PILOT STUDY ON THE KNOWLEDGE AND ATTITUDE OF PROVIDING BYSTANDER CARDIOPULMONARY RESUSCITATION IN OUT OF HOSPITAL CARDIAC ARREST IN PHALGA LGA, RIVERS STATE

Abstract

Background: Sudden cardiac death is a principal cause of death for millions of people yearly worldwide.The survival chances of an out of cardiac arrest are significantly increased by provision of prompt and effective bystander cardiopulmonary resuscitation (CPR).

Methodology: A descriptive cross sectional study was conducted among 62 respondents in PHALGA Local Government Area. SPSS version 2.0 was used for the data analysis.

Results: Finding from the study provided evidence for a good test - retest reliability and an acceptable cronbach alpha value.

Conclusion: Majority of the community members have poor knowledge of cardiopulmonary resuscitation and only few of them have positive attitude towards providing bystander CPR. The positive or negative attitude towards CPR is influenced by their knowledge on CPR. The study showed that majority had negative attitude towards administering CPR. Health education, dissemination of information and community training on CPR is needed to improve knowledge and positive attitude towards bystander CPR administration.

Key words: Knowledge, Attitude, Bystander, Cardiopulmonary Resuscitation, Cardiac Arrest

Introduction

Out of hospital cardiac arrest (OHCA) has a global incidence of 50 to 60 per 100 000 population and it poises a public health burden despite global health care improvements, the mortality rate for OHCA remains high.(Heinri, 2020). Out of hospital cardiac arrest is not limited to developed nations but also occurs in many developing nations (Adedamola, Chukwudi 2019). Cardiovascular diseases are the leading cause among these diseases that accounts for 17.5 million deaths annually. (WHO, 2019). In Nigeria about 29% of all deaths are caused by NCDs with 11% caused by Cardiovascular diseases (NCD). (WHO, 2018). Nigeria is presently ill-prepared for this unlike many countries of the world as victims of OHCA is dependent on the bystanders' ability to perform early CPR in such emergency situations but due to poor knowledge of what is expected of them to do cannot provide this important emergency service. (Adedamola, Chukwudi 2019).

There is need to train people in the art and science of bystander CPR considering the on-going global public health burden of out of hospital sudden cardiac arrest and the prompt need of high quality CPR initiation which significantly increases the survival rate of victims as reported by researchers and add to the overall and long term benefits of the communities. (Adedamola, Chukwudi 2019). CPR should be initiated immediately following the recognition of the cardiac arrest victim. It can be done by anyone and anywhere. (Lindsay, 2014). CPR is a life-saving medical intervention which preserves intact brain function and tissue viability by circulating blood and oxygen manually around the individual's body, a function normally carried out by a beating heart. (Lindsay, 2014). CPR central goal is to postpone the death of tissue during the period of time where the patient lacks perfusion (Lindsay, 2014) . Early response improves the survival chances and yet it is often not provided up until the arrival of medical responders (Berg et al 2010). Perfusion is dependent on compressions of the chest thus the importance of chest compressions should be of a high priority and initial action on a sudden cardiac arrest victim. High quality CPR is not only important at the onset but throughout the course of resuscitation hence the phrase "Push hard'' and "Push fast".(Berg et al 2010).

The survival rate from OHCA in high income countries has been reported to be between 4.3% and 11%. (Willem et al, 2021) In low income countries reports shows spontenous circulation return rates ranging from 0% and 62%, survival rates to discharge between 1% and 16.7%, favorable neurological outcome ranging between 1% and 9.3%.(Schnaubelt, et.al, 2020).

Only few patients experiencing OHCA are resuscitated succesfully and lesser patients are discharged with minimal neurological impairement. (Shir, et,al., 2020).

The provision of early bystander cardiopulmonary resuscitation (CPR) is necessary to improve survival chances in out of hospital cardiac arrest by two fold however survival chances decreases by 7-10% each minute without CPR. (Martina, et.al, 2020). Cardiac death occurs most likely after 10 minutes of loss of oxygen to the brain, Brain damage is expected to occur from 6-10 minutes after cardiac arrest,brain damage is very possible from 0-4minutes and

brain damage is virtually non existent from 0-4minutes of cardiac arrest if prompt CPR intervention is done.(Paul, 2022).

