/handle/10539/4654/Dissertation.pdf?sequence=3>(safer and Reuben in the late 1950's)
- [3] Ahern Rm, Lozano R, Naghavi m, foreman k, Gakidou E, Murray Cj. Improving the public health utility of global cardiovascular mortality data the rise of ischemic heart disease. *Popul Health Metr.* 2011,9:8
- [4] American Heart Association –Guidelines for cardiopulmonary Resuscitation and emergency cardiovascular care .2005
- [5] Berdowski J, Berg RA, Ijssel JG, KosterRW. Global incidence of out of-hospital cardiac arrest and survival rates: systematic review of 67 prospective studies. *Resuscitation.* 2010,81:1479-1487.
- [6] Campanapapelodiamundial de cardiologia, sociedade Brasileira de cardio logia cited 2011 Aug 25.[Sao Paulo]: SociedadeBrasilieriade Cardio logia; c2011[cited 2011 aug 25]. Available from: <http://pervenacao.Cordial.br/campanhas/default.asp?id=Cu racao>
- [7] American Heart Association Statistics committee and stork Statistics subcommittee Heart disease and stroke Statistics -2013 up data: a report from the America heart association [published correlation appears in *Circulation.* 2013;127:doi:10.1161/CIR.0b013e31828124ad] *circulation.* 2013;127:e6-e245.
- [8] World health organization report (WHO 2009:2)
- [9] Merchant RM, yang L, Becker LB, Berg RA, Nadkarni V< Nichol G, Carr BG, Metra N< Bradley SM, Abella BS, Groeneveled PW, American Heart Association Get With THE Guidelines-Resuscitation Investigators.Incidence of treated cardiac arrest in hospitalized patients in the United States. *Critical care med.* 2011, 39:2401-2406
- [10] ([http://www.heart.org/HEARTORG/CPR AND ECC/What is CPR/CPR facts and stats/history –of-CPR –UCN-307549-Article.jsp](http://www.heart.org/HEARTORG/CPR_AND_ECC/What_is_CPR/CPR_facts_and_stats/history_of-CPR_UCN-307549-Article.jsp).)
- [11] ReutterG, Wolfe RA, Goldstein S, Landis JR,vasuCM,Acheson A, et al. the effect of bystander CPR survival of out of hospital cardiac arrest victims . *Am heart J* 1985, 110:932-937
- [12] Wenzel V, Lehmkuhl P, Kubilis PS, Indris' AH, PichlmayrI.Poor correlation of mouth-to mouth ventilation skills after BLS training and 6 Month later. *Resuscitation* 19997, 35:129-134.
- [13] Wik L, Steen PA, Bircher NG .Quality of bystander cardiopulmonary resuscitation influence out com after pre hospital cardiac arrest. *Resuscitation* 1994, 28:195-203.
- [14] Gwinnutt C, Columb M, Harris R. out com after cardiac arrest in adults in UK hospitals: effect of 1997 guidelines 2000, 47:125-135.
- [15] Copper C, Johnston E, and Prescott D. immediate life support training. Impact in primary care setting? *Resuscitation* 2007, 72:92-99.
- [16] Cardio pulmonary resuscitation: statement by the Ad Hoc committee on cardio pulmonary resuscitation of the division of medical science, national academy of sciences, national research council. *Cardio pulmonary resuscitation JAMA* 1966, 198:372-379.
- [17] Republic of Botswana yearly report 2008 a:9
- [18] <http://wiredspace.wits.ac.za/bitstream/handle/10539/4645/Dissertation.pdf?Sequence=3> Godkin and toth (1994:22)
- [19] Hamilton R. Nurses Knowledge and skills following cardio-pulmonary resuscitation training: a review of the literature. *J Adv Nurse.* 2005; 51(3):288-97)
- [20] Soo-II O, Sang-Sook H. A study on the sustainable effect of reeducation on CPR on nurses' knowledge and skill. *J Korean Acad Nurs.* 2008; 38(3):383-392.
- [21] Preusch MR, Bea F, Roggenbach J, katus HA, Junger J Nikedei C. resuscitation Guideline 2005: do nursing staffs need training and how effective is it? *Am J Emerg Med.* 2010, 28(4); 477-84)
- [22] American heart Association Guide line for cardio pulmonary resuscitation and emergency cardio vascular care, 2005 a.
- [23] (*World J Emerg Med*, Roshana et al vol 3, no 2, 2012 [www. Wjem.org](http://www.wjem.org)).
- [24] Cooper S, Johnston E, Priscott D. Immediate life support training .Impact in a primary care