KNOWLEDGE AND PRACTICE OF BASIC LIFE SUPPORT AMONG HEALTH WORKERS IN THE UPPER DENKYIRA EAST MUNICIPALITY OF GHANA

ABSTRACT

Background: The medical procedure known as cardiopulmonary resuscitation (CPR) can save a person's life after a heart attack. Additionally, it is done to manually preserve full brain function while additional measures are taken to recover spontaneous breathing and normal unprompted blood circulation in cardiac arrest.

Methods: The study's goal was to assess the knowledge and practice of basic life support among health workers in the Upper Denkyira East Municipality, Central Region of Ghana. The study used cross-sectional design. The study respondents were chosen using a simple random sampling method which included 322 nurses, doctors, physician assistants and midwives working in the Municipality.Data were collected using a standardized questionnaire. Data were analysed with SPSS version 25 and summarized using frequencies and percentages. Pearson's chi-square test and multivariate logistic regression were used to examine associations at a 5% significance level.

Results: The study found that while all health care workers had heard about BLS, they only had an average of 68.9 percent understanding of basic life support and just 16.5 percent had practiced CPR before. Also, there was significant association between sociodemographic characteristics (sex, grade, educational level, department and work experience) of the health workers and the practice of basic life support (p-value=*<0.001*).

Conclusion: The study concludes that if health workers are given more training and support, the knowledge and practice of basic life support would be increased in the Upper Denkyira East Municipality.

Keywords: *Knowledge, practice and basic life support, cardiopulmonary, resuscitation*

1. INTRODUCTION

By 2020, cardiac arrest was predicted to cause 15-20% of all fatalities, which is a significant public health concern [1]. Each year, thousands of patients experience cardiac arrest in both outpatient and inpatient settings, which is a serious public health concern [20]. Additionally, both in developed and developing nations, it is a significant factor in cardiovascular morbidity and mortality [4]. Cardiac arrest can cause quick cardiac death if it is not properly addressed. With early and efficient medical care, survival is possible [9].

What is referred to as "the double burden of disease" is something that developing nations are grappling with more and more. Malnutrition and infectious diseases continue unabatedly, but non-communicable illnesses like cardiovascular disease (CVD) are on the rise and provide an increasing threat to public health [2]. The main factor contributing to death globally is cardiovascular disease [8]. Additionally, at least 75% of CVD mortality worldwide is accounted for by low- and middle-income countries [3].

Since CVDs can cause up to 80% of these cardiac arrests, out-of-hospital cardiac arrest (OHCA) is increasing as the number of CVD cases rises [12]. Cardiac arrest is the sudden, unexpected loss of consciousness, breathing, and heartbeat, which, if untreated, can result in sudden cardiac death [4]. The leading cause of death overall (36 percent of all causes of death) is sudden cardiac arrest, with over 465000 cases documented in the United States. Outside of a hospital, these occurrences happen in two-thirds of the cases [18]. Premature CVD mortality among adults aged 35 to 64 is predicted to rise by 41% by 2030 [31].

A suggested strategy known as the "chain of survival" could stop deaths from cardiac arrest that occurs outside of a hospital [7]. It consists of things like improved cardiac care in hospitals, effective emergency services, and lay cardiopulmonary resuscitation (CPR). Bystander CPR that is given swiftly and efficiently is the first and most important of these criteria [5]. The likelihood of survival decreases by 10% for each minute when CPR is postponed [11].

A person's life can be saved by cardiopulmonary resuscitation in a number of circumstances, such as vehicle accidents, near drownings, electrical injuries, choking, and cardiac arrest [9]. In public settings, lay/bystander CPR is carried out by a person unrelated to the medical profession. In the United States, around 45% of OHCA victims survived after receiving bystander CPR [26]. The percentage of bystander CPR varies greatly over the world, from 5% to 80% [28].

Worldwide, there are more than three (3) million cases of sudden cardiac death each year, with survival rates of fewer than 8% [10]. Patients suffering from sudden cardiac arrest can be saved by basic life support, also referred to as cardiopulmonary resuscitation [6]. Basic life support is also provided in an effort to maintain full brain function until additional measures are needed to reestablish spontaneous breathing and blood circulation in cardiac arrest patients [8].

Basic life support involves administering rescue breathing and chest compressions to a patient who is thought to be experiencing a cardiac arrest [13]. All medical professionals, especially nurses and doctors, must therefore be aware and skilled in performing cardiopulmonary resuscitation (CPR). Basic life support expertise in relation to standard care is necessary to perform efficient resuscitation [22].

Basic life support competency is having the cognitive understanding and psychomotor abilities required for efficient CPR in cardiac arrest scenarios [35]. Nurses and doctors are the first responders in an emergency, and they are the ones who are called upon to start basic life support if it is needed [37]. As the nurse's position evolves, the distinction between what is called nursing intervention and what is considered medical intervention becomes more hazy [23]. As a result, nurses and doctors must have sufficient knowledge and skills to provide outstanding care, particularly in the process of basic life support, and there is a need to assess these health workers' knowledge in their everyday operations of basic life support.

