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St. Paul's Hospital Millennium Medical College

Graduate study program

**Knowledge, Attitudes and Associated Factors of Pre-Hospital Care
among Health Care workers in Addis Ababa, Ethiopia 2021/2022 GC**

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Graduate study program

Knowledge, Attitudes and Associated Factors of pre-hospital care Among Health Care Workers in Three Selected pre hospital are Centers in Addis Ababa, Ethiopia 2021/2022 G.C

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List of Acronyms and Abbreviations

BLS- Basic Life Support

ECCN-Emergency and critical care nurse

EMC- Emergency Medical Care

EMS-Emergency Medical Service

EMT- Emergency Medical Technician

HCW-Health care Workers

NMC- Nordic Medical Center

RTA- Road Traffic Accident

SPHMMC- St. Paul's Hospital millennium medical college

SPSS- statistical Package of social science

SSA-sub-Saharan Africa

Abstract

Back Ground

Pre-hospital care is an emergency medical care which is given to patients before arrival in hospital after activation of emergency medical services which is acknowledged as a crucial period, when irreversible pathology and secondary injury can be prevented. The aim of Emergency Medical Service focuses on providing timely care to victims of sudden and life-threatening injuries or emergencies in order to prevent needless mortality or long-term morbidity. The function of Emergency Medical Service can be simplified into four main components; accessing emergency care, care in the community, care end route, and care upon arrival to receiving care at the health care facility

Objective: Knowledge, Attitudes and Associated Factors of pre-hospital care Among Health Care Workers in Three Selected pre hospital care Center in Addis Ababa, Ethiopia 2021 G.C

Methods: institutional based cross sectional study design was conducted among HCW. The target population was Health Care Workers working at the pre-hospital care at three selected center Addis Ababa. The researcher was used questionnaire which is adopted from previous similar study. A questionnaire was distributed to consenting Health Care Workers for completion. Data was checked, cleared and entered in to SPSS version 25, then frequencies, distribution, mean computed and analysis were done.

Result: One hundred thirty five study participants were included in this study with a response rate of 96.4%. The mean ages of the respondents were 29.2 years ($SD \pm 4.86$). Almost three fourth of the study participants 96(71.1%) were in age between 26 and 35 years. Majority of the study participants 126(93.3%) responds that they knew about basic life support/advanced life support. 79(58.5 %) of the health care workers had good knowledge and 56(41.5%) had poor knowledge about pre-hospital care. fifty one (37.8%) of the health care works had negative attitude and eighty four (62.2%) had positive attitude towards pre-hospital care.

Conclusion and recommendation: More than half of (58.5 %) of the health care workers had good knowledge about pre-hospital care and more than a half, eighty four (62.2%) had positive attitude towards pre-hospital care. Profession, educational status and training were significantly associated with knowledge of health care workers to wards pre-hospital care with p-value less than 0.05. Knowledge of the respondent and getting training were significantly associated attitude of health care workers towards pre-hospital care with p-value less than 0.05

Key words: Knowledge, Attitude, pre-hospital care, Health Care Workers

1. INTRODUCTION

1.1 Background

Pre-hospital care is an emergency medical care which is given to patients before arrival in hospital after activation of emergency medical services[1]. It is the term given to the provision of medical care outside of the hospital or alternative fixed healthcare setting[2, 3]. Pre-hospital emergency medicine also referred to as pre-hospital care, immediate care, or emergency medical services medicine is a medical subspecialty which focuses on caring for seriously ill or injured patients before they reach hospital, and during emergency transfer to hospital or between hospitals[4]. As a whole according to Moore, emergency medical service (EMS) is often explained as “a comprehensive system which provides the arrangements of personnel, facilities and equipment for the effective, coordinated and timely delivery of health and safety services to victims of sudden illness or injury”[5].

Pre-hospital emergency medicine incorporates a breadth of care from bystander resuscitation to statutory emergency medical services treatment and transfer, Wilderness medicine, Disaster Medicine, Para-medicine & Immediate Medical Care. For severely ill or injured patients, acting quickly in the pre-hospital period is crucial with decisions and interventions greatly affecting outcomes[1, 2]. Development of the ambulance care and transportation system one of the earliest descriptions of systematic pre-hospital management of illnesses or injuries originated during the French revolution. But now a day a patient was treated by trained medical personnel and transported to a field hospital all of which resulted in decreased morbidity and mortality rates in ambulance as pre-hospital emergency management. The victims were treated according to the urgency and observed gravity of their injuries[6].

Evidence showed that the health care provider who has lack of information or knowledge about pre-hospital emergency care results in dissatisfaction with the care given to the client[7]. While a health professional or care provider having good knowledge, attitude and practice or skills of about pre-hospital emergency management leads to handover the patient in the emergency department which has a great role in decreasing morbidity and mortality of the individual, it increases health related quality of life and also it has a significant role in increasing of life expectancy of the community[8, 9]

1.2 Statements of the problem

Emergency care plays a vital role in healthcare system, both in the emergency condition and other departments of the hospital and in pre-hospital emergency medical services[10, 11].

According to World Health Organization (WHO), road traffic accidents (RTAs) are currently the 8th leading cause of death globally and the 10th leading cause in SSA, resulting in 1.402 million deaths per year worldwide in 2016 from these 284,000 were in SSA. It does not strike the population equally, and some groups are more vulnerable than others[12] Similarly ,a research conducted in Indonesia on knowledge ,attitude and practice of nurses toward pre-hospital care suggested that , participants' knowledge score was 70.1%[9]

In Africa the challenge is even more pressing which currently shows RTA deaths could rise by 30% to 1.85 million per year by 2030, making it the world's 7th biggest cause of death. Historically in sub-Saharan Africa (SSA) the health system investments focused on primary health care to address the high rates of communicable diseases rather than non-communicable disease plus emergency condition which needs pre-hospital emergency care[13].

In Ethiopia like other developing countries, injuries are common but little attention is being given[14]. Providing efficient and effective post-crash care and pre-hospital treatment for injuries, hemorrhage, and other medical and obstetrical emergencies by paramedics timely has a great role on reducing morbidity and mortality of the patients[15, 16]. And to bring effective outcome it has been suggested that health care worker have a special role, especially if they trained in pre-hospital emergency care[17]. Furthermore ,good knowledge and positive attitude towards in emergency pre-hospital care significantly affects health related quality of life of the individual[18].. Therefore, the aim of this study is to assess the HCWs' knowledge, attitude and associated factors toward pre-hospital care in Addis Ababa, Ethiopia.