The measurement of the knowledge and attitude of providing bystander cardiopulmonary resuscitation in out of hospital cardiac arrest in Phalga Local Government Area, Rivers State is limited. The primary aim of the present pilot study was to identify possible obstacle areas and shortcomings in the main research project concerning bystander cardiopulmonary resuscitation in Rivers state. The secondary aims were to determine the feasibility of the main study protocol, to examine if the recruitment methods of participants are suitable, to pretest the questionnaire and determine the reliability method.

Method

Research design

A pilot study was conducted to assess the knowledge and attitude of bystander cardiopulmonary resuscitation in out of hospital cardiac arrest with features of a community based descriptive cross sectional study which will be the main future research project.

Population and sampling : The study was conducted among community members of PHALGA LGA. 64 participants were recruited for this study which is 15% of the main study population.

Instruments: A structured self administered questionnaire developed by researchers from reviewed literature was used. The questionnaire consists of informations on socio demographic data, awareness of CPR, knowledge of CPR and attitude of CPR.

Ethical Consideration: Ethical clearance was obtained from Rivers State University teaching hospital. Formal permission were obtained from the community chairman. Informed consent (Verbal and written) were obtained from the participants. The participants were assured of information confidentiality.Participants can opt out at any point as discussed. Every step involve in this research were explained in details. The collection process lasted for 3days.

Data Analysis: The data obtained was properly screened for errors and completeness. SPSS version 25.0 was used to analyze the data. Descriptive statistics such as percentages and frequency was used for categorical variables.The mean and standard deviation for continuous variables. The cronbach alpha was used to evaluate the reliability of each scale in the questionnaire and values >0.7 were considered as acceptable.

Results

Socio-Demographic Characteristics of the respondents

Table 1 shows the respondents' socio-demographic characteristics of the respondents. About 48% of the respondents are between the age group 20-30years. More than half of the

respondents were male, married (52.5%) and (52.5%) has B.sc as their highest level of Education. Less than 0ne-fifths of the respondents were civil-servant . Majority (96.8%) of the respondents were Christian.

Sources of Cardiopulmonary Resuscitation (CPR) among participants

Table 2 shows the respondents' awareness of CPR. About 84% of the respondents have heard about CPR. Most (73.8%) of the respondents did not gain awareness of CPR through their families. More than two-fifths of the respondents gained awareness of CPR through their study. Majority (90.2%) of the respondents did not gain awareness of CPR through community health campaigns and health care workers(such as the doctors , nurses etc). More than four-fifths of the respondents gained awareness of CPR through social media. Many (77%) of the respondents did not get their awareness of CPR through radio nor TV programmes. Less than two-thirds of the respondents are not confident in their knowledge of CPR. Many (70.5%) of the respondents have not taken any form of training or course on CPR. Most (86.9%) of the respondents were not encouraged or require to take the course on CPR by the work or school (93.4%) . More than four-fifths of the respondents were not encouraged either by personal choice or previous experience to take the course on CPR.

Respondents' Knowledge of Cardiopulmonary Resuscitation (CPR)

Table 3 shows the respondents' knowledge of CPR. About two-thirds of the respondents know that when they encounter a situation that requires CPR, they need to check the victim for unconsciousness and start CPR immediately before calling emergency services. More than two-fifths of the respondents know that checking if a cardiac arrest victim is unconscious involves calling out or shaking the should of the victim. Many (66.7%) of the respondents won't rush a cardiac arrest victim to the hospital before starting CPR. Most (83%) of the respondents know that high-quality CPR should be started within 10-15 sec of recognition of cardiac arrest in the victim. About 78% of the respondents know the recommended BLS sequence guideline of CPR. Less than half of the respondents know the recommended rate of chest compression per minute. 33.3% are aware that chest compression should be performed on a flat surface.

