

ADDIS ABABA UNIVERSITY
COLLEGE OF MEDICCAL AND HEALTH SCIENCE
SCHOOL OF MEDICINE
DEPARTMENT OF EMERGENCY AND CRITICAL CARE MEDICINE

ASSESSMENT OF KNOWLEDGE, ATTITUDE, PRACTICE AND ASSOCIAED FACTORS REGARDING PREHOSPITAL CARE DELIVERY FOR TRAUMA PATIENTS AMONG HEALTH CARE PROFESSIONALS PRACTICING IN HEALTH CENTERS IN ADDIS ABABA.

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A RESEARCH THESIS SUBMITTED TO DEPARTMENT OF EMERGENCY AND CRITICAL CARE MEDICINE, COLLEGE OF MEDICINE AND HEALTH SCIENCES SCHOOL OF MEDICIME ADDIS ABABA UNIVERSITY FOR PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE CERETFICATE OF SPECIALITY IN EMERGENCY AND CRITICAL CARE MEDICINE.

January, 2024

Addis Ababa, Ethiopia

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ABBREVIATION AND ACRONYMS

AA	Addis Ababa
ACLS	Advanced cardiac life support
ATLS	Advanced trauma life support
CPR	Cardiopulmonary resuscitation
C-spine	Cervical spine
ECCM	Emergency and critical care medicine
EMT	Emergency medical technician
HCs	Health centers
HCP	Health care professionals
KAP	Knowledge, Attitude and Practice
PHCP	Primary health cate professional
PPHCW	Professional primary health care workers
RTA	Road Traffic Accident
SSA	Sub-Saharan Africa
WHO	World Health Organization

ABSTRACT

Background: Pre-hospital emergency care refers to a medical care provided to patients from the scene to arrival in hospital including turning on an emergency squad of receiving hospital. Poor prior to hospital arrival emergency trauma care practices, attitudes, or understanding can have a negative impact on patients' health outcomes.

Objective: This research sought to assess practices, attitude, knowledge and contributing factors regarding prehospital care delivery for trauma victims among health care professional practicing in health centers of Addis Ababa, Ethiopia,

Method and Materials: Cross sectional study conducted using multistage random sampling from October 2023 to December, 2023. Socio-demographic, practice, knowledge and attitude data was collected using a pre-tested self-administered structured questionnaire. SPSS Software version 25 was used for data entry, interpretation as well as analysis. utilizing logistic regression. A significant P-value of less than 0.05 was taken into consideration while assessing the association between the independent and dependent variables.

Results: There were 269 study participants included in our study, with 100% response rate. Their mean age was 30.86 years (SD=5.743) with 76.6% fell into the 18–32 age group. 64% and 77.7%, respectively, of the total PHCPs involved had a positive attitude and good knowledge on prehospital trauma care. The study revealed that educational level, year of experience and being trained were found associated significantly with their attitude and knowledge of HCPs. however, only being knowledgeable was substantially associated with their practice.

Conclusion: prehospital care for trauma victims was well-understood by the majority of HCP and over half of them had positive attitudes regarding it. However, PHCP should put their knowledge into practice.

Key Words: Attitude, health care professionals, knowledge, practice prehospital care, trauma, Addis Ababa, Ethiopia.

1. INTRODUCTION

1.1. Background

The detection, diagnosis, stabilization, and disposition of life-threatening situations constitute the core competencies in the practice of emergency care. It includes everything related to the out-of-hospital setting, including the provision of emergency trauma care at the scene, transportation to and treatment from emergency rooms, and the final step in the process of disposing of patients whose conditions warrant life-saving intervention [1]. 9.6% of deaths globally are due to trauma, which disproportionately affects people in developing countries [2].

Split seconds can able to distinguish between life and death in traumatic emergencies, therefore providing urgent and critical medical care before patients are taken to the hospital is an essential component of the entire emergency medical system. Pre-hospital treatment that is timely, efficient, and effective helps save lives, ease suffering, and increase the likelihood of successful rescue attempts [3]. Pre-hospital emergency care, which includes emergency team activation, is life-saving medical attention given to patients before they get to a hospital emergency room. [4].

Emergency service is a life-saving medical technique for trauma or critically unwell patients at the incident place or during transporting. The most appropriately trained individual(s) reaching the emergency occurrence within a reasonable time, with the requisite equipment are crucial to ensuring safe, high-quality outcomes of patients [5].

Since prehospital care was just recently introduced even in America and other high-income countries, all of the components need to develop good attitude, understanding, practice, systems, and protocols [6]. Ethiopia is among the low-income country that has begun to realize the necessity for a strong emergency care system [7].

Many people sustain non-fatal injuries every year that require trips to the ER, urgent care facilities, hospitals, or general practitioners. A transient or long-term impairment is usually resulted from these accidents, requiring ongoing medical attentions for the health problems on top of rehabilitation. Since2000, there is discernible rise in RTA cases throughout African, with an approximate 50% rise in years of life lost due to trauma. [8].

The World Health Organization estimates that injuries resulted more than 4.4 million fatalities worldwide, or almost 8% of all fatalities. 1.3 million fatalities are caused by RTIs [9]. Efforts to enhance prehospital treatment and triage are necessary since the most seriously injured patients could not be making it to the referral centers equipped to address their ailments [2]

1.2. Statement of the Problem

Amongst the principal global reasons of early death or disability is injury [10]. Globally, 4.4 million injury-related deaths occur annually, with 3.16 million unintentional deaths. Car crashes, and war represent some of the most popular deadly accidental causes children aged five to 29[6] Violence and accidents cause 10% of disability years and have significant financial impacts on countries leading to low enforcement, including Africa. Road traffic accident mortality is predicted to increase by 30% to 1.85 million annually by 2030, making it the 6th principal reason for mortality globally. [10]. Paramedics' timely delivery of high-quality post-crash and pre-hospital trauma care significantly reduces patient disability and death in medical and obstetrical emergencies. [11]. Healthcare professionals play a vital role in achieving effective results, especially if they have pre-hospital emergency treatment training. [12].