1.3 Significant of the study

Since in Ethiopia, the prevalence of road traffic accident is still high that indicates there are a significant number of patients need pre-hospital emergency care. Knowledge and attitude of the pre-hospital care provider has a great impact on the life outcome of the patients.

The findings of this study will also give important clues to health professionals, policymakers, and other concerned bodies to improve the knowledge and Attitude of pre-hospital emergency nursing care.

Knowledge of pre-hospital care is an important aspect in enhancing the activation and implementation of cares during the problems. Therefore, identifying the level of knowledge to enhance appropriate pre-hospital care is mandatory for health policy makers and will show the correct direction for decision making toward the application of emergency care in the communities.

2. Literature Review

2.1. Pre- hospital care

In the health-care system, in cases of emergency, the first contact is made with the pre hospital emergency department, and this system addresses the specific health needs of individuals outside the hospital complex[14].

Accurate and proper conduction of pre-hospital care has a significant impact on reducing the mortality and morbidity of traumatic injuries, and saving a person's life in the event of an accident depends on the expertise and knowledge of people on the injured bed[16]. One of the main reasons underlying the improper function of pre-hospital emergency staff in providing care to injured patients is the lack of required knowledge and skills[19].

Ethiopia, as a low-income country, is receiving a huge number of ambulance donations and there are ongoing initiatives towards training of Emergency Medical Technicians (EMT) to promote pre-facility health care and to improve accessibility to health facilities for mothers and acutely ill or injured patients[4].

2.2. Knowledge of HCWs toward pre-hospital care

A study done in Tehran showed that the level of knowledge regarding trauma and its management was good in 17.4% (37), average in 81.1% (173), and weak in 1.4%[19]. In similar manner a study in India showed that, 87.50% of nursing students and 72.50% of nursing staff knew the definition and abbreviation of **BLS**. Similarly, 71.87% of nursing students, 67.5% of nursing staff and only 43.2% of the students knew the full meaning and definition of emergency medical service[20]. In 2018 study done in Indonesia about knowledge, attitude and practice of ambulance nurses in pre-hospital care indicates knowledge of pre-hospital care was the lowest score[9].

A study in China on Nursing students' knowledge, willingness, and attitudes toward the first aid behavior as bystanders in traffic accident trauma explained that, the mean score of the first aid knowledge 7.51 ± 1.92 , which reflected poor knowledge mastery[22].

The study done in Iran indicated that 67.82% of pre-hospital emergency staff has low knowledge in respect to trauma care but the same study done on the other district of the Iran revealed that 72.2% of the study participants have good knowledge[23, 24].

The study done in Sri Lanka among different health professional, 63% of nurses and 25% of EMTs have cumulative good knowledge about pre-hospital care in ambulance[18].

According to the results, emergency medical technicians in Tehran 81.1% of them had a good knowledge[20]. Moreover, a study in Pakistan on medical students about knowledge of first aid management resulted in deficit knowledge on some of the components of first aid [24].

A research in Saudi Arabia based on the facts received from the study, the healthcare interns from the university hospital acquire average awareness and below average knowledge of basic life support [9].

The study finding from the Rwanda indicates that the 39.3% of the nurses had good knowledge towards the emergency care of RTA victims[25]. According to the study done in South Africa reported that 87.4% of the participants had inadequate knowledge about pre-hospital management of psychiatric emergencies. It indicate also more than a third of the participants reported that they are not knowledgeable on how to assess a psychiatric patient, 64.2% and 73.6% could not perform mental status examination and lack the knowledge of crisis intervention skills for managing a psychiatric emergencies[26].

Another study in South Africa across the five districts also indicates that 51.2% of the participants had inadequate knowledge about pediatrics pre-hospital emergency care. That means 74.0% and 53.4% of EMC personnel could not calculate the pediatrics blood pressure for age and did not know the pediatrics Glasgow Coma Scale, respectively[27].

2.3. Attitude of HCWs toward pre-hospital care

In 2018 study done in Indonesia about knowledge, attitude and practice of ambulance nurses in pre-hospital care indicates that attitude of the study participant for pre-hospital care was highest [19].

A study in China on Nursing students' knowledge, willingness, and attitudes toward the first aid behavior as bystanders in traffic accident trauma explained that, data of participants based on their attitude toward trauma showed that the attitude regarding taking care of trauma patients was good in 88.3% and average in 11.7%, and no participants had a weak attitude [20].

The study done in Sri Lanka majority of medical staff had good attitudes [18].The study finding from the Rwanda indicates that the 39.3% of the nurses a positive attitude towards the emergency care of RTA victims[25].

2.4. Associated factors toward pre-hospital care

In 2018 study done in Indonesia showed that, training and experience had a significant influence on the knowledge, attitude, and practice scores for pre-hospital care[19].

A study in Iran on Barriers and facilitators to provide effective pre -hospital trauma care for road traffic injury victims, seven categories emerged to describe the factors that hinder or facilitate an effective pre-hospital trauma care process: administration and organization, staff qualifications and competences, availability and distribution of resources, communication and transportation, involved organizations, laypeople and infrastructure [26].The result from Sri Lanka showed, a good training program with all essential elements gave a good outcome in pre-hospital care [23].

Based on a result from Tehran, no significant difference was observed between knowledge and any demographic characteristic ($P < 0.05$). Whereas training, level of education, work experience had a relation with the attitude of pre-hospital care [20, 25].

Sex, marital status, working unit, educational level, current working unit experience, and ever-taking training were found to have significant and independently associated with knowledge of nurses about pre-hospital emergency care [28].

Conceptual Framework

The Conceptual framework of the study is adopted from previous similar studies to conceptualize the whole research process and to aid as guide for tool development and analysis [26, 28].