Respondents' Attitude Towards Cardiopulmonary Resuscitation (CPR)

Table 4 shows the respondents' attitudes towards CPR. About 77% of the respondents have never witnessed a sudden cardiac arrest. Most (86.9%) of the respondents witness a sudden cardiac arrest among strangers. Majority (90.2%) of the respondents will carry out CPR if any of their family members become a victim of cardiac arrest. Half of the respondents will carry out CPR if their friend and neighbour (42.6%) are victims of cardiac arrest. About 54% of the respondents will not give a cardiac massage if any of their family or friend develop a cardiac arrest. Many (60.7%) of the respondents will call somebody if any of their family or friend develop a cardiac arrest. About two-thirds of the respondents will call somebody if a stranger

experience a cardiac arrest in their presence. Half of the respondents won't be bothered about making mistakes if a stranger needs CPR.

Barriers preventing respondents from administering CPR indicated that many (62.3%) of the respondents are afraid of being arrested by the police which prevents them from administering CPR. More than half of the respondents (55.7%) are afraid of being harassed due to negative outcomes of CPR which prevent them from administering CPR. Majority (90.2%) of the respondents are not disturbed by reprisal from gangs to administer CPR.

Table 1: frequency distribution of the respondents socio-demographics characteristics

Variables	N=61	%
Age		
20-30	29	47.5
31-40	17	27.9
41-50	15	24.6
Sex		
Male	32	52.5
Female	29	47.5
Marital status		
Single	26	42.6
Married	32	52.5
Separated	1	1.6
Widowed	2	3.3
Education		
None	3	4.9
Primary	2	3.3
Secondary	6	9.8
NCE	3	4.9
OND	4	6.6
HND	5	8.2
Bsc	26	42.6
Msc	9	14.8
Phd	3	4.9
Occupation		
Civil servant	16	26.2
Retired	5	8.2
Self-employed	10	16.4
Unemployed	2	3,3
Student	10	16.4
Trader	13	21.3
Other	5	8.2

Religion		
Christianity	59	96.8
Islam	1	1.6
Traditional	1	1.6

Table 2 frequency distribution of respondents awareness on CPR N=61

Variables	Yes(%)	No(%)
Heard of Cardiopulmonary Resuscitation (CPR) before now	51(83.6%)	10(16.4%)
Gain awareness on CPR through family	16(26.2%)	45(73.8%)
Gain awareness on CPR through personal reading/school	27(44.3%)	34(55.7%)
Gain awareness on CPR through community health campaign	6(9.8%)	55(90.2%)
Gain awareness on CPR through Health care workers (Doctors, nurses)	6(9.8%)	55(90.2%)
Gain awareness on CPR through social media	50(82%)	11(18%)
Gain awareness on CPR through radio/tv programme	14(23%)	47(77%)
Confidence that your knowledge on CPR is adequate to assist a cardiac arrest when encounter with one	23(37.7%)	38(62.3%)
Have you taken a training /course on CPR	18(29.5%)	43(70.5%)
What encourage you to take the training on CPR?		
❖ Work Requirement	8(13.1%)	53(86.9%)
❖ School Requirement	4(6.6%)	57(93.4%)
❖ Personal choice	5(8.2%)	56(91.8%)
❖ Previous experience	2(3.3%)	59(96.7%)

Table 3 frequency distribution of respondents knowledge on CPR N= 18

Variables	True(%)	False(%)	don't know (%)
The correct steps involved when you encounter a situation that requires CPR to check victim for unconsciousness start CPR immediately before you call the emergency services	12(66.7%)	5(27.8%)	1(5.6%)
Checking whether a cardiac arrest victim is unconscious involves calling out "are you okay" or shaking the victims	8(44.4%)	8(44.4%)	2(11.1%)

shoulder			
In ideal situation, it is better to rush of a cardiac arrest to the hospital than to waste time to start CPR on the victim	6(33.3%)	12(66.7%)	
High quality CPR should be started after 10-15 sec of recognition of cardiac arrest in victims of all age	15(83.3%)	2(11.1%)	1(5.6%)
The recommended BLS sequence by AHA2010 guidelines of CPR is chest compression, airway and breathing	14(77.8%)	1(5.6%)	3(16.7%)
The recommended adequate rate of chest compression is 100-120 compressions per minute	8(47.1%)	5(29.4%)	4(23.5%)
Delivery of chest compressions on a mattress or soft material provides effect and adequate compressions while protecting the victims back	6(33.3%)	11(61.1%)	1(5.6%)