Knowledge of the rules is linked to a higher possibility of performing components of basic life support correctly [29]. The American Heart Association Guidelines 2017 are used to evaluate the quality of care provided to cardiac arrest patients [15]. Their understanding of basic life support could help them determine whether the quality of CPR given has a good or negative impact on the quality of care given to patients [19]. The importance of health personnel knowing how to administer basic life support cannot be overstated, as they are frequently faced with such a situation in their work [13].It was discovered in a study that health workers' awareness of the components of basic life support was lacking. It was also concluded that the CPR done by the health staff was below standard on a quality scale [21]. Another study found that CPR awareness among health workers in Ghana was inadequate [30].

Studies show that healthcare professionals in underdeveloped countries know little about cardiopulmonary resuscitation (CPR). There is a significant difference between the amount of knowledge and various degrees of nurse qualifications, according to the findings of a study that

was undertaken to evaluate the relative influence of level of cardiopulmonary resuscitation knowledge and nursing qualifications [34].The results show that nurses with higher degrees are more knowledgeable in cardiopulmonary resuscitation than nurses with lower degrees. In a cross-sectional survey to assess qualified nurses' perceived ability in cardiopulmonary resuscitation, it was discovered that nurses had adequate knowledge and appreciation of CPR [3]. According to a different study, many medical professionals are unsure of what cardiopulmonary resuscitation entails [8].

Cardiac arrest remains a serious public health concern and a leading cause of mortality in many parts of the world despite significant breakthroughs in prevention. Both inside and outside of the hospital, cardiac arrest is a possibility [11]. Poor cardiac arrest patient outcomes have been linked to the incapacity of nurses and doctors to provide basic and advanced life support [18]. The patient's chance of survival after cardiac arrest is directly correlated with the time it takes to begin resuscitation and defibrillation. Since nurses spend 24 hours a day with patients, they are the medical professionals most likely to see a patient go into cardiac arrest in a hospital setting [9].

A heart attack accounted for 80% of the estimated 17.7 million fatalities from cardiovascular diseases that occurred worldwide in 2018 [17]. 15.2 million persons worldwide died from cardiovascular disease in 2016 out of a total of 56.9 million [14]. In low- and middle-income nations, it continues to be the leading cause of mortality [23]. 15-20% of all fatalities are caused by cardiac arrest, which is the main cause of illness and mortality in the cardiovascular system [16]. More than 3 million people worldwide experience sudden cardiac death each year, with a survival rate of fewer than 8% [34] according to earlier studies. Cardiovascular diseases have been the leading cause of death globally for the past 15 years [25].

It is predicted to be the fourth leading cause of death in Ghana, accounting for 6% of all fatalities, because to an increase in risk factors such obesity, alcohol consumption, and physical inactivity [33]. By 2023, it is anticipated to overtake all other causes of death [24]. The healthcare team is in charge of handling cardiac arrest cases, per a 2017 WHO report [4].

Prompt basic life support has been shown to help prevent sudden death [26]. Since basic life support is the initial treatment for cardiac arrest until advanced life support is available, it is a crucial component of emergency medical care. While CPR has gained widespread acceptance in the healthcare systems of Western nations, it is still a relatively new technique in Ghana and

most other African nations [27]. In Ghana, 19.7% of 157 patients in 2013 and 24.3% of 140 cases of abrupt collapse admitted to various institutions in the Central Region in 2016 perished [2]. How many of the sudden collapse occurrences were brought on by cardiac arrest, however, remained unknown.

For cardiac arrest patients to survive, the level of care given to them during resuscitation is crucial. Similar to this, the basis of resuscitation for cardiac arrest patients determines the effectiveness of CPR as a lifesaving intervention [27]. Therefore, there is a global need for improved resuscitation care and an emphasis on patient outcomes, including functional outcomes as well as death [32:36]. This calls for health professionals to comprehend and put resuscitation into practice. Every medical professional must be knowledgeable about basic life support in order to save lives and improve public health.

Only 19.7% of respondents to a poll performed in Ethiopia were able to execute basic life support procedures, and 2.5% of those respondents were fifth-year students [7]. According to the primary conclusions of a study conducted in Nigeria, basic life support is strongly practiced by health professionals, and there is a substantial correlation between this practice and demographic factors like experience level [28]. Only about 5% of medical personnel are trained in cardiopulmonary resuscitation in poor countries [14].As essential members of the healthcare delivery team, nurses and doctors are frequently the first to identify cardiac arrest and put protocols in place to provide Basic Life Support (BLS) in life-threatening conditions. They must possess the fundamental knowledge and expertise needed to do CPR. As a result, it was important to assess the knowledge and practice of basic life support among health professionals in the Upper Denkyira East Municipality of Ghana.

2. METHODS

2.1Study area

The study was conducted Upper Denkyira East Municipality (UDEM), in the Central Region of Ghana. This municipality is one of Ghana's Central Region's twenty-two (22) Administrative Metropolitan, Municipalities, and Districts. In Dunkwa-On-Offin, the administrative center is located. A total of 1,020 square kilometers, or nearly 10% of the Central Region's total land area, make up the higher Denkyira East Municipality [34].