Trauma patients now have far lower rates of morbidity and death when out of-hospital emergency trauma care is provided by trained medical experts in developed settings[13]. Additionally Victims will get treated based on the severity and urgency of their injuries when transferred with communication [14]. The client might not be satisfied with the care provided if the healthcare practitioner lacks sufficient understanding about prehospital emergency trauma care [15].

Effective out of hospital emergency trauma care skills enable to transfer patients to emergency rooms, lowering death and morbidity rates, improving quality of life in relation to health, and increasing community life expectancy [16, 17].

Despite positive attitude, better skills and knowledge on out of hospital trauma care positively affect trauma patients' survival from in hospital treatment, there is no study in Addis Ababa health centers that assessed KAP of HCP. Thus, the research conducted to evaluate attitude, practices, knowledge and potential contributing factors of medical professionals working in Addis Ababa's health centers regarding the provision of pre-hospital emergency trauma care.

1.3. Significances of the Study

Assessing level of practice, attitudes, knowledge, and the factors associated to the out of hospital care delivery for trauma victims of health care service providers practicing in health centers in AA where most trauma victims get first aid and transported to hospital since there is no developed prehospital care system in Ethiopia was the purpose of the research. As far as the investigators are aware, there is no multicenter research done in Addis Ababa health centers of this kind in Ethiopia, so that for researchers in the future, it can serve as the baseline data. In order to enhance the out of hospital care knowledge and practices, health professionals, legislators, and other concerned bodies can benefit greatly from the study's findings. By knowing the degree of practice, attitude, and knowledge of healthcare workers, policymakers and healthcare providers can suggest training and pass on experience from one health facility to another. additionally, can be serve as baseline data for additional researchers.

2. LITERATURE REVIEW

Trauma is a commonest cause of morbidity and mortality all over the world. Ethiopia has the highest fatality rate in road traffic accidents, at 79%. Ethiopia didn't establish organized prehospital cate system yet [18]. A study in Addis Ababa, Ethiopia, found that patient positioning (50.8%) and bleeding control (43.5%)were the most commonly out of hospital services provided for trauma victims and also study found that 8.4% of victims passed away within the first 24 hours, with injury-related death strongly associated with head/neck/spine injury and pre-hospital time. [18-21].

The efficiency of pre-hospital performance is significantly influenced by the knowledge, skills, and viewpoint of the personnel, ensuring high-quality care during scene and transporting to definitive care center [25].

2.1. Knowledge

A study done in Rwanda for evaluating Nurses' practice, attitude and understanding of providing emergency care to victims of traffic accidents. For the most part 82.4% of the population held an advanced diploma. 56.9% of individuals' participants had less than a year of experience, which was the majority. Of the participants, 68.6% had received prior training in A&E care for trauma victims, and 74.5% had received in-service training in trauma patient triaging. [22].

In a different study, which was carried out at Sri Lanka to evaluate the knowledge, attitudes, and abilities of physicians, and nurses in pre-hospital care, from all major medical staff, 26 (75%) of them were female, and more than 80% of them were in the 25–34 age range. 80% of physicians and 63% of nurses had a cumulative good knowledge, however most of the doctors (73.3%) and nurses (87.5%) were not trained on pre-hospital care. [12].

Research done in Gondar revealed that male gender and formal training attendance revealed a positive association to both practice and knowledge. It was also determined that nurses' knowledge and practice related prehospital care was found to be inadequate. only 42.9% of nurses had good knowledge on pre-hospital trauma care overall. Out of all of them, only 42.1% completed pre-hospital care training. Of the involved, 51.5% were between 20 and 30 age ranges. The majority, at 89.2%, held a bachelor's degree. 65.9% of them had been in the field for at least five years. [21].

An investigation on emergency professional health care providers employed in out-of-hospital care facilities at Addis Ababa was carried out. With 135 participants in all, the respondents' average age in years was 29.2 with SD = 4.86. Among them, 71.1% belonged to the 26–35 age group. 58.5% of them all have good knowledge. The study also discovered that the understanding of EHCPs was significantly correlated with career “AOR = 3.2; (95% CI: 1.03 - 7.65), education "AOR = 1.17; 95% CI, 1.08 - 4.93", as well as being trained "AOR = 2.25; 95% CI, 1.33 - 4.52". Additionally, this study found that the involved health professionals' "attitudes toward prehospital care were substantially associated with their knowledge "AOR = 1.36; 95% CI, 1.05 - 2.32" and those who trained "AOR = 3.2; 95% CI, 1.24 - 7.83" [23].

2.2. Attitude

A qualitative study in Ethiopia found that the primary causes of North West Ethiopia's lack of a coordinated prehospital emergency response system are lack of commitment, ownership, and high turnover of decision-makers rather than lack of resources [24].

Other study from Addis Abeba found that 37.8% of healthcare providers have a negative attitude for pre-hospital care, while 62.2% possess an optimistic outlook [23].

In a study done in AA to evaluate Pre-hospital care professionals’ viewpoints and related variables towards pre-hospital care The majority79.4% of accounted BSC nurses and 8.6% emergency and critical nurses. Of all the respondents 54.9% of them were upbeat and 45.1% of the of the research subjects had a poor perspective toward pre-hospital care. most of the involved in the survey (52%) agreed that their institutions lack appropriate documentation. Of those who responded to the study, 49.7% said they lacked pre-hospital care protocols and guidelines that could assist them in delivering high-quality care in an ambulance[25].

2.3. Practice

In an Indonesian survey aimed at assessing the attitudes, knowledge and practices of nurses in prehospital care, demonstrated that 75.4% of them discovered to have good practice [17].

Another study conducted in South Africa to evaluate knowledge of out of hospital emergency medical care professionals on pediatric pre-hospital care 48.8% had good practice [26]

Another study in Ethiopia, discovered that 43% of healthcare practitioners in Addis Ababa, demonstrated good practice. The outcomes also demonstrated that the likelihood of good practice in the out of-hospital emergency care was enhanced by education and four to five years of working experience AOR = 5.86, 95% Confidence Interval: 1.424-24.109 "AOR = 31.953; 95% 6.479-157.591"respecitvely[27].

Among trauma patients arrived in Addis Ababa hospitals emergency Only 20.3% of them arrived by ambulance and ambulance waiting time was 40 minutes [29].