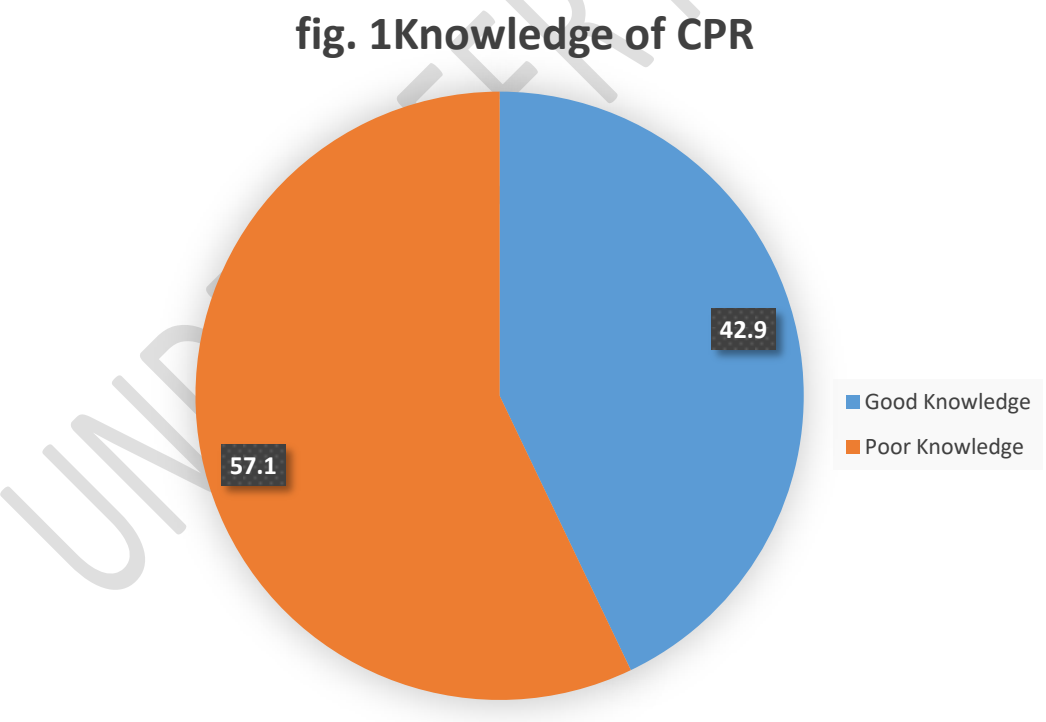
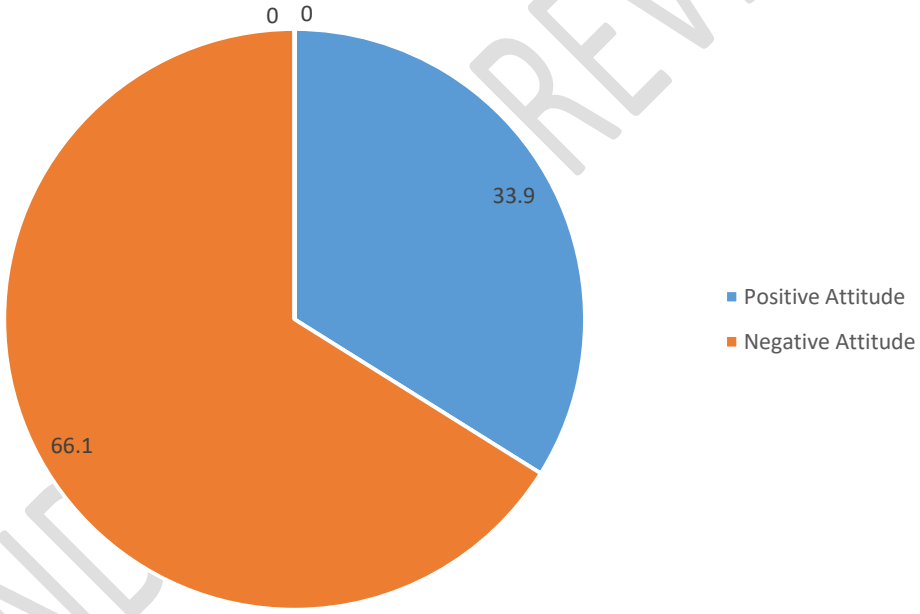