According to the 2021 Population and Housing Census, there are 110,141 people living in Upper Denkyira East Municipality, or 3.3 percent of the total population of the area. In a municipality, there are about fifty percent (50%) rural communities without hospitals. They obtain their medical care through Community-based Health Planning and Services (CHPS) facilities and clinics with little funding. There are 23 healthcare facilities in the research area, including hospitals, health centers, rural clinics, and private clinics. Others include community health planning and services (CHPS) compounds and exclusive maternity homes.According to Table 1, there were eight (8) health facilities at the study locations in the municipality. The healthcare facilities include a working Medical Laboratory Unit, an Outpatient Department (OPD), an Antenatal Clinic (ANC), Obstetric and Gynecological Unit, Post-Natal Unit, and Neonatal Intensive Care Unit.

2.2 Study design

Cross-sectional survey design was used to determine the knowledge and practice of basic life support among health personnel. The cross-sectional survey looks at current challenges, dominant activities, perceptions and behaviors, including ongoing processes and evolving patterns [4]. The cross-sectional form of survey design deals with concerns about what happens in a situation with regard to factors or circumstances.

2.3 The study population

The study population was made up of health care workers specifically nurse, doctors, physician assistants and midwives at the health facilities in the Upper Denkyira East Municipality in the Central Region. Nurse, doctors, physician assistants and midwives who were on their annual or study leave and other official assignments and therefore not available at the time of the data taking, were not included.

2.4 Sample size determination

Yamane's (1967) statistical formula was used to determination the sample size for this study as follow:

$$\mathrm{n} = \frac{N}{1 + \mathrm{N(e)2}}$$

n= the required sample size

N= known population size

1= constant

e= standard error (0.05)

The total number of health workers in the Municipality equals to 1100.Using the above formula, the minimum sample size for the study was calculated at 293. With addition of 10% non-response rate, the total sample size was 322.

2.5 Sampling procedure

Respondents were sampled using simple random sampling method. This was done by taken the staff identification numbers from the Municipal Health Directorate. These numbers were written on papers, folded and put in a bowl. They were then picked at random until the desired sample size was met. Staff whose identification numbers were picked, were traced by the researchers for the administration of the questionnaires.

2.5 Study variables

Table 1: Variables of the study

Independent variables		Dependent variable
Knowledge on BLS & COS	**Demographics**	**Practice of BLS**
1. Heard about BLS & COS	1. Age	Improves cardiac conditions
2. Place of information	2. Sex	
3. Sequence of BLS & COS	3. Rank	
4. Number of breath/minute	4. Marital status	
5. Steps in COS	5. Specialty	
6. Possibility of COS	6. Educational level	
	7. Work experience	

2.6 ResearchInstruments

Using a standardized questionnaire, data were gathered. The questionnaire was made with the aid of certain books. A number of studies on the understanding and application of basic life support were used to develop the tool. To meet the objectives of the study and appropriately address the research issues, these items were modified. The instrument was picked for the investigation because it was suitable and applicable. Nevertheless, the researcher evaluated the questions'

suitability and decided they were appropriate for the current study. The researcher changed, erased, and added some items that were crucial to the current study's objective.

The final questionnaire for the study had 34 items and was divided into four sections (A, B, C andD) that captured socio-demographic information, BLS knowledge, knowledge, and basic life support practice.The items were in the form of a list of questions that respondents were asked to answer with the goal of gathering data on the topic under investigation. Self-administered questionnaires were employed by the researcher. There were two types of questions in the questionnaire: open ended and closed ended.The respondents were given a list of different replies to choose from, and they were asked to pick the one that best reflected their opinions. On the other hand, open-ended questions were followed by any kind of option. The responses of the respondents were then recorded in their entirety. The respondents responded to the questions in the manner in which he or she understood them.

2.7 Pilot Study

Pilot study of the research instrument took place at Upper Denkyira West District. Although the pre-test district was located outside the research area, it shared many of the same characteristics in terms of personnel, client services, and ward layout.The pre-testing helped classify certain difficulties that were linked to the understanding of the respondents. The researcher pre-tested the questionnaire on 10 nurses, 2 doctors, 10 midwives and 4 Physician Assistants to check for reliability of the instruments. The Cronbach Alpha co-efficient was calculated for the questionnaire and presented in Table 2 below:

Table 2: Reliability scores of questionnaire subscales

Subscales	No. of items	Cronbach Alpha
Knowledge on BLS & COS	19	.846
Practice of BLS	6	.832
Overall	25	.803

2.8 DataCollectionProcedure

Structured questionnaires were presented to nurses, doctors, physician assistants and midwifein various health facilities in the municipality their responses. For one week, data werecollected between the hours of 8:30a.m. and 5:30p.m.Two research assistantswere train for the data collection process before data collection commenced. Consent wassought from each participant

both verbally and in written form before any data were collected fromthe participants. Participants who decided to withdraw from the study were excludedand were not forced or persuaded in any form to take part in the study.Besides, allrespondents were assured that their responses as part of the study would not be disclosed without their consent.Personal information or identifiers that could be used to link the data to individual participants were fully removed. During the actual field data collection, data such as names, house numbers, and addresses were not captured as part of the data. All participants were also assured of their anonymity.