In another comparable study 52% of the out of hospital service providers agreed that they have no documentation in their institutions, there is shortage of BLS equipment and emergency drugs[25].

2.4 Conceptual framework

The entire research process is conceptualized and tools are developed with the assistance of factors influencing attitudes, knowledge, and practices of prehospital care from earlier, comparable studies[21, 27]

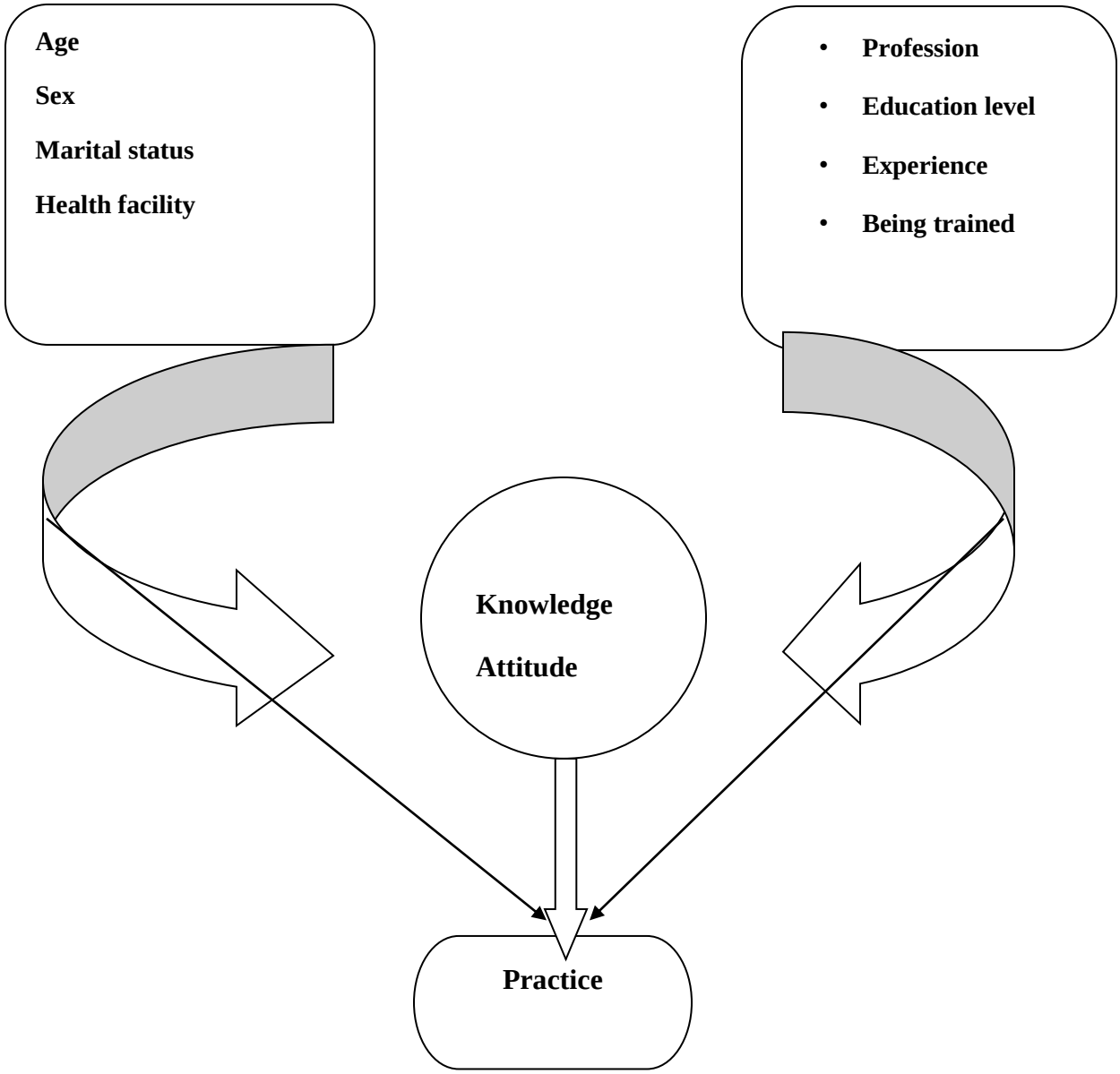


Figure 1:conseptual framework

3. OBJECTIVES

3.1. General Objective

To assess the practices, attitude, knowledge and associated factors regarding pre-hospital trauma care delivery among health care professionals working in health centers of Addis Ababa, Ethiopia.

3.2. Specific Objectives

1. To assess health care professional's knowledge practicing in health centers of Addis Ababa towards prehospital trauma care.

2. To estimate the attitudes of health professionals practicing in health centers of Addis Ababa on prehospital trauma care.

3. To identify the perceptions of practice of health care professionals practicing in health centers of Addis Ababa towards prehospital trauma care.

4. METHODS AND MATERIALS

4.1. Study Area

The study performed in health centers of Addis Abeba (AA) It serves as Ethiopia's capital and largest city, the United Nations Economic Commission for Africa's (ECA) seat, and the home of numerous other continental and international organizations. It has an estimated population of more than 5.4 million and subdivided into 11 sub city administrations. There are 97 HCs in the city governed under the City's health bureau administration which are directly accountable to each sub-city health office. The health centers in each sub-city have labeled as A, B and C based on their clients' flow, the service they provide and number of staffs accordingly There is minimum of 1, maximum of 3 general practitioners (GPs), minimum of 18 and maximum of 48 nurses including BSC and diploma nurses, minimum of 8 and maximum of 24 health officers (HO).

4.2. Study Design and Period

A Cross-sectional study design was used at health centers in Addis Ababa, Ethiopia from October to December, 2023.

4.3. Population

4.3.1. Source Population

All health professionals who were working in health center of Addis Ababa who provide health care service.

4.3.2. Study Population

All health care professionals who were directly facing emergency trauma patients practicing at emergency setting of health centers in Addis Ababa who fulfill eligibility criteria.

4.4. Inclusion and Exclusion Criteria

4.4.1. Inclusion Criteria

The study included all medical professionals employed by the study institutions' emergency care service units, who provide emergency medical care.