Table 4: frequency distribution of the respondents attitude towards CPR N= 61

Variables	Yes(%)	No(%)
Have you ever witness a sudden cardiac arrest	14(23%)	47(77%)
Witness a sudden cardiac arrest among family member	3(4.9%)	58(95.1%)
Witness a sudden cardiac arrest among friends	5(8.2%)	56(91.8%)
Witness a sudden cardiac arrest among strangers	53(86.9%)	8(13.1%)
I have not seen a sudden cardiac arrest	2(3.3%)	59(96.7%)
Gave a cardiac message	4(6.6%)	57(93.4%)
Conducted mouth to mouth ventilation	1(1.6%)	60(98.4%)
Called an ambulance	2(3.3%)	59(96.7%)
Told someone to call for help	5(8.2%)	56(91.8%)
Called for help using telephone	3(4.9%)	58(95.1%)
Just watched and left	4(6.6%)	57(93.4%)
If a family member was a victim of cardiac arrest will you carry out CPR	55(90.2%)	6(9.8%)
If a friends was a victim of cardiac arrest will you carry out CPR	31(50.8%)	30(49.2%)
If a neighbour was a victim of cardiac arrest will you carry out CPR	26(42.6%)	35(57.4%)
If a stranger was a victim of cardiac arrest will you carry out CPR	22(36.1%)	39(63.9%)
If family or friend experience a cardiac arrest, will you begin to give a cardiac massage	28(45.9%)	33(54.1%)
If family or friend experience a cardiac arrest, will you call an ambulance	19(31.1%)	42(68.9%)
If family or friend experience a cardiac arrest, will you call somebody	37(60.7%)	24(39.3%)
If family or friend experience a cardiac arrest, will just watch and leave	1(1.6%)	60(98.4%)
If a stranger experience a cardiac arrest, will you begin to give a cardiac massage	14(23%)	47(77%)
If a stranger experience a cardiac arrest, will you call an ambulance	18(29.5%)	43(70.5%)
If a stranger experience a cardiac arrest, will you call somebody	40(65.6%)	21(34.4%)
If a stranger experience a cardiac arrest, will just watch and leave	7(11.5%)	54(88.5%)
Will fear of making a mistake concern you from giving CPR for friends or relatives	29(47.5%)	32(52.5%)
Will fear of causing bone fractures concern you from giving CPR for friends or relatives	9(14.8%)	52(85.2%)
Will fear of causing harm to organs concern you from giving CPR for friends or relatives	7(11.5%)	54(88.5%)
Will fear of stopping a working heart concern you from giving CPR for friends or relatives	7(11.5%)	54(88.5%)
Will fear of police involvement concern you from giving CPR for friends or relatives	19(31.1%)	42(68.9%)
Will fear of punishment due to legal reasons concern you from giving CPR for friends or relatives	10(16.4%)	51(83.6%)
Will fear of contracting a contagious disease concern you from giving CPR for friends or relatives	11(18%)	50(82%)
Will fear of making a mistake concern you from giving CPR to stranger	30(49.2%)	31(50.8%)
Will fear of causing bone fractures concern you from giving CPR to strangers	5(8.2%)	56(91.8%)
Will fear of causing harm to organs concern you from giving CPR to strangers	10(16.4%)	51(83.6%)