2.9 DataAnalysis

For analysis, the quantitative data received from respondents were loaded into SPSS version 25. The knowledge of basic life support, practice of basic life support and association between socio-demographic characteristics and the practice of basic life support among health workers in the municipality were assessed using descriptive, bivariate and multivariate logistic regression analysis techniques. Tables, charts and graphs were used to present the data.

3. RESULTS

3.1 Socio-demographic characteristics of respondents

From Table 3, the majority of the respondents 286 (88.8%) were females, while 36 (11.2%) were males. Almost half of the respondents 153 (47.5%) were between the ages of 25 and 35, with 43 (13.4%) being above 35 years with mean age of 33.3 and standard deviation 17.7. In addition, 243 (75.5%) of the respondents were nurses, compared to 5 (1.6%) medical officers. The majorityof the respondents 202 (62.7%) had Diploma as their highest educational certificate while 26 (8.1%) had masters as their highest educational qualification.

Table 3: Respondents' socio-demographic characteristics

Variables	Frequency n=322	Percentage
Sex of respondents		
Male	36	11.2
Female	286	88.8

Age of respondents		
Below 25yrs	126	39.1
25-35yrs	153	47.5
Above 35yrs	43	13.4
Mean=33.3; SD=17.7		
Grade of respondents		
Medical officer	5	1.6
Physician Assistant	8	2.5
Nurse	243	75.5
Midwife	66	20.5
Educational level		
Certificate	40	12.4
Diploma	202	62.7
1st Degree	54	16.8
Masters	26	8.1

Figure 1 depicts the various departments of the respondents. Most of the respondents 222 (68.9%) were at the medical ward while 5 (1.6%) were working at the Out Patients' Department.

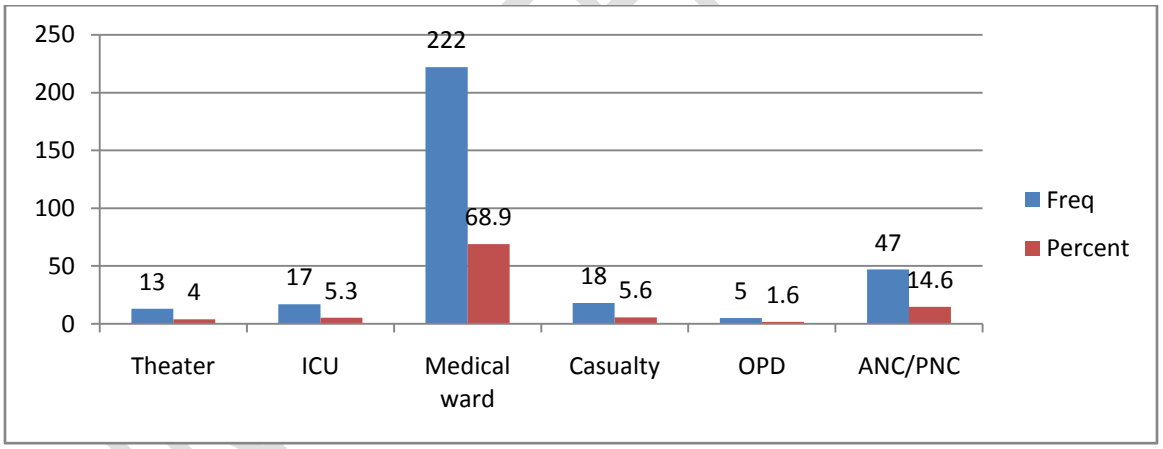

Figure 1: Respondents department

**Intensive Care Unit (ICU), Out Patient Department (OPD), Antenatal Clinic/Post Natal Clinic (ANC/PNC)*

From figure 2, majority of the respondents 229 (71%) had worked for 1-4 years as against 8(2%) who had worked for less than 1 year.