4.4.2. Exclusion Criteria

Qualified medical professionals who are giving free service, who are on sick leave, annual leave during the data collection period, withheld consent, and those who don't involve direct trauma patient contact (laboratory, pharmacy midwifes) were excluded.

4.5. Sample Size Determination and Sampling Techniques

4.5.1. Sample Size Determination

To determine the sample size, a single population proportion calculation was used, $n = z^2p(1-p)/d^2$, where n = sample size, Z = standardized normal distribution value at the 95% CI, which is 1.96, P = taking prevalence (58.5%) taken from earlier research conducted in a few Addis Ababa outpatient medical institutions [10] and d = margin of error 5%.

$$n = \frac{Z^2 P (1 - P)}{d^2}$$

$$\frac{(1.96)^2 * 0.585(1 - 0.585)}{(0.05)^2} = \mathbf{372}$$

to get the minimum sample size n0 of 372. Since there is a population N of 708, a finite population correction formula was used to get a sample size n of 244.

By taking10% non-response rates, the total sample size is calculated to be 269.

4.5.2. Sampling Techniques

A multistage random sampling methodology was applied. considering sub cities as strata. Initially three (Lidded, Kirkos, and Arada) sub cities were selected conveniently, sixteen health centers were then chosen using a simple random selection method. Data was collected from sixteen health centers from each profession by strata (GP, Nurse and health officer) by their proportion.

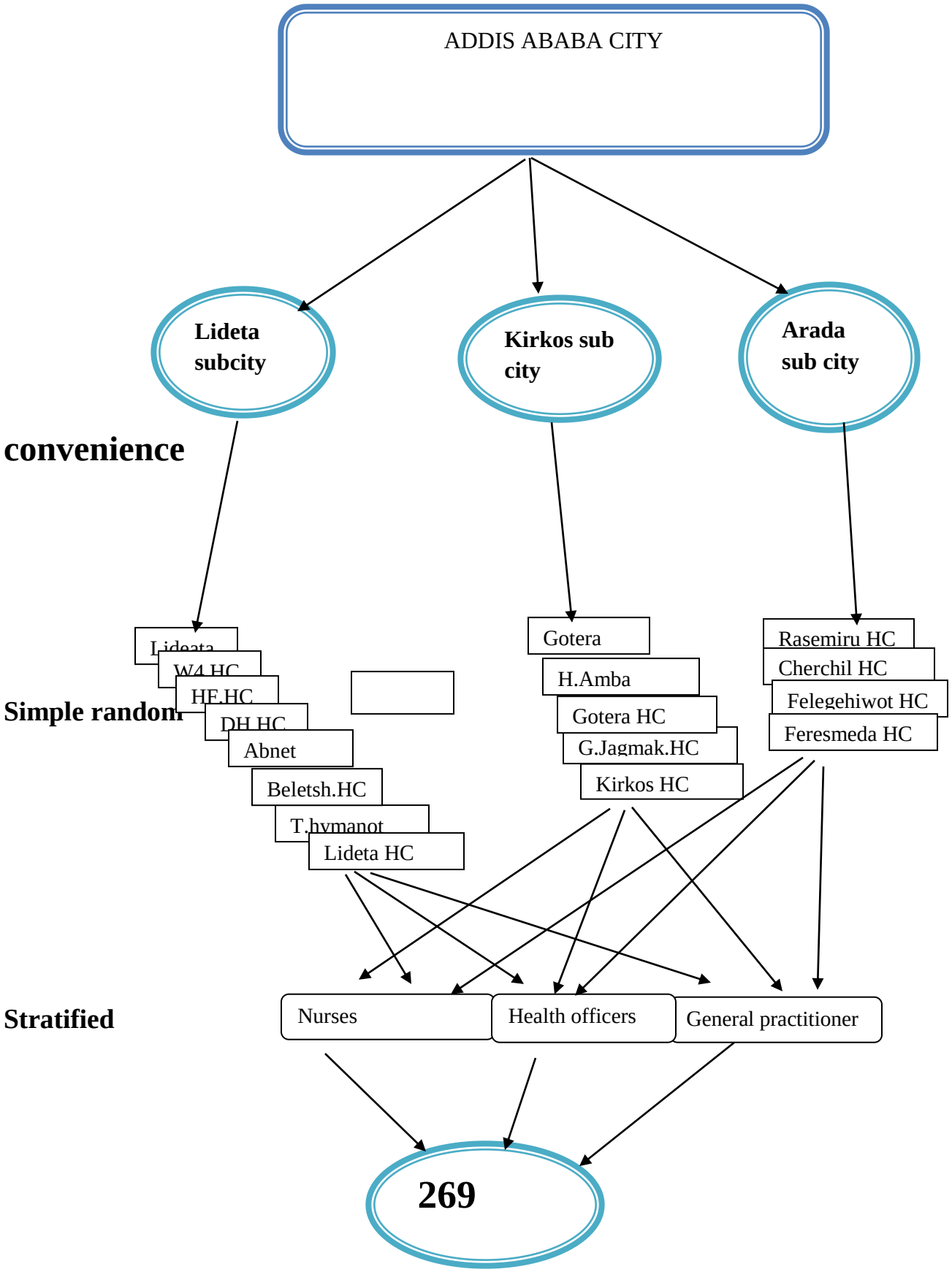

ADDIS ABABA CITY
Lideta subcity
Kirkos sub city
Arada sub city
convenience
Simple random
Stratified
Lideata
W4 HC
HF.HC
DH HC
Abnet
Beletsh.HC
T.hymanot
Lideta HC
Gotera
H.Amba
Gotera HC
G.Jagmak.HC
Kirkos HC
Rasemiru HC
Cherchil HC
Felegehiwot HC
Feresmeda HC
Nurses
Health officers
General practitioner
269

Figure 2: schematic representation of the sampling procedure

4.6. Variables of the Study

4.6.1. Dependent Variable

practice, attitude, and knowledge of professional health workers employed at health centers in Addis Ababa

4.6.2. Independent Variable

The independent variables are (age, gender, marital status, profession, level of education, experience, taking training, and name of health facilities) to be used in the study.