Will fear of stoping a working heart concern you from giving CPR to strangers	21(34.4%)	40(65.6%)
Will fear of police involvement concern you from giving CPR to strangers	5(8.2%)	56(91.8%)
Will fear of punishment due to legal reasons concern you from giving CPR to strangers	12(19.7%)	49(80.3%)
Will fear of contracting a contagious disease concern you from giving CPR to strangers	17(27.9%)	44(72.1%)
Fear of been arrested by the police will prevent me from administering CPR	38(62.3%)	23(37.7%)
Fear of been harassed due to negative outcome of CPR will prevent you from administering CPR	34(55.7%)	27(44.3%)
Fear of been charged to court will prevent you from administering CPR	12(19.7%)	49(80.3%)
Fear of reprisal from gangs will prevent you from administering CPR	6(9.8%)	55(90.2%)

fig.2 Attitude towards CPR



Discussion

Objective one: To assess bystander level of knowledge on Cardiopulmonary Resuscitation.

Fadi et al., 2019 in a study among non medical people in Saudi Arabia stated that In cardiac arrest victims, high-quality cardiopulmonary resuscitation (CPR) provision is a fundamental component of initial care, especially in the out-of-hospital settings. Findings from the study shows there is a lack of knowledge regarding CPR as only 44.7% knew the correct depth, and

only 18.5% knew the correct compression-ventilation rate similar to this study with about 47% have the correct knowledge of compression ventilation rate. It recommended that there should be a coordinated national effort to improve the public awareness about CPR performance such as mass education, specialized training and setting legislation.

In this study about 84% of the respondents have heard about CPR similar to a study done by Matina et. al., 2020 with Over 80% of respondents have heard of the procedure and bystander willingness to engage in CPR. A study done by Yaw, 2019 shows that the most common sources of the respondents' knowledge were movies and television shows (32%), reading (18%) and school work (18%). In this study the most common sources of respondent knowledge is social media (50%),personal reading(27%) ,Family (16%).

In this study 16% had received pior CPR training mostly from work(8%), personal choice (5%) while the findings from a study done by Yaw, 2019 shows most of the respondents of the study obtained CPR training as a school or work requirement 51.6% and 46.5% respectively and 13.4% from health science courses, 44.2%.

2.2 Objective Two: To Assess the attitude of bystander towards Cardiopulmonary Resuscitation.

In a study by Buranasakda, 2021, on the knowledge and attitude towards bystander CPR among Thais stated that bystander CPR is a paramount factor in improving OHCA survival rates. Findings shows that due to lack of time and no known means of BLS training centers are major barrier and causes to poor attitudes towards CPR practice, Low confidence and fear of causing harm to the cardiac arrest victims. However, 80% of participants showed positive attitude towards willingness to perform CPR which is also embedded in their cultural belief as helping is a key value. The study recommended CPR training and refresher courses should be made available for everyone especially those in the rural region in other to foster positive attitude towards CPR practice.

In line with other studies, most participants (90%) in this study would readily perform CPR for cohabiting family and relatives but majority of respondents will not perform CPR to strangers as due to health, legal and safety concerns. 59.3% of respondents in a study done by Meng et al 2017 in China were will not perform CPR on strangers due to fear of legal issues. The major barriers to the practice of CPR to strangers as evidenced by many studies are fear of contracting an infectious disease, lack of confidence and fear of causing harm to a stranger and its legal implications.(Yaw 2019). They were the main inhibiting factors in this study. Majority (63%) are scared of being arrested by police, 38% are concerned of been harassed.

Conclusion

This pilot study has achieved its goal by ascertaining the reliability of the study. Properly evaluating the tool's feasibility for gauging Knowledge and Attitude of providing bystander cardiopulmonary resuscitation in Rivers State and recommending a number of research design improvements in the main study in a different study setting The study findings shows that majority of the community members have poor knowledge and poor attitude towards CPR. It was recommended that Adequate health education and CPR training should be planned and implemented in the community.

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