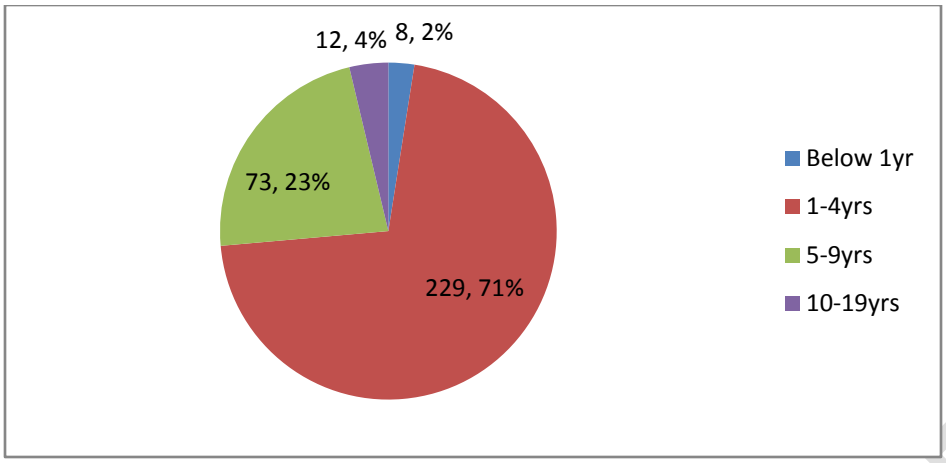

Figure 2: How long respondents had worked in the facility

3.2 Knowledge on basic Life Support

Table 4 presents respondents knowledge on basic life support. Majority of the respondents 227 (70.5%) heard about CPR at NTC/Medical school while few 13 (4.0%) heard it from Post Basic school. Also, an overwhelming majority of the respondents 306 (95.0%) stated that cardiac arrest patients should receive CPR as against 7(2.7%) who said patient in shock. Furthermore, 241 (75.2%) said the best location for CPR is mid chest. Again, most of the respondents 230 (71.4%) said the chest compressions of adult should be 2 inches in depth. More than half of the respondents 202 (62.7%) had received basic life support training. Also, 202 (62.7%) of the respondents stated that chest compression, airway and breathing was the correct sequence of BLS. The majority of respondents 204(63.4%) believed that, the number of breaths per minute should be 10-12 per minute.On the signs of cardiac arrest, most of the respondents 249 (77.3%) said when patient is unresponsive, not breathing or gasping. More than half of the respondents 291 (90.4%) managed cardiac arrest by performing CPR. With a compression rate of at least 100 per minute for the optimum universal compression to ventilation ratio,if just one rescuer is available, the majority of respondents 274(85.1%) said it should be 30:2 for adults. 275 (85.4%) said children should be 15:2 while 271 (84.2%)said 3:1 for newborns.

Table 4: Respondents knowledge on basic life support

Variables	Frequency	Percentage
The first place you heard about basic life support		
NTC/Medical school	227	70.5
Post Basic School	13	4.0

At workshop	82	25.5
Which patients receive CPR		
Cardiac arrest patients	306	95.0
Patient in shock	7	2.7
Patient choking	9	2.8
What is the best location for CPR		
Mid chest	241	75.2
Left thoracic region	41	12.7
Right thoracic region	30	9.3
Xiphisternum	9	2.8
Depth of chest compression in adult		
5inches	25	7.8
4inches	52	16.1
3inches	15	4.7
2inches	230	71.4
Have you had BLS training		
Yes	202	62.7
No	120	37.3
The correct sequence of BLS		
Chest compression, airway, breathing	222	68.9
Airway, breathing, chest compression	54	16.8
Breathing, airway, chest compression	46	14.3
The number of breaths per minute		
10-12 per minute	204	63.4
12-14 per minute	57	17.7
16-18 per minute	36	11.2
20-25 per minute	25	7.8
Signs of Cardiac Arrest		
When patient is unresponsive, not breathing or having gasp	249	77.3
When patient complaints of chest pains	31	9.6
When there is cough and difficulty breathing	42	13.0
How do you manage patient with cardiac arrest		
By cardiopulmonary resuscitation (CPR)	291	90.4
By any other mean	31	9.6
30:2 for adult, if only a single rescuer is present		
Yes	274	85.1
No	48	14.9
15:2 in children and infants		
Yes	275	85.4
No	47	14.6
3:1 in newborns		
Yes	271	84.2
No	51	15.8

Figure 3 below shows the respondents' knowledge level on basic life support. Majority of the respondents 161(61.7%) rated their knowledge on BLS as average followed by High 70(26.8%) while 30(11.5%) had low knowledge on BLS.

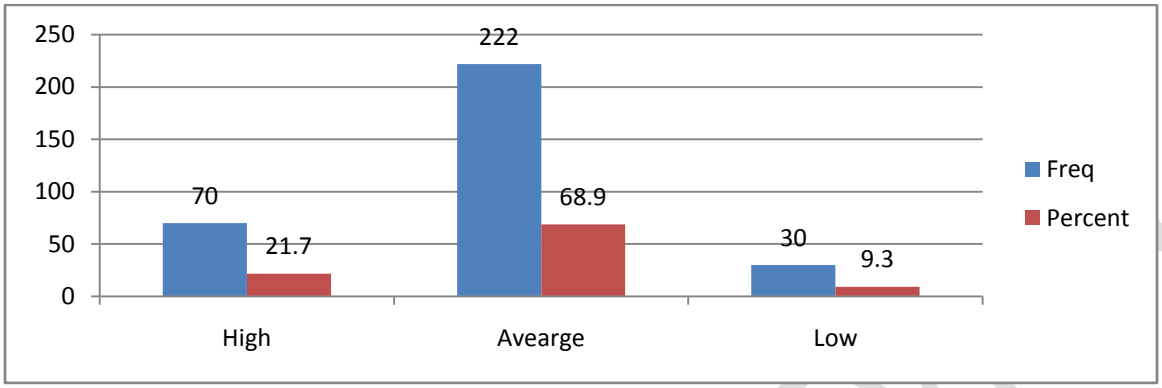

Figure 3: How would you rate your knowledge on BLS?