4.7. Operational Definitions

Knowledge: Those who correctly competed their mean value and above from knowledge questions about pre-hospital care are labeled as having good knowledge. and those who scored below the mean value are labeled as having poor knowledge [30].

Attitude: Perceptions regarding pre-hospital treatment or a declaration of support or opposition to pre-hospital emergency care services. A positive attitude was defined as one with an attitude score that was higher than or equal to the mean [27]

Practice: Good practice is defined as having properly completed practice questions about pre-hospital care at a score of at least their average value. and those who had a score lower than the mean are considered to have inadequate technique[30, 31].

4.8. Data Collection methods

Socio-demographic, knowledge, attitude, and practice were assessed using a pre-tested structured questionnaire adopted from previous researches and edited in local context [21, 27]. The questionnaire was prepared using English language. Before performing data collection, the questionnaire tested by taking 5% eligible study participants at Jemo health center for the feasibility of the questions, subsequently inappropriate and unclear questions were changed. Data was collected for three months by six nurses trained for one day.

Data quality control; The investigator continuously oversaw the gathering of data, verifying its accuracy and completeness as well as the questioners' clarity

4.9. Data Analysis

Version 25 of SPSS was used to clean, code, enter, and analyze the data. The descriptive statistics (mean, percentages, or frequency) were calculated. After the assumptions and bivariate logistic regression analysis, factors with a p-value of ≤ 0.25 underwent multivariate logistic regression analysis to control the confounding variable. The Hosmer-Lemeshow goodness of fit test was used to determine the model's fitness; a p-value of >0.05 indicated that the model was fit. To measure the degree of relationship between dependent variables and related factors, crude and adjusted odds ratios were computed. After calculating the 95% confidence interval, related factors were deemed statistically significant if their p-value was less than 0.05. Data was presented on tables.

4.10. Ethical Consideration

The Emergency and Critical Care Medicine Ethics Review Committee granted ethical approval according to Addis Ababa University's directive. This was followed by the Addis Ababa Health Bureau's ethical approval. Study participants who met the eligibility requirements were told of the study's objectives and methods in detail. They were also advised that participation in the study is optional and that any information collected will be kept confidential and no need to mention any identifying information like name, phone number and it will be used only for the study purpose only.

4.11. Dissemination of Results

The study will be presented and defended to the Addis Ababa University school of medicine's department of emergency and critical care medicine as well as the faculty of medicine and health science after it is finished. After that, the manuscript will be polished and submitted to domestic or foreign publications for publication. The Addis Ababa Health Bureau, public health and emergency management directorate, department of emergency and critical care, college of medicine and health science, and Addis Ababa University will all receive the results.

5. RESULTS

5.1. The respondents' sociodemographic characteristics

This survey comprised 269 health professionals working at the HCs. 183 (68.0%) of them were female. The subjects' average age ± standard deviation was 30.86 ± 5.743 years, ranging of age from 20 to 59 years. Majority of study of participants 206 (76.6%) were found within the age category of 18–32 years. Nurse professionals accounted for 62.8% and 80.7% were degree educational level. About 59.9% of study participants had 4-9 experience in years as shown in table 1.

Table 1:- Frequency distribution of Socio-demographic Characteristics of Study Participants in health centers of Addis Ababa, Ethiopia 2023.

Variables		Frequency (%)
Age	18-32	206(76.6)
	33-44	54(20.1)
	≥45	9(3.3)
Gender	Male	86(32.0)
	Female	183(68.0)
Marital status	Single	111(41.3)
	Married	158(58.7)
Profession	Nurse	169(62.8)
	Health officer	81(30.1)
	Medical doctors	19(7.1)
Educational level	Diploma	28(10.4)
	Degree	217(80.7)
	MSc	24(8.9)
Experience in years	≤3	55(20.4)
	4-9	161(59.9)
	10-15	47(17.5)
	≥16	6(2.2)
Ever taking training	Yes	160(59.5)
	No	109(40.5)
Participants in Sub-city	Arada	30(11.2)
	Kirkos	103(38.3)
	Lideta	136(50.6)

5.2. Knowledge of Respondents towards out of hospital trauma Care Delivery

To classify the participants' knowledge as good or poor, the mean of the individual response rates was computed to determine the overall knowledge score. Accordingly, 64.3% of the PPHCW has good knowledge about prehospital care delivery for trauma Victims, whereas 35.7% has poor knowledge. Of the research participants, the majority 85.9%, 81.4% reported able to assess and knowing Maneuvers that aid to open the airway for trauma victim respectively, and 51.3 of the study participants took training about prehospital care and 68.4% of them claimed they had acquired knowledge regarding prehospital care on their job. But more than half (52%) responded they don't know how to assess pelvic stability (table 2).

Table 2: - Knowledge of health professionals on Prehospital trauma Care delivery in health centers of Addis Ababa, Ethiopia 2023.

Variables		Frequency (%)	Variables		Frequency (%)
Maneuvers that aid to open the airway	Yes	219(81.4)	Techniques to stop bleeding for trauma patients	Yes	219(81.4)
	No	50(18.6)		No	50(18.6)
Attend pre-hospital emergency trauma care training	Yes	138(51.3)	Pre-hospital care during undergraduate	Yes	162(60.2)
	No	131(48.7)		No	107(39.8)
implemented BLS	Yes	226(84.0)	manage an emergency patient	Yes	202(75.1)
	No	43(16.0)		No	67(24.9)
Implemented ACLS	Yes	196(72.9)	Trauma patients you suspect C-spine injury	Yes	189(71.0)
	No	73(27.1)		No	80(29.0)
CPR performed	Yes	219(81.4)	Apply cervical collar	Yes	178(66.2)
	No	50(18.6)		No	91(33.8)
ABC's approach of primary survey	Yes	226(84.0)	Assess the patency of airway	Yes	231(85.9)
	No	43(16.0)		No	38(14.1)
Learned about prehospital care from your work	Yes	184(68.4)	Victim has circulatory shock	Yes	193(71.7)
	No	85(31.6)		No	76(28.3)
Correct steps taken accident area for trauma patients	Yes	206(76.6)	Assess pelvic stability	Yes	129(48.0)
	No	63(23.4)			
Knowledge	Adequate knowledge				173(64.3)
	Inadequate knowledge				96(35.7)

5.3. Attitude of Participants towards Prehospital Care Delivery

A total of 209 PPHCWs, or 77.7%, had a positive outlook on out of hospital care care., whereas 60 (22.3%) had a negative attitude. The final attitude score was determined by taking the mean of each individual response rate and classifying the respondents' attitudes as favorable or unfavorable. Prehospital care delivery training is deemed necessary by the majority (77), who also strongly agree (59. 1%) and agree (33.8%) that it should be mandatory for all PHCW**.**

Table 3: - Attitude of health professionals on Prehospital trauma Care delivery in health centers of Addis Ababa, Ethiopia 2023.