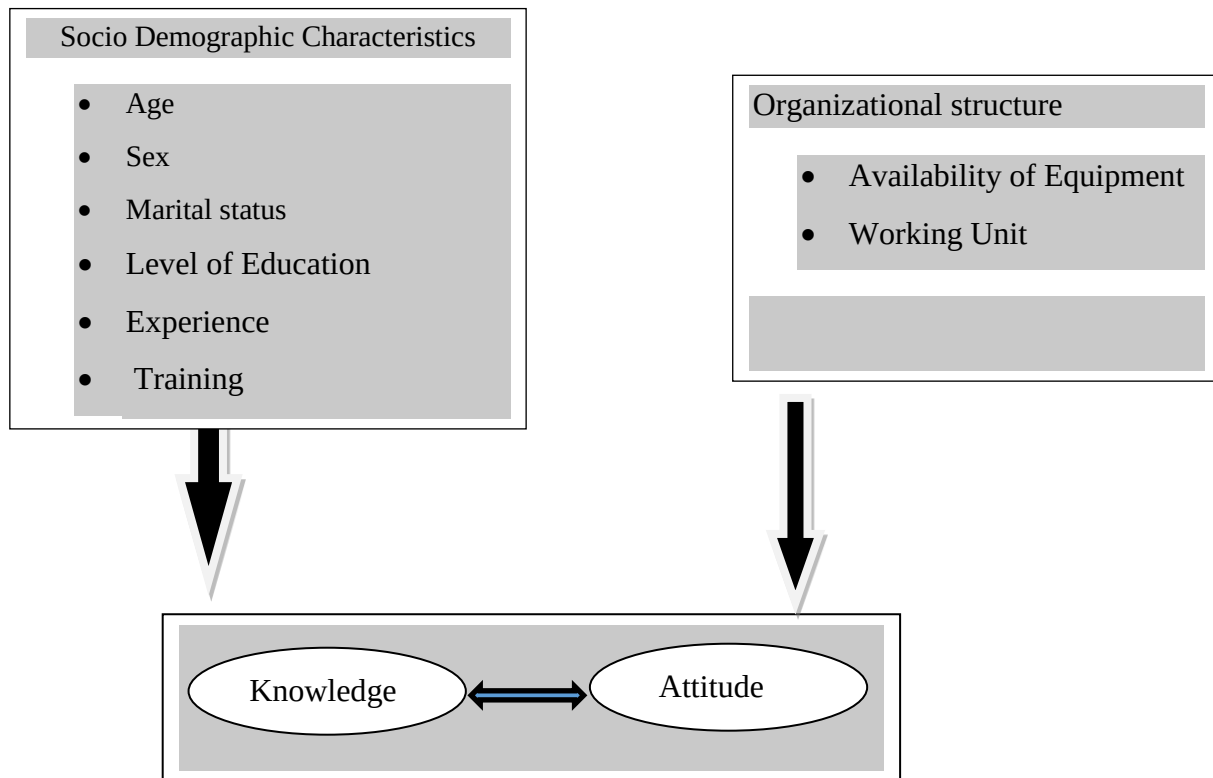


Figure 1: The conceptual framework of factors that contribute for knowledge and attitude of pre-hospital care health care workers

3. Objectives

3.1. General objectives

To Assess Knowledge, Attitudes and Associated Factors of pre-hospital care Among Health Care Workers in Three Selected pre hospital care Center in Addis Ababa, Ethiopia, 2021/2022

3.2. Specific Objective

- Assessing knowledge of pre-hospital care among health care workers in Three Selected pre hospital care Center in Addis Ababa, Ethiopia, 2021/2022
- To identify attitude of pre-hospital care among health care workers in Three Selected pre hospital care Center in Addis Ababa, Ethiopia, 2021/2022
- To analyze factors associated of pre-hospital care among health care workers in Three Selected pre hospital care Center in Addis Ababa, Ethiopia, 2021/2022

4. Method and Material

4.1. Study setting

This study was conducted in the capital of Ethiopia, Addis Ababa. There is one governmental and three private centers that provide pre-hospital care that found in Addis Ababa, approximately there are around 192 nurses working in these institutions. For this study, Addis Ababa fire and emergency, Nordic medical center and Tabitha ambulance are taken as study area. Addis Ababa city fire and emergency prevention rescue agency. It was initially formed in 1926 E.C., and was called as "Fire Emergency Elimination." The Agency hopes to make Addis Ababa one of Africa's model cities for security by safeguarding residents' lives and property from disasters and instilling a sense of security insurance. By involving stakeholders and residents, disasters that are likely to occur in the city can be avoided, and in 2008 pre-hospital care service and prevention was starting to the community service now a day the agency has 9 station pre-hospital care service centre that assuring the safety of the residents by giving life-saving assistance and managing the accident as it occurs. It has a total of 165 full time worker nurses (Addis Ababa Fire and emergency and prevention and rescue agency home page).

TEBITA Ambulance Pre-Hospital Emergency Medical Service PLC (TEBITA) is Ethiopia's first commercial provider of pre-hospital emergency medical services. It has a total of 17 emergency medical technicians and is located in Addis Ababa's HayaHulet (Tebita Ambulance home page).

The Nordic Medical Centre (NMC) is Norwegian run and staffed by highly experienced international and Ethiopian medical professionals. they deliver high-quality medical services 24/7 and are the preferred medical provider for a number of international organizations, embassies and health insurance companies. NMC offers emergency and critical care medical services throughout Ethiopia. Conveniently located in the heart of Addis Ababa, we also provide family medicine services. Our comprehensive care for everyone in the family includes Ambulance service and Emergency call center pediatrics and adult services, physiotherapy, medical check-ups, pharmacy services, along with diagnostic imaging and laboratory services. It has total 10 Emergency and critical care nurses work in ambulance

In response to a request by the diplomatic community in Ethiopia, NMC was founded in 2012. In late 2015, NMC opened its doors and started serving patients. (Nordic medical centre home page)

4.2. Study design

Institutional-based cross-sectional study was carried out

4.3. Study period

The study period of the study was from September to February at selected pre-hospital care center of Addis Ababa, Ethiopia 2021/22 GC.

4.4. Population

4.4.1. Source population

All pre-hospital care provider HCWs (Nurse, ECCN and EMT) in Addis Ababa

4.4.2. Study population

All pre-hospital care provider HCWs in the selected three pre-hospitals care center of Addis Ababa.

4.8. Inclusion and exclusion criteria

4.8.1. Inclusion criteria

All HCWs who are volunteer to participate in the study

4.8.2. Exclusion criteria

HCWs not volunteer and not available during data collection

4.5. Sample size determination and sampling techniques

4.5.1. Sample size

The sample size was determined by using single population proportion formula

$$n = \frac{z^2 p(1 - p)}{w^2}$$

Where z=confidence interval (with 95% level of certainty)

W= margin of error (5%)

P= Proportion. Since there is no similar study conducted in the country I took proportion of 50%

$$= (1.96)^2 * 0.5(1-0.5) / 0.005^2 = 3.8416 * 0.25 / 0.0025 = 384$$

Since the total number of HCWs working in the selected three pre-hospital care center are less than ten thousand (10,000), so it needs correction formula.

$$Cf = n / (1 + n/N) = 384 / (1 + 384/191) = 128$$

Where N=191

n=128, Non respondent rate=10%, =10*128/100=140, So the total sample size was =140