3.3 Practice of basic life support

The practice of basic life support among health staff is depicted in Table 5. The majority of the respondents, 269 (83.5%) had never performed CPR, whereas 53 (16.5%) had practiced some before. In addition, the most of responders 259 (80.4%) stated that they practiced CPR when necessary.In addition, 199 (61.8%) of respondents said they would begin chest compressions if they saw someone unresponsive in the hospital. Finally, more than half of the respondents claimed they would only use Mouth-to-Mouth and Nose-to-Nose when rescuing patients in an emergency.

Table 5: Practice of basic life support

Variables	Frequency	Percentage
Have you ever performed CPR?		
Yes	53	16.5
No	269	83.5
How often do you practice CPR?		
Always	20	6.2
When the need arises	259	80.4
Occasionally	43	13.4
With unresponsive person what should your first response be		
Open airway	94	29.1
Start chest compression	199	61.8
Look for safety	25	7.7

Give two breathing	4	1.2
How do you give rescue breaths?		
Mouth-to-mouth with nose pinched	62	19.3
Mouth-to-mouth and nose only	222	68.9
Mouth-to-nose only	19	5.9
Mouth-to-mouth without nose pinched	19	5.9

3.4 The association between the sociodemographic characteristics of health workers and the practice of basic life support

Table 6 shows the bivariate analysis of the association between respondents' sociodemographic features and practice of basic life support. Sex, age, grade, educational qualification, department and years of experience were all statistically significant (p-value=<*0.001*).

Table 6: Bivariate analysis of association between the sociodemographic characteristics of health personnel and the practice of basic life support

Independent Variables	Have you ever performed CPR?			$\chi 2$(*p-value*)
	Yes f(%)	No f(%)	Total	
Sex of respondents				
Male	36(11.2)	0(0.0)	36(11.3)	
Female	17(5.3)	269(83.5)	286(88.8)	205.716(*<0.001*)*
Age of respondents				
Below 25yrs	0(0.0)	126(39.1)	126(39.1)	
25 to 35yrs	35(10.9)	118(36.6)	153(47.5)	
Above 35yrs	18(5.6)	25(7.8)	43(13.4)	49.583(*<0.001)**
Grade of respondents				
Medical officer	5(1.6)	0(0.0)	5(1.6)	
PA/Anesthetist	8(2.5)	0(0.0)	8(2.5)	84.077(*<0.001*)*
Nurse	21(6.5)	222(68.9)	243(75.5)	
Midwife	19(5.9)	47(14.6)	66(20.5)	
Educational level				
Certificate	0(0.0)	40(12.4)	40(12.4)	
Diploma	0(0.0)	202(62.7)	202(62.7)	201.361(*<0.001*)*
1st degree	31(9.6)	23(7.1)	54(16.8)	
Masters	22(6.8)	4(1.2)	26(8.2)	
Department of respondents				
Theater	0(0.0)	13(4.0)	13(4.0)	
ICU	0(0.0)	17(5.3)	17(5.3)	
Medical ward	0(0.0)	222(68.9)	222(68.9)	
Casualty	1(0.3)	17(5.3)	18(5.6)	
OPD	5(1.6)	0(0.0)	5(1.6)	315.132*(<0.001)**
ANC/PNC	47(14.6)	0(0.0)	47(14.6)	
Work experience				
Below 1 year	8(2.5)	0(0.0)	8(2.5)	
1-4 years	0(0.0)	229(71.1)	229(71.1)	
5-9 years	33(10.2)	40(12.4)	73(22.7)	190.497*(<0.001)**
10-19 years	12(3.7)	0(0.0)	12(3.7)	

Table 7presents the multivariate analysis of the association between respondents' sociodemographic features and practice of basic life support. Sex, grade, educational qualification, department and years of experience were statistically significant (p-value=*<0.001*) with their corresponding odds ratios.

Table 7: Multivariate analysis of association between the sociodemographic characteristics of health personnel and the practice of basic life support

Independent Variables	Have you ever performed CPR?			AOR (95% CI)	χ2(*p-value*)
	Yes f(%)	No f(%)	Total		
Sex of respondents					
Male	36(11.2)	0(0.0)	36(11.3)	0.41(0.21-0.79)	163.888(*<0.001*)*
Female	17(5.3)	269(83.5)	286(88.8)		
Age of respondents					
Below 25yrs	0(0.0)	126(39.1)	126(39.1)	0.73(0.44-1.44)	2.599(*0.019*)
25 to 35yrs	35(10.9)	118(36.6)	153(47.5)		
Above 35yrs	18(5.6)	25(7.8)	43(13.4)		
Grade of respondents					
Medical officer	5(1.6)	0(0.0)	5(1.6)	3.86(1.8-7.9)	31.588(*<0.001*)*
PA/Anesthetist	8(2.5)	0(0.0)	8(2.5)		
Nurse	21(6.5)	222(68.9)	243(75.5)		
Midwife	19(5.9)	47(14.6)	66(20.5)		
Educational level					
Certificate	0(0.0)	40(12.4)	40(12.4)	3.05(1.6-5.57)	158.485(*<0.001*)*
Diploma	0(0.0)	202(62.7)	202(62.7)		
1st degree	31(9.6)	23(7.1)	54(16.8)		
Masters	22(6.8)	4(1.2)	26(8.2)		
Department of respondents					
Theater	0(0.0)	13(4.0)	13(4.0)	3.05(1.8-4.42)	255.164*(<0.001)**
ICU	0(0.0)	17(5.3)	17(5.3)		
Medical ward	0(0.0)	222(68.9)	222(68.9)		
Casualty	1(0.3)	17(5.3)	18(5.6)		
OPD	5(1.6)	0(0.0)	5(1.6)		
ANC/PNC	47(14.6)	0(0.0)	47(14.6)		
Work experience					
Below 1 year	8(2.5)	0(0.0)	8(2.5)	2.45(2.34-0.24)	149.264*(<0.001)**
1-4 years	0(0.0)	229(71.1)	229(71.1)		
5-9 years	33(10.2)	40(12.4)	73(22.7)		
10-19 years	12(3.7)	0(0.0)	12(3.7)		