Variables		**Frequency (%)**
Improve survival of trauma victims	Yes	244(90.7)
	No	25(9.3)
pre hospital care needs to be improved	Yes	214(79.6)
	No	55(20.4)
	Very bad	54(20.1)
	Bad	48(17.8)
Level of Prehospital trauma care delivery	Good	114(42.4)
	Very good	31(11.5)
	Excellent	22(8.2)
Need training to prehospital care delivery for	Yes	207(77.0)
trauma patients	No	62(23.0)
	Strongly agree	159(59.1)
Training should be mandatory for PHCPs	Agree	91(33.8)
	Neutral	7(2.6)
	Disagree	10(3.7)
	Strongly disagree	2(0.7)
Attitude	Favorable attitude	209(77.7)
	Unfavorable attitude	60(22.3)

5.4. Practice of Participants towards Prehospital Care Delivery

By computing the mean of individual's response rate and classifying the respondents' practices as either good practice or bad practice, who scored above or below the computed mean score, respectively, it is identified that 150 (55.8%) of the involved found having poor practice. The majority 201(74.7%) of the studded had never applied pelvic bind. However, 78.4% give basic life support at least once in their work experience.

Table 4: - Practice of health professionals on Prehospital trauma Care delivery in health centers of Addis Ababa, Ethiopia 2023.

Variables		Frequency (%)
Ever give BLS for trauma patients	Yes	211(78.4)
	No	58(21.6)
Provide CPR to trauma related cardiac arrest	Yes	202(75.1)
	No	67(24.9)
Have you ever did A B C D E assessment & care of the trauma victims	Yes	206(76.6)
	No	63(23.4)
Use Protocols & trauma algorithms for patient management	Yes	169(62.8)
	No	100(37.2)
Equipment available for BLS	Yes	195(72.5)
	No	74(27.5)
Ever applied cervical collar for trauma patient	Yes	148(55.0)
	No	121(45.0)
Accompanied on transporting critical patient to hospital	Yes	175(65.1)
	No	94(34.9)
Ever applied pelvic bind	Yes	68(25.3)
	No	201(74.7)
Participated in managing trauma patient at the scene	Yes	155(57.6)
	No	114(42.4)
Practice	Good practice	119(44.2)
	Poor practice	150(55.8)

5.5. Factors Associated with Prehospital Care Delivery

5.5.1. Factors Associated with Pre-Hospital Care Knowledge

Bivariate logistic regression was performed to determine the relationship between knowledge of HCPs with their level of education, experience in years, and ever being trained and were found substantially associated with their knowledge. with the p-value of less than 0.25 that was subject for multivariable analysis. However, clearing the possible cofounding factors, a multivariable logistic regression model showed statistically significant association between level of education (Bachler degree AOR = 4.941 (95%CI = 1.843- 13.247, p = 0.001)) and master of science AOR = 22.766 (95%CI = 3.881-133.554, p = 0.001)), experience in 4-9 years (AOR = 2.722 (95%CI = 1.305- 5.679, p = 0.008)), and ever being trained (AOR = 6.270 (95%CI = 3.414-11.516, p = 0.000)) as show table 5.

Table 5:- Logistic regression analysis showing factors associated with knowledge at Addis Ababa, Ethiopia 2023.

Variables		**Knowledge**		**COR (95%CI)**	**p-Value**	**AOR (95%CI)**	**p-Value**
		Inadequate	**Adequate**				
Age	18-32	69	137	1			
	33-44	22	32	.733(0.396- 1.355)	.321		
	≥45	3	6	1.007(0.245-4.150)	.992		
Gender	Male	27	59	1.053(0.616- 1.800)	.850		
	Female	64	119	1			
Marital status	Single	42	69	0 .853(0.515- 1.414)	.537		
	Married	49	109	1			
Profession	Nurse	65	104	1			
	Health officer	23	58	1.390(.794- 2.430)	.249		
	Medical doctors	3	16	3.503(0.983-12.488)	.053		
Level of education	Diploma	20	8	1		1	
	Degree	**69**	148	**5.831(2.031-11.492)**	**.000***	**4.941(1.843-13.247)**	**0.001***
	MSc	**2**	**22**	**27.500(5.210-145.154)**	**.000***	**22.766(3.881-133.554)**	**0.001***
Experience in years	≤3	33	22	1		1	
	4-9	**42**	**119**	**4.116(2.165- 7.827)**	**.000***	**2.722(1.305- 5.679)**	**0.008***
	10-15	16	31	2.906(1.294- 6.529)	.010*	1.911(.737- 4.952)	0.183
	≥16	2	4	0.750(0.126-4.452)	.752	0.209(.033-1.328)	0.097
Took training	**Yes**	**26**	**134**	**6.147(3.554 -10.632)**	**.000***	**6.270(3.414-11.516)**	**0.000***
	No	65	44	1		1	

***** *Statistically significant,* [1]*Reference*

5.5.2. Factors Associated with the Attitude of Pre-Hospital Trauma Care Delivery

As demonstrated by a binary logistic regression, the respondents' profession, education level, service year, and training, of healthcare professionals were all strongly correlated with their mindset toward out of hospital care at a P value ≤25. Furthermore, factors that were found substantially associated with PPHCWs' attitude toward out of hospital care at a P value <.25 were potential subjects of multivariate logistic regression analysis. Accordingly having MSC educational level is ten times (AOR=10.403;95%CI, 1.179-91.832), experience 10-15 Years 3 times (AOR = 3.613;95%CI, 1.183- 11.036) and taking training two times (AOR= 2.025; CI, 1.074-3.818) more inclined to view prehospital trauma care positively (Table 6).