The proportional procedural presentation

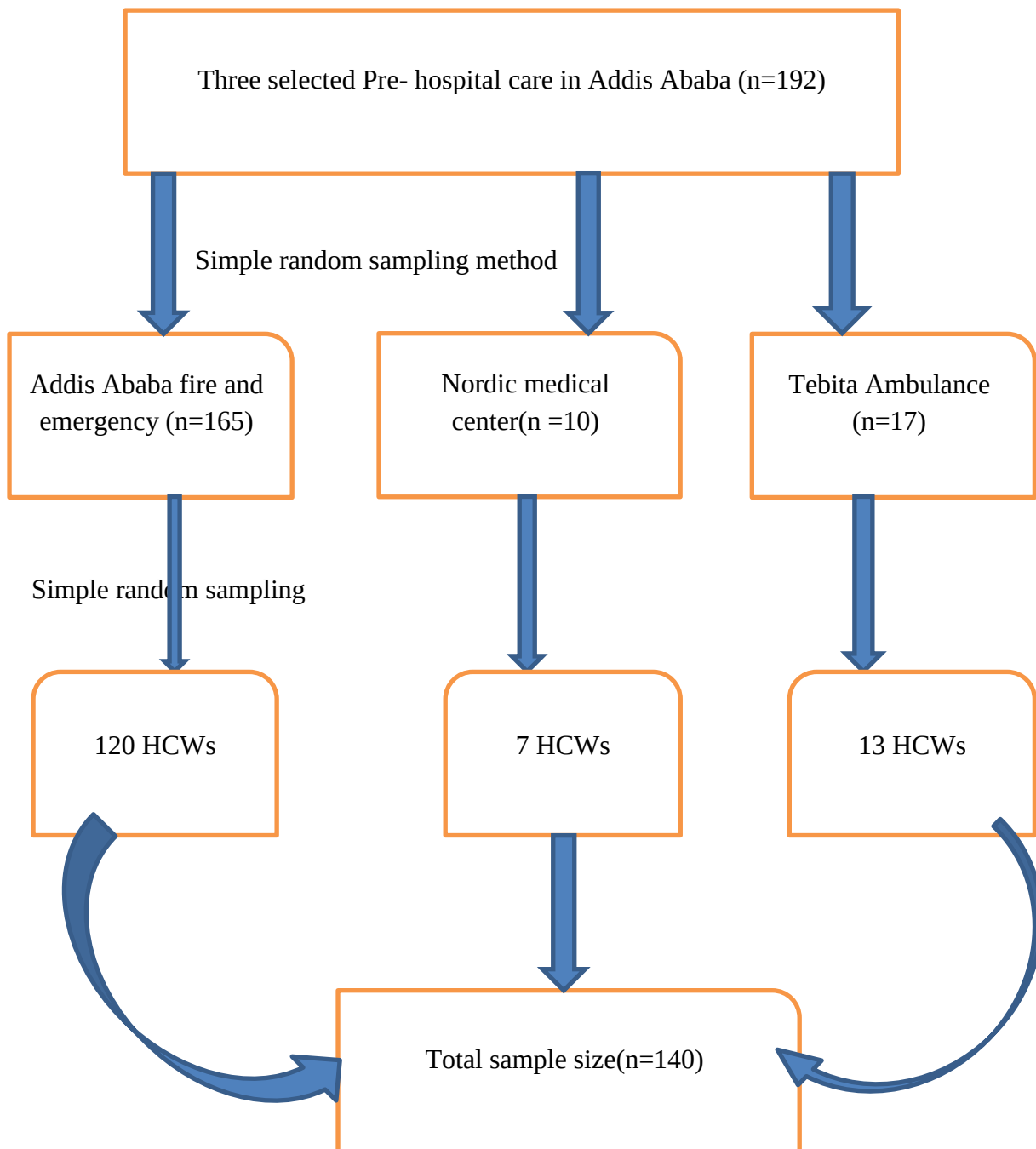


Figure 2: Diagram presentation of sampling procedure

Table 1. The proportional sampling procedure of pre-hospital

The selected pre-hospital care center	n1	n2	n3
Total no	165	10	17
Proportion	120	7	13

4.6. Sampling procedure

Pre-hospital care centers were selected using simple random sampling technique. Using this technique three pre-hospital care center were selected. Health care workers also selected by a simple random sampling technique. Health care workers were selected from each selected pre-hospital care center based on proportional allocation.

4.7. Variables

4.7.1. Dependent variables

Knowledge, attitude

4.7.2. Independent variables

Socio-demographic characteristics, Age, Sex, Marital status, Profession

Experience, Training, Working unit, Educational level and work experience

Organizational structure

- Availability of Equipment

4.9. Data Collection tools

Data were collected using self-administer structured questionnaire, which has three parts. The first part is the demographic data of the participants. The second part is designed for the knowledge assessment of the HCWs. The third part is used to assess the attitude of HCWs which is adapted and modified from similar studies [25, 26].

4.10. Data collection procedures

Data was collected by 3 diploma nurse's, one BSc nurse supervisor and one facilitator from each center. Data collectors were trained for explanation of some terms and assessment tools, aim of the study, concerning need for confidentiality of respondents' information, time of data collection and submission of the collected data on time. The questionnaire was administered and filled by the EMT and the data was collected for approximately 15 days including training and pretest, which is enhanced by data collection facilitators and supervisors.

4.15. Operational definitions [28]

- ✧ **Good knowledge:** - Those who scores mean and above the mean value considered as have good knowledge
- ✧ **Poor knowledge:** - Those who scores less than mean value considered as have poor knowledge
- ✧ **Positive attitude:** -Those who scores mean and above the mean value considered as have good attitude
- ✧ **Negative attitude:** - Those who scores less than mean value considered as have poor attitude

4.11. Data Quality Management

The data collectors were trained for 2 days on how to ask for consent of the study group and fill the questionnaire. Supervision was conducted by supervisor during data collection period and support was given to data collector as an adequate.

The questionnaire was checked for completeness and consistence by principal researcher. Before the actual data collection, pre-test was done on 10% of the total sample size in pre-hospital service center located in the study area (Nebiela Ambulance) to check its completeness, consistence and qualities of the material content. After pre-testing the questionnaire, Cronbach's Alpha was calculated by using SPSS window version 25 to test internal consistency (reliability) of the item and Cronbach's Alpha values was 0.81.

4.12. Data Processing and Analysis Plan

The collected data were checked for its completeness, consistency and accuracy before analysis. Data were checked, cleared and entered in to SPSS version 25, then frequencies, mean and analysis was done to obtain the significant association by $p=0.25$ at bivariate level then executed to multivariate logistic regression at p value 0.05. Finally result of the study was processed and analyzed by using descriptive statistics like percentage, frequency and association. Result was presented by text, table, pie and bar chart.