4. DISCUSSION

4.1 Knowledge on basic life support among health workers

The research revealed that although health professionals in the Upper Denkyira East Municipality had heard of basic life support, their knowledge on how to execute it was only average, and they knew very little about cardiopulmonary resuscitation. Although the majority of the health personnel in this study had average knowledge, a study conducted in Ghana indicated that 25% of the health staff did not comprehend cardiopulmonary resuscitation [1]. The majority of the respondents initially learned about CPR in nursing/medical schools, according to the survey. CPR is widely known among workers, owing to the fact that it is part of the curriculum of Ghana's many training institutes and universities, but their capacity to remember the knowledge and put it into practice is a challenge. This is in line with research conducted at Agogo to assess nurse knowledge of CPR practice, which revealed that 70% of nurses had received CPR training [4].

The findings also demonstrated that using the universal compression to ventilation ratio with a compression rate of at least 10-12 per minute, the outcomes were positive. If only one rescuer is available, the majority of respondents believe the ratio should be 30:2, children and infants stated 15:2, while newborns should get 3:1. These findings contrast with a study which found that healthcare personnel in impoverished nations have limited knowledge of cardiopulmonary resuscitation [15]. These findings however support a study which found that qualified nurses in Kuwait have a high level of understanding and appreciation for cardiopulmonary resuscitation [13].The findings also contradict a study that revealed that many health workers do not have a clear comprehension of the meaning of cardiopulmonary resuscitation after assessing nurses' knowledge gain in a study [7].

Furthermore, the findings of this study contradict those which found that 57% of public health practitioners had never heard of CPR [3]. The majority of respondents had never heard of cardiopulmonary resuscitation, according to their understanding of CPR among Public Health Nurse Practitioners (57%) [3].Similarly, 10% of health staff at Ahmadu Bello University Teaching Hospital in Zaria did not have complete knowledge of cardiopulmonary resuscitation and so do not know how to perform it [19]. According to a study conducted in Ghana, 25% of health staff are unaware of cardiopulmonary resuscitation and do not practice it [6]. The

closeness and variations in the findings could be related to the fact that most health professionals were not trained in their respective institutions on basic life support.

Basic life support, as the most basic technique for treating cardiac arrest, has gotten a lot of attention recently, especially from the World Health Organization, which has emphasized standardized training of health professionals to acquire knowledge and skills in cardiopulmonary resuscitation over the years. It is mandatory for health practitioners in industrialized countries and regions, such as the United Kingdom and the United States of America, to acquire training in various cardiopulmonary resuscitation programs of basic life support [28]. On this note, in 2004, the Universal Medical Assistance International Centre, the Ministry of Health of China, and the American Heart Association collaborated to provide professional education and training to more than two million health professionals around the world. They were trained on how to correctly perform cardiopulmonary resuscitation and provide basic life support to patients who have suffered cardiac arrest [7]. Because of the well-documented benefits of CPR, developed countries have recommended BLS training for high school students for nearly a decade [9].However, even for medical and paramedical students, Ghana still lacks such suggestions and norms.

The integration of basic and advanced cardiac life support, as well as post-resuscitation treatment, are all important determinants in cardiac arrest patients' survival. Early discovery of an individual in cardiopulmonary arrest (CPA), prompt request for expert help, and the start of CPR through successful chest compressions, airway opening, and oxygen delivery should all be part of the initial therapy for individuals in cardiopulmonary arrest (CPA). As a result, nurses must have quick clinical reasoning, technical skills, and emotional control to act in an emergency because they are the first line of experts to notice such events in the patient because they are with them 24 hours a day.

4.2Association between sociodemographic characteristics and practice of BLS

The second objective looked at the practice of basic life support among health workers. The results showed thatthe majority of the respondents, 269 (83.5%) had never performed CPR, whereas 53 (16.5%) had practiced some before. In addition, the most of responders 259 (80.4%) stated that they practiced CPR when necessary. In addition, 199 (61.8%) of respondents said they would begin chest compressions if they saw someone unresponsive in the hospital. Finally, more

than half of the respondents claimed they would only use Mouth-to-Mouth and Nose-to-Nose when rescuing patients in an emergency.