Table 6:- Logistic regression analysis showing factors associated with attitude of PHCPs at Addis Ababa, Ethiopia 2023.

Variables		**Attitude**		**COR (95%CI)**	**p-Value**	**AOR (95%CI)**	**p-Value**
		Unfavorable	**Favorable**				
Age	18-32	43	163	1			
	33-44	12	42	0.923(0.448- 1.905)	0.829		
	≥45	3	6	0.211(0.054-0.820)	0.025		
Gender	Male	17	69	0.923(0.501- 1.700)	0.797		
	Female	38	145	1			
Marital status	Single	26	85	0.896(0.502- 1.602)	0.712		
	Married	29	129	1			
Profession	Nurse	38	131	1			
	Health officer	16	65	1.012(0.542- 1.889)	.971		
	Medical doctors	1	18	5.581(0.722-43.123)	.099		
Educational level	Diploma	10	18	1		1	
	Degree	44	173	1.905(0.826- 4.394)	.131	1.944(0.803-4.702)	.140
	MSc	**1**	**23**	**12.778(1.494-109.276)**	**.020***	**10.403(1.179-91.832)**	**.035***
Experience	≤3	19	36	1		1	
	4-9	31	130	2.128(1.081- 4.188)	.029*	1.550(0.757-3.175)	.231
	10-15	**5**	**42**	**4.433(1.504-13.068)**	**.007**	**3.613(1.183-11.036)**	**.024***
	≥16	2	4	0.264(0.044-1.574)	.146	0.151(0.024-0.964)	.999
Ever taking training	**Yes**	**22**	**138**	**2.139(1.196-3.826)**	**.010***	**2.025(1.074-3.818)**	**.021***
	No	33	76	1		1	

***** *Statistically significant,* [1]*Reference*

5.5.3. Factors Associated with the Practice of Pre-Hospital Trauma Care Delivery

Respondent knowledge was shown to be strongly correlated with their practices regarding prehospital care. Specifically, those with good knowledge were five times (AOR = 5.358;95%CI,2.646-10.853) greater likelihood of having sound practice for prehospital care than those with poor knowledge.

Table 7:- Logistic regression analysis showing factors associated with practice of PHCP on pre-hospital trauma care at Addis Ababa, Ethiopia 2023.

Variables		**Practice**		**COR (95%CI)**	**p-Value**	**AOR (95%CI)**	**p-Value**
		Poor	**Good**				
Age	18-32	119	87	1			
	33-44	29	25	1.179(0.646- 2.153)	.592		
	≥45	2	7	4.787(0.971-23.608)	.054		
Gender	Male	41	45	1.617(0.965-2.708)	.068		
	Female	109	74	1			
Marital status	Single	56	55	1.443(0.884-2.353)	.142		
	Married	94	64	1			
Profession	Nurse	95	74	1			
	Health officer	45	36	1.027(0.603-1.751)	.922		
	Medical doctors	10	9	1.155(0.447-2.989)	.766		
Educational level	Diploma	21	7	1			
	Degree	117	100	2.564(1.047- 6.282)	.039*	1.319(0.481- 3.618)	.591
	MSc	12	12	3.000(0.930 -9.679)	.066	1.081(0.298- 3.924)	.906
Experience	≤3	38	17	1		1	
	4-9	87	74	1.901(0.992- 3.644)	.053	1.026(0.487- 2.163)	.946
	10-15	24	23	2.142(0.954- 4.810)	.065	1.350(0.542- 3.363)	.519
	≥16	1	5	11.176(1.212-103.100)	.033*	3.305(0.341-32.011)	.302
Ever taking training	Yes	71	89	3.301(1.956- 5.571)	.000*	1.717(0.944- 3.120)	.076
	No	79	30	1		1	
Knowledge	**Adequate**	**74**	**104**	**7.121(3.797-13.355)**	**.000***	**5.358(2.646-10.853)**	**.000***
	Inadequate	76	15	1		1	

***** *Statistically significant,* [1]*Referen*

6. DISCUSSION

This may be the first research conducted in Addis Ababa to evaluate KAP of professional health care providers at health center level to wards pre hospital trauma care delivery.

This study involved 269 professional health care providers at health centers level from the three sub cities, with 68.0% females and 76.6% aged 18-32 years. Nurse professionals accounted for 62.8%, with 80.7% having degree education, and 59.9% having 4-9 years of experience.

The study also found that 64.3% of PHCPs have good knowledge about prehospital care delivery for trauma victims Most participants 85.9%can assess and 81.4% know techniques to open the airway, and 51.3 took training on prehospital care. And 77.7% of PHCPs had an optimistic outlook toward prehospital care. This figure resembles to a research conducted in a Hospital of Sri Lanka, where "75% of the respondents involved were female, and the three selected prehospital care settings in AA had 56.3% female participants" [14, 27]. However, it is more than that of a study carried out in Rwanda, where 49% of the participants were female, and the majority of 76.6% were found to be within the 18–32 age group. The mean age in years ± SD of the participants was 30.86 ± 5.743 years. which is similar to studies conducted at the "National Hospital of Sri Lanka, where 80% of the respondents were between the ages of 25 and 34" (14), and in Addis Ababa, where the mean age of the respondents was 29.2 ±4.86 years (27). professionals Nurse accounted for 62.8% and 80.7% were degree educational level. About 59.9% of study participants had 4-9 experience years of experience.

The study's conclusions demonstrated that 64.3% of the PHCP were knowledgeable about the provision of prehospital care for trauma victims. This is marginally less than research conducted in India, which found that 80% of study participants had sufficient understanding. and in Sri Lanka 86.6% of doctors, 69% of nurses working in EMT found to have good knowledge [12, 32] this might be because of sociodemographic differences.

It is also somewhat better knowledge than that of a research conducted on a subset of Addis Ababa's prehospital care centers, where 58.5% of participants reported having good knowledge. however has significant improvement when compared to similar article done in Gondar Ethiopia

only 42.9% had good knowledge [21, 23] this might be because the geographic and the time gap of the two studies.