4.13. Ethical Consideration

Ethical clearance was obtained from St Paul's millennium medical college, and an official letter was written to Addis Ababa health Bureau, and then permission was obtained from the selected pre-hospital care center. Informed consent was obtained from respondents who are participated in the study. In addition, all the responses was kept confidential and by assuring that any information was never be passed to any third party or institution without their agreement and participant was not compel to the study

4.14. Dissemination of result

The finding of this study will be presented to St Paul's medical college, department of emergency and critical care nursing. It will also disseminated to the selected hospital pre-hospital care centre and to Addis Ababa health bureau through presentation in different professional association meeting and annual conference. The paper will also be submitted to national or international peer reviewed scientific journals for possible publication.

5. Result

5.1. Socio demographic characteristics of the respondent

One hundred thirty five study participants were included in this study with a response rate of 96.4%. The mean ages of the respondents were 29.2 years ($SD \pm 4.86$). 96(71.1%) were in age between 26 and 35 years. Majority of study participants 109(80.7%) were fire worker. Seventy six (56.3%) were female. Ninety six (71.1%) of study participants had BSc educational level. Sixty five (48.1%) of the study participants had 6 up to 10 years of work experience (Table 2).

Table 2: socio demographic characteristics of Health Care Workers in pre hospital care Centres in Addis Ababa, Ethiopia, 2021/2022 (n= 135)

Variable	Number	Percent
Age group		
18-25	27	20.0
26-35	96	71.1
36-45	10	7.4
> 45	2	1.5
Sex		
Male	59	43.7
Female	76	56.3
Marital status		
Married	64	47.4
Single	71	52.6
Profession		
Nurse	118	87.4
Emergency medical technician	17	12.6
Educational status		
Diploma	27	20.0
BSC	96	71.1

	MSc/MPH	12	8.9
Work place			
	Fire and emergency	109	80.7
	Tebita Ambulance service	12	8.9
	Nordic Medical center	14	10.4
Working hour in a day			
	≤ 8 hours	67	49.6
	9-12 hours	66	48.9
	> 12 hours	2	1.5
Service year			
	≤2 years	16	11.9
	3-5 years	48	35.6
	6-10 years	65	48.1
	> 10 years	6	4.4
Training			
	Yes	106	78.5
	No	28	20.7

5.2. Knowledge of health care workers for pre-hospital care

The overall knowledge score was calculated by counting the individual response rate and mean was calculated to classify their knowledge as good and poor knowledge. Based on this, seventy nine (58.5 %) of the health care workers had good knowledge and 56(41.5%) had poor knowledge about pre-hospital care(Fig 2).

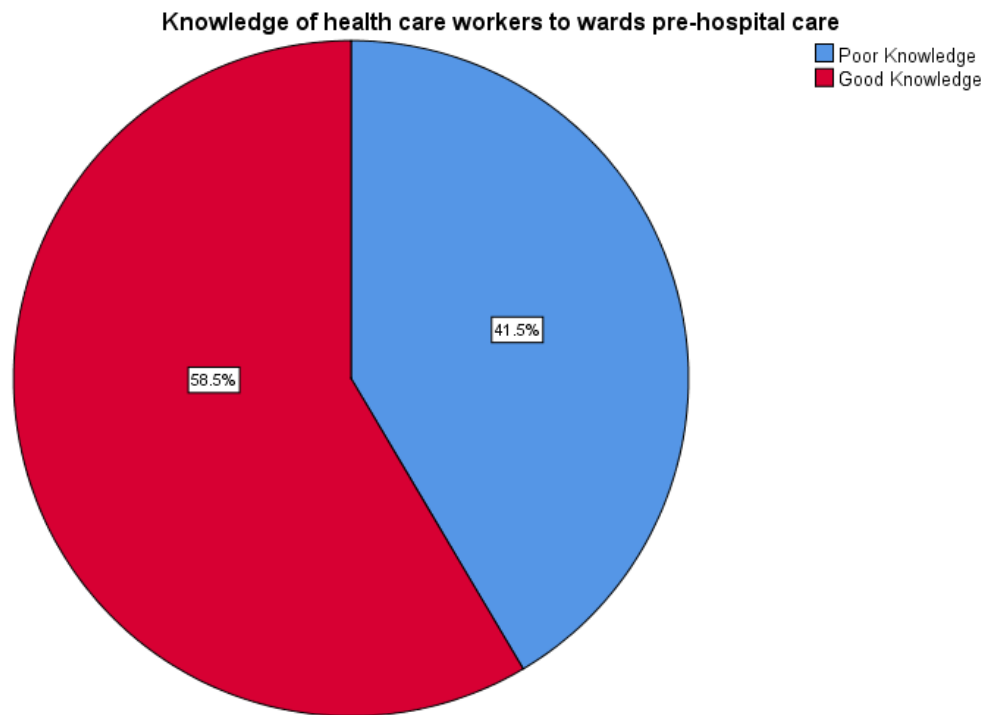


Figure 3: knowledge of health care workers towards pre-hospital care

Almost three fourth of 101(74.8%) study participants responds that they were learned pre-hospital care during on their work. Majority of the study participants 126(93.3%) responds that they knew about basic life support/advanced life support and ninety seven (71.9%) of the respondents were knew components of pre-hospital emergency ambulance workers (Table 3).

Table 3: Knowledge of health care workers in pre hospital care Centres in Addis Ababa, Ethiopia, 2021/2022 (n= 135)

Variable	Number	Percent
Do you learned pre-hospital care during on your work		
Yes	101	74.8
No	34	25.2
Do you hear about pre-hospital emergency care during undergraduate		
Yes	89	65.9
No	46	34.1
do you take courses/training about pre-hospital emergency care after the completion of your education		
Yes	96	71.1
No	39	28.9
Do you know about basic life support/advanced life support		
Yes	126	93.3
No	9	6.7
Do you know how CPR (cardiopulmonary resuscitation) is performed		
Yes	133	98.5
No	2	1.5
Do you know about RTS for the prognosis of injury patients		
Yes	81	60.0
No	54	40.0
Do you know training related to aspects of pre- hospital emergency nursing care		
Yes	103	76.3
No	32	23.7

Do you know the recommended methods of transportation of emergency cases			
	Yes	103	76.3
	No	32	23.7
Do you know the components of pre-hospital emergency ambulance carry			
	Yes	97	71.9
	No	38	28.1
Do you know how you can independently manage an emergency patient			
	Yes	118	87.4
	No	17	12.6
Do you know the ways you respond if you get suspected acute Myocardial Infarction			
	Yes	109	80.7
	No	26	19.3

5.3. Attitude of health care workers for pre-hospital care

The overall attitude score was calculated by counting the individual response rate and mean was calculated to classify their practice as positive and negative attitude. Based on this, fifty one (37.8%) of the health care works had negative attitude and eighty four (62.2%) had positive attitude towards pre-hospital care (Fig 3).