The third objective assessed the sociodemographic characteristics of the respondents and their practice of basic life support. The results revealed that sex, grade, educational qualification, department and years of experience were all statistically significant (p-value=*<0.001*), however age was not (p-value=*0.019*). These findings support a study that found that nurses with higher qualifications have a better understanding of cardiopulmonary resuscitation than nurses with lower qualifications [30].

Cardiopulmonary resuscitation was frequently performed by health staff in the intensive care unit. This could be due to the fact that emergency medical personnel are the first point of contact in emergency settings, implying their ability to perform CPR.As studies have shown, a lack of skills to perform basic and advanced life support by nurses and doctors has been identified as a contributing factor to poor cardiac arrest victim outcomes, which is also consistent with most studies [13; 19].

The findings revealed that there is a substantial disparity in nurses' practice and qualifications at various levels. Nurses with greater qualifications are more knowledgeable in cardiopulmonary resuscitation than nurses with lower qualifications, according to the findings.The health workers who had worked for a longer period of time performed CPR, implying that their long years of work may have exposed them to many years of CPR practice. This study disagrees with a study which claimed that only 29% of the participants had ever performed CPR, which was lower than expected [9]. It also agrees with a study conducted in Ethiopia which found that only 19.7% of the respondents were able to do conventional CPR due to their work experience [6]. Cardiopulmonary resuscitation functioned well when the length of service is extended.This contradicts the findings stating a low level of cardiopulmonary resuscitation practice in developing nations and linked it to a lack of post-school training for health workers rather than years of experience [15].

Sex, education, years of work experience, and department all had adjusted odds ratios that were statistically significant. This, however, agrees with a study which found that nurses' lack of experience is the key factor influencing their attitude toward commencing cardiopulmonary resuscitation [25].Critical care staff had 3.05 times the chances of the other, which is statistically significant and supports findings that higher-qualified nurses are more likely to practice

cardiopulmonary resuscitation than lower-qualified nurses.Basic life support is one of the most rapidly expanding fields of contemporary medicine and it consists of a series of life-saving actions that help people survive cardiac arrest. Although the best strategy to basic life support varies according on the rescuer, the victim, and the resources available, the main task is to perform cardiopulmonary resuscitation as soon as possible. Given this difficulty, rapid recognition of arrest and rescuer action remains top objectives for the patient's needs.

Despite significant advancements in prevention, cardiac arrest continues to be a significant public health issue and a leading cause of mortality in many parts of the world. Cardiac arrest can happen both inside and outside of a hospital. The inability of nurses and doctors to administer basic and advanced life support has been highlighted as a contributing factor to poor cardiac arrest patient outcomes.The time it takes to start resuscitation and defibrillation is directly connected to the patient's survival rate following cardiac arrest. Because the nurse spends 24 hours with patients, the nurse and doctors are the health care staff most likely to witness a patient suffering from cardiac arrest in a hospital setting.

4.3 Limitations of the study

A major limitation was how to reach all the respondents since some stayed far away from the health facilities and was difficult to reach them. However, participants were given a period of one weeks to respond and submit their questionnaires. Also, because of potential reporting bias secondary data from the various facilities were reviewed to compliment the primary data to reduce bias.

5. CONCLUSION

Because most health professionals only had a basic understanding of basic life support, they failed to provide it when patients needed it the most. Sex, department, years of work, educational degree and grade were among the demographic parameters discovered in the study to have a significant relationship with the practice of basic life support. The study concludes that if health workers are provided greater training and support, basic life support knowledge and practice in the Upper Denkyira East Municipality would be improved to safe human lives.

6. RECOMMENDATIONS

The following recommendations are provided based on the study's results and conclusions.

i. The major regulatory organizations, including the Nurse and Midwives Council and the Ghana Medical Association, should see to it that all relevant health workers receive training in basic life support as part of their ongoing professional development.

ii. Facility management should make sure that in-service training, workshops, and refresher courses are scheduled to keep health staff' understanding of CPR current.

iii. Hospital administration should cycle general healthcare staff among the various departments, particularly the emergency room, so that everyone working in a healthcare facility has experience performing CPR.

iv. Since workers who have received CPR training are better at performing it, the government and society must recognize the seriousness of cardiac arrest and the cost of losing workforce to cardiac arrest. As a result, regular training in the most recent CPR techniques must be organized for medical staff by hospital management in order to save many lives.

v. To more accurately measure the CPR knowledge and practices among healthcare professionals, another research should be conducted that includes additional paramedics and broadens the study's geographic reach to include all of Ghana.

ETHICAL APPROVAL AND CONSENT

The Ghana Health Service Ethics Review Committee was consulted for ethical approval. Authorization was granted by the Central Regional Health Directorate and the Upper Denkyira Municipal Health Director. Written and signed consent forms were sought from the participants before data collection.In addition, participants were given the option of participating or withdrawing at any time. Anonymity and privacy were guaranteed to all participants.In that scenario, participants were not required to write their names or any other personal information on the questionnaire forms that could have revealed their identities. The leadership and respondents were informed that the study's findings were solely for academic purposes.

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