The respondents' educational level, their year of experience and training about prehospital care were found significantly related to their understanding of prehospital care. In contrast to a diploma nurses providing prehospital care, those bachelor degree holders have four times (AOR=4.941:95%CI,1.843- 13.247) and MSC educational level twenty-two times (AOR = 22.766;95%CI,3.881-133.554)) more likely to have good knowledge. PPHCW with 4–9 years of work experience were twice (AOR=95%CI; 2.7221.305- 5.679) as likely to be knowledgeable as individuals who have fewer than three years of work experience about prehospital care, additionally, those with prehospital care training had six times (AOR = 6.270, 95% CI, 3.414–11.516) more good knowledge than those without training. which is similar to an Indonesian study that discovered training had a major influence on prehospital care providers' attitude, practice, and knowledge scores [33].

Furthermore, it bears similarities to a study carried out in three specifically chosen Addis Ababa prehospital care institutions, wherein the knowledge of prehospital trauma care was found to be significantly associated with the respondent's training, occupation, and level of education. Specifically, those with master's degrees, training, and an EMT background were "found to be (AOR = 3.2; 95% CI, 1.03 - 7.65), 17% (AOR = 1.17; 95% CI, 1.08 - 4.93), and 2.25; 95% CI, 1.33 - 4.52) more likely to have knowledge of prehospital care than their counterparts with corresponding odds ratios and confidence intervals". The study area and participant demographic may have contributed to the lack of association between profession and knowledge in this instance. For example, EMTs are trained and practice only in prehospital care and are not employed by AA HCs [10, 33].

According to the finding of this study 77.7% PPHCWs had a an optimistic outlook on prehospital care which is comparable to a study done in Ruanda 73.66% and similar article from Ethiopia 62.2% had a positive outlook for prehospital trauma care [23, 34]. Prehospital care delivery training is deemed necessary by the majority 77%, who also strongly agree (59. 1%) and agree (33.8%) that training should be mandatory for all PPHCW.

Accordingly, those with an MSC educational level have an attitude that is ten times better than those with a diploma (AOR=10.403;95%CI, 1.179-91.832); those with experience of between 10 and 15 years have an attitude that is three times (AOR = 3.613;95%CI, 1.183-11.036) better than those with experience of less than three years; and those who have taken training have an attitude that is two times (AOR = 2.025;CI, 1.074-3.818) more favorable than those with not trained which is comparable to the study done in AA this is in support of the logic training, experience and education changes the attitude [10].

The study in Rwanda found In contrast to this study, nurses' positive attitudes were shown to be unrelated to their prior training and experience [34].

This study finds that only 44.2% had good practice, with the remaining 55.8% having poor practice. The majority 74.7% of the respondents had never applied pelvic bind. And only having good knowledge was found to be significantly associated (AOR=5.358;95%CI,2.646-10.853) with the practice of PHCP.

This study's findings were less favorable than those of earlier research carried out in Malang, Indonesia, where 75.4% of participants had good practices [17]. They were also corroborated by research conducted in South Africa (48.8%) [26], Gondar, Ethiopia, and other related studies, where 49.5% of participants had good practices [35]. In AA Ethiopia, the study found that only 43% of pre-hospital emergency care providers had good practices [27].

One explanation for the discrepancy in the outcomes could be a lack of prehospital care supplies, a lack of attention from the concerned body for prehospital care, and low job satisfaction in Africa.

7. CONCLUSION AND RECOMMENDATION

7.1. Conclusion

prehospital care for trauma victims was well-understood by the majority of PHCP and over half of them had positive attitudes regarding it. However, the majority of them conduct subpar prehospital care. HCPs' knowledge was found to be substantially associated with their educational level, years of experience, and training. Likewise, the respondent's years of experience, education level, and training were all strongly associated with their attitude about prehospital care and only having good knowledge was found associated with their practice.

7.2. Recommendation

- The PHCP should put their knowledge into practice and they have to update themselves with adapted ATLS guide line to be holistic in delivering prehospital care for trauma patient.
- To offer ongoing trainings with a simulation-based approach and access for education to advance their education level.
- Continuous assessment CPD focusing more the practice to wards prehospital care delivery of PHCP.
- For researchers to further investigate on the reason of low practice despite good knowledge and favorable attitude

8. LIMITATIONS

- This study uses only self-administered questionnaire which assess more of perceptions of knowledge and practice of the participant. And not supported by observation of their practice.
- Information and recall bias
- This study was conducted exclusively in governmental health care settings.

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ANNEXES

Annex-I

Information sheet for participants and consent form

The project's title: knowledge, attitude & practice regarding prehospital care delivery for trauma patients Among medical staff employed in Addis Ababa, Ethiopian health centers

Principal investigator: **Dr.** Seid Hussien
Advisors: Dr. Kalkidan Kebede (MD, Assistant Professor**)**
Department: Addis Ababa University, School of Medicine, Department of Emergency and Critical Care, College of Medical and Health Science.

Introduction: My name is Dr. Seid Hussien, and I work as an emergency and critical care resident in the department of emergency and critical care at Addis Ababa University College of Medical and Health Sciences. I am studying medical staff members at health centers in Addis Ababa, Ethiopia, with regard to their knowledge, attitudes, and practices surrounding prehospital care delivery for trauma patients.

Purpose- This thesis evaluated primary healthcare practitioners' knowledge, attitudes, and practices about providing prehospital care to trauma patients in Addis Ababa, Ethiopia's health centers. This research will offer baseline data for the scientific community and other concerned bodies to understand the level of KAP of health professionals to implement a possible intervention for appropriate prehospital care delivery for trauma patients.

Study procedure-To achieve the planned objective, the structured questionnaire was utlized to gather necessary information regarding emergency prehospital care delivery for trauma patients.

Participant's right: I kindly request your voluntary participation in this research. Should you want to take part, you will be required to answer a brief survey.

Confidentiality: Every piece of information you provide and any information gathered from the participants will be kept private. The data you give will be used for this research only and cannot be utlized for any other purpose.

Benefit: Your involvement in this research will benefit you to know knowledge, attitude and practice regarding emergency medical service delivery for trauma patients.

Risk: Participating in this study carries no risk other