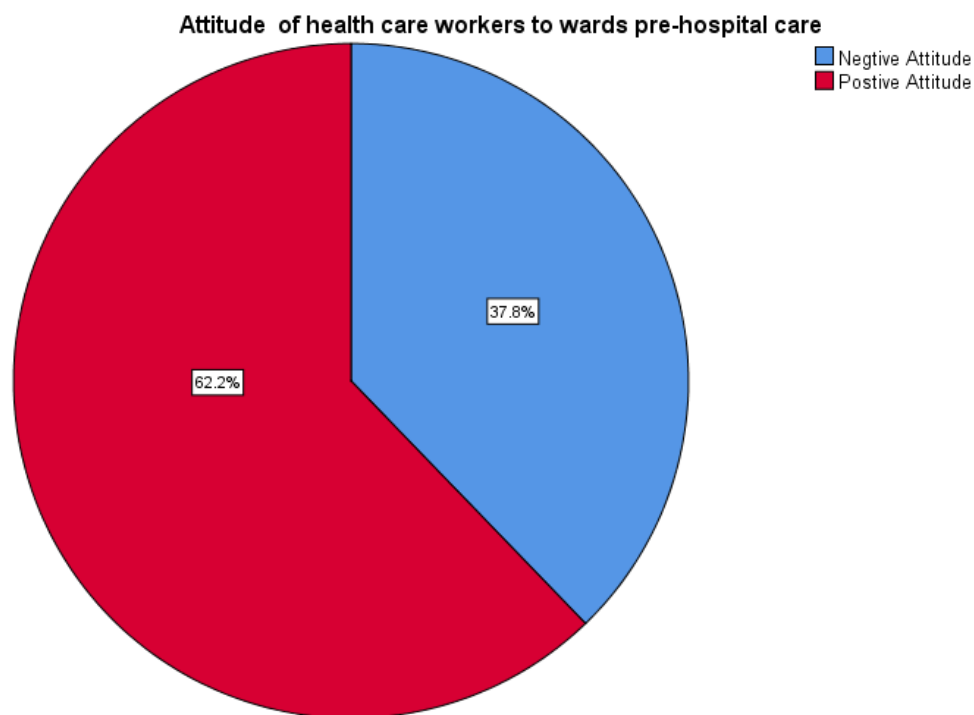


Figure 4: Attitude of health care workers towards pre-hospital care

More than half of study participants 94(69.4%) were strongly agreed that giving pre-hospital care to needy person is fair and 97(71.9%) Of the respondents were strongly agreed that learn pre-hospital care was useful for them. Almost three fourth of the respondents 101(74.%)strongly agreed that pre-hospital care training was mandatory (Table 4).

Table 4: Attitude of health care workers in Three Selected pre hospital care Center in Addis Ababa, Ethiopia, 2021/2022 (n=135)

Variable	Strongly disagree(%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly agree (%)
Giving Pre-hospital care to needy person is fair	1(0.7)	3(2.2)	4(3)	33(24.4)	94(69.4)
Giving pre-hospital care to needy person is unpleasant	44(32.6)	19(14.1)	15(11.1)	41(30.4)	16(11.9)
Politicians / health care providers take up PHC as their priority agenda	13(9.6)	14(10.4)	36(26.7)	34(25.2)	38(28.1)
Readiness to Join/form a society / an organization providing pre-hospital care	3(2.2)	3(2.2)	10(7.4)	58(43)	61(45.2)
Giving pre-hospital care to you is very good	4(3)	1(0.7)	5(3.7)	42(31.1)	83(61.5)
It is useful for you to learn pre-hospital care	2(1.5)	1(0.7)	5(3.7)	30(22.2)	97(71.9)
Do you think pre-hospital care training is mandatory	2(1.5)	6(4.4)	0	26(19.3)	101(74.8)
If Ministry of health give pre-hospital care training for all is useful	3(2.2)	2(1.5)	12(8.9)	40(29.6)	78(57.8)
Do you think pre-hospital care training should be mandatory in the curriculum	3(2.2)	1(0.7)	5(3.7)	30(22.2)	96(71.1)

5.4. Factors associated with knowledge of health care workers to pre-hospital care

In binary logistic regression showed that age group, sex, profession, service year, educational status and training were significantly associated with knowledge of health care workers towards pre-hospital care at p value less than 0.25. In addition, those variables significantly associated with knowledge of health care workers towards pre-hospital care at p-value less than 0.25 were candidates for multivariable logistic regression analysis (Table 5).

Multivariable logistic regression model showed that profession, educational status and training were significantly associated with knowledge of health care workers towards pre-hospital care with p-value less than 0.05 and 95% confidence interval (Table 4).

Profession of the respondent was significantly associated with knowledge of health care workers towards pre-hospital care. Emergency medical technicians were 3 times (AOR = 3.2(95%CI: 1.03, 7.65)) more likely to have good knowledge as compared to the nurse towards pre-hospital care (Table 5).

Educational status of the respondent was significantly associated with knowledge of health care workers towards pre-hospital care. Health care workers who had master level of educational status were 17% (AOR = 1.17 (95%CI: 1.08, 4.93)) more likely to have good knowledge as compared to diploma ones towards pre-hospital care (Table 5).

Getting training was significantly associated with knowledge of health care workers towards pre-hospital care. Health care workers who got training were 2 times (AOR = 2.25(95%CI: 1.33, 4.52)) more likely to have good knowledge as compared to their counterparts towards pre-hospital care (Table 5).

Table 5: Multiple logistic regression factors associated with knowledge pre-hospital care among Health Care Workers in Addis Ababa, Ethiopia, 2021/2022

Variable		Knowledge		COR(95%CI)	AOR(95%CI)	P –value
		Good	Poor			
Age group						
	18-25	14	13	1.36(0.58-3.2)	1.22(0.65-2.62)	0.18
	26-35	57	39	1.39(0.32-6.1)	1.21(0.23- 5.4)	0.21
	36-45	6	4	0.87(0.32-1.86)	0.72(0.24-1.54)	0.11
	> 45	2	0	1	1	
Sex						
	Male	41	18	2.28(1.12-4.65)	2.14(0.85- 3.9)	0.32
	Female	38	38	1	1	
Profession						
Emergency	medical technician	14	3	3.8(1.04-9.94)	3.2(1.03-7.65)	0.03*
	Nurse	65	53	1	1	
Training						
	Yes	68	38	2.93(1.52-6.32)	2.25(1.33-4.52)	0.01*
	No	11	18	1	1	
Educational status						
	Diploma	14	13	1	1	
	BSC	58	38	0.73(0.45-1.2)	0. 21(0.56-2.60)	0.33
	MSc/MPH	7	5	1.5(1.1-5.6)	1.17(1.08-4.93)	0.02*
Service year						
	≤2 years	6	10	1	1	
	3-5 years	32	16	1.8(0.96,2.52)	1.4(0.56,1.45)	0.21

6-10 years	35	30	1.52(0.32-3.74)	1.23(0.15- 3.07)	0.12
> 10 years	6	0	2.61(1.75-3.90)	2.11(0.44- 11.73)	0.18

*indicates that factors associated with knowledge of health care workers to wards pre-hospital care

5.5. Factors associated with attitude of health care works to pre-hospital care

In binary logistic regression showed that sex of the respondents, working hours, service year, getting training and knowledge of health care workers were significantly associated with attitude of health care workers to wards pre-hospital care at p value less than 0.25. In addition, those variables significantly associated with attitude of health care workers to wards pre-hospital care at p-value less than 0.25 were candidates for multivariable logistic regression analysis (Table 6).

Multivariable logistic regression model showed that knowledge of the responded and getting Training were significantly associated attitude of health care workers towards pre-hospital care with p-value less than 0.05 and 95% confidence interval (Table 6).

Knowledge of the respondent was significantly associated with attitude of health care workers towards pre-hospital care. Health care workers who had good knowledge were 36 % (AOR=1.36(95%CI: 1.05, 2.32)) increase to have positive attitude towards pre-hospital care as compared to health care workers who had poor knowledge (Table 6).

Getting training was significantly associated with attitude of health care workers towards pre-hospital care. Health care workers who got training were 3 times (AOR =3.2(95%CI: 1.24, 7.83)) more likely to have positive attitude as compared to their counterparts towards pre-hospital care (Table 6).

Table 6: Multiple logistic regression factors associated with attitude pre-hospital care among Health Care Workers among Health Care Workers in Addis Ababa, Ethiopia, 2021/2022

2021/2022

Variable	Attitude		COR(95%CI)	AOR(95%CI)	P –value
	Positive	negative			
Working hour in a day					
≤ 8 hours	45	22	1	1	
9-12 hours	38	28	0.82(0.36-2.07)	0.52(0.26-1.07)	0.08
> 12 hours	1	1	0.95(0.48-2.16)	0.75(0.38-1.46)	0.38
Service year					
≤2 years	7	9			
3-5 years	31	17	2.85(0.29, 7.9)	0.77(0.24,4.8)	0.8
6-10 years	41	24		0.51(0.14,8.2)	0.54
> 10 years	5	1	2.1(0.2, 12.3)	0.5(0.45,10.2)	0.74
			1.3(0.12, 4.87)		
Knowledge					
Poor	52	27	1	1	
Good	32	24	1.44(1.1-2.56)	1.36(1.05-2.32)	0.01*
Training					
Yes	63	44	5.25(1.4-9.6)	3.2(1.24-7.83)	0.03*
No	21	77	1	1	
Sex					
Male	36	23	0.91(0.22-2.65)	0.74(0.32-2.43)	0.19
Female	48	28	1	1	

*indicates that factors associated with attitude of health care workers to wards pre-hospital care

6. Discussion

The finding of this study showed that seventy nine (58.5 %) of the health care workers had good knowledge and 56(41.5%) had poor knowledge about pre-hospital care. This is lower than a study done in India on assessments of a large portion 80% had adequate knowledge, 12% had moderate knowledge and 8% had inadequate knowledge[21].

In this study, fifty one (37.8%) of the health care works had negative attitude and eighty four (62.2%) had positive attitude towards pre-hospital care. This is almost similar with As the study finding from the Rwanda indicates that the 39.3% of the nurses a positive attitude towards the emergency care of RTA victims[25]. In contrast, this study is lower than study done in Indonesia showed that 84.6% of participants had positive attitude and remaining 15.5%had negative attitude [21]. This difference might be come from the difference study area, study design, geographical location and as well as time gap might have contributed to the difference.

Profession of the respondent was significantly associated with knowledge of health care workers towards pre-hospital care. Emergency medical technicians were 3 times (AOR =3.2(95%CI: 1.03, 7.65)) more likely to have good knowledge as compared to the nurse ones to wards pre-hospital care.

And another variable educational status of the respondent was significantly associated with knowledge of health care workers towards pre-hospital care. Health care workers who had master level of educational status were 17% (AOR = 1.17 (95%CI: 1.08, 4.93)) increase to have good knowledge as compared to diploma ones towards pre-hospital care. This is similar with result from Tehran, no significant difference was observed between knowledge and any demographic characteristic ($P < 0.05$). Whereas level of education had a relation with the attitude of pre-hospital care [20, 25]

Getting training was significantly associated with knowledge of health care workers towards Pre-hospital care. Health care workers who got training were 2 times (AOR = 2.25(95%CI: 1.33, 4.52)) more likely to have good knowledge as compared to their counterparts towards pre-hospital care. This is similar with study done in Indonesia showed that, training had a significant influence on the knowledge, attitude, and practice scores for pre-hospital care[19].

Knowledge of the respondent was significantly associated with attitude of health care workers towards pre-hospital care. Health care workers who had good knowledge were 36 % (AOR=1.36(95%CI: 1.05, 2.32)) increase to have positive attitude towards pre-hospital care as compared to health care workers who had poor knowledge. Getting training was significantly associated with attitude of health care workers towards pre-hospital care. Health care workers who got training were 3 times (AOR =3.2(95%CI: 1.24,7.83)) more likely to have positive as compared to their counterparts towards pre-hospital care.

6.1. Strength and limitation of the study

Strength of the study

This study incorporates all health care workers

Limitation of the study

This study did not include the level of practice of health care workers in pre-hospital care.

7. Conclusion and Recommendation

7.1. Conclusion

More than half of (58.5 %) of the health care workers had good about pre-hospital care. And more than a half, eighty four (62.2%) had positive attitude towards pre-hospital care. Profession, educational status and training were significantly associated with knowledge of health care workers to wards pre-hospital care with p-value less than 0.05 and 95% confidence interval. Knowledge of the respondent and getting training were significantly associated attitude of health care workers towards pre-hospital care with p-value less than 0.05 and 95% confidence interval.

7.2. Recommendation

For Addis Ababa Health Bureau

- ✓ Facilitate on job training to increase pre-hospital care service
- ✓ Should increase availability up grade education for diploma health care workers
- ✓ Increase numbers of emergency care technician in pre-hospital cares

For the Health care professional

- ✓ Health care workers should focus attending any training related with pre-hospital care
- ✓ Should ready to increase their educational status

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8. Assurance of Principal Investigator

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

Name of the student: **Alemayehu Sileshi**

Signature: _____

Date: _____

Name of Examiner: **Tesfaye Girma**

Signature: _____

Date: _____

Approval of the Primary Advisor

Name of the primary advisor: **Feyisa Lemmesa**

Signature: _____

Date: _____

Approval of the Co-Advisor

Name of the primary advisor: **Zerihune Alene**

Signature: _____

Date _____

Annex I: Information sheet

St. Paul's Hospital Millennium Medical College

School of Nursing

Department of Emergency and Critical Care

Good Morning/Good Afternoon!

This Study is prepared to Collect Data on assessment of Knowledge, Attitudes and Associated Factors of pre-hospital care Among Health Care Workers in Three Selected Centers in Addis Ababa.

My Name Is _____, I am conducting the research on the Knowledge, Attitudes and Associated Factors of pre-hospital care Among Health Care Workers in Three Selected Centers in Addis Ababa, Ethiopia.

The study is being conducted by Alemayehu Sileshi Memo, St. Paul's hospital millennium medical college school of nursing department of emergency and critical care in Postgraduate Program. The objective of this study is knowledge, attitudes and associated factors of pre-hospital care among health care workers in three selected centres in Addis Ababa. The assessment is made for the partial fulfilment of Master's Degree in paramedic science. The results of the study will be used as base line information to design appropriate intervention strategies to increase pre-hospital health care worker' knowledge, attitude and associated factors of pre-hospital care. The questionnaire contains closed ended questions and will be provided in self-administered form. You are therefore kindly requested to provide genuine answers to the questions. The information you provide is confidential and is used only for the purpose of this study. If you have any question, don't hesitate to ask the data collector. Your cooperation and participation until the completion of the questionnaire is very necessary for the successful completion of the study.

Annex II: Consent form

In signing this document, I am giving my consent to participate in the study Knowledge, Attitudes and Associated Factors of pre-hospital care Among Health Care Workers in Three Selected Centers in Addis Ababa.

I have been informed that the purpose of this study is to Knowledge, Attitudes and Associated Factors of pre-hospital care Among Health Care Workers in Three Selected Centres in Addis Ababa.

I have understood that participation in this study is entirely voluntarily. I have been told that my answers to the questions will not be given to anyone else and no reports of this study ever identify me in any way. I have also been informed that my participation or non-participation or my refusal to answer questions will have no effect on me.

I understood that participation in this study does not involve risks. I understood that Alemayehu Sileshi is the contact person if I have questions about the study or about my rights as a study participant.

We therefore ask your genuine willingness. However, you have the right to refuse if you are not voluntary to participate by making thick mark in -No' in the box below.

Do you agree to participate Yes ☐ sign----- No ☐

If yes proceed to the next page

Thank you in advance for your cooperation

Data collectors Name _____ date _____ sign: _____

Questionnaire code: _____

Annex III: English Version Questioner

Part: Socio demographic characteristics

Code	Socio-demographic Questions	Response	Skip
101	Sex	1. Male 2. Female	
102	Age	_____ (Age in completed years)	
103	marital status	1. Married 2. Single 3. Widowed 4. Divorced 5. Separated	
104	Profession	1. Nurse 2. Midwife 3. Physician 4. laboratory technicians 5. Emergency Medical technician	
105	Educational status	1. Diploma 2. BSc 3. Dr/MD 4. MSc/MPH 5. Other (specify) _____	
106	Service year	----- (year)	
107	Working hours in a day	----- (in hours)	
108	Working unit/department	1. Addis Ababa Fire and emergency and prevention and rescue agency 2. Tebita Ambulance service 3. Nordic Medical center _____	
109	Have you ever taken any training	1. Yes 2. no	

Part II Knowledge of Pre-Hospital Emergency Care among HCWs

1. Do you learn pre-hospital care during on your work?
A. yes **B. No**
2. Do you hear about pre-hospital emergency care during undergraduate?
A, yes B, no
3. Do you take courses/training about pre-hospital emergency care after the completion of your education?
A, yes B, no
4. Do you know about basic life support/advanced life support?
A, yes B, no
5. Do you know how CPR (cardiopulmonary resuscitation) is performed?
A, yes B, no
6. Do you know about RTS (Revised Trauma Scale) for the prognosis of injury patients?
A, yes B, no
7. Do you know training related to aspects of pre- hospital emergency nursing care?
A, yes B, no
8. Do you know the recommended methods of transportation of emergency cases according to the distance between the site of trauma and the health-care facility?
A, yes B, no
9. Do you know the components of pre-hospital emergency ambulance carry?
A, yes B, no
10. Do you know how you can independently manage an emergency patient?
A, yes B, no
11. Do you know the ways you respond if you get suspected acute Myocardial Infarction?
A, yes B, no

Part III Questions about attitude of pre hospital care among HCWs

1. Giving Pre-hospital care to needy person is fair	1. Strongly disagree 2. disagree 3. Neither agree or disagree 4. Agree 5. Strongly agree
2. Giving pre-hospital care to needy person is unpleasant	1. Strongly disagree 2. Disagree 3. Neither agree or disagree 4. Agree 5. Strongly agree
3. Politicians / health care providers take up PHC as their priority agenda	1. Strongly disagree 2. Disagree 3. Neither agree or disagree 4. Agree 5. Strongly agree
4. Readiness to Join/form a society / an organization providing pre-hospital care and transportation at the site of emergency	1. Strongly disagree 2. Disagree 3. Neither agree or disagree 4. Agree 5. Strongly agree
5. Giving pre-hospital care to you is very good	1. Strongly disagree 2. Disagree 3. Neither agree or disagree 4. Agree 5. Strongly agree
6. It is useful for you to learn pre-hospital care	1. Strongly disagree 2. Disagree 3. Neither agree or disagree 4. Agree 5. Strongly agree
7. Do you think pre-hospital care training is mandatory	1. Strongly disagree 2. Disagree 3. Neither agree or disagree

	4. Agree 5. Strongly agree
8. If Ministry of health give pre-hospital care training for all is useful	1. Strongly disagree 2. Disagree 3. Neither agree or disagree 4. Agree 5. Strongly agree
9. Do you think pre-hospital care training should be mandatory in the curriculum	1. Strongly disagree 2. Disagree 3. Neither agree or disagree 4. Agree 5. Strongly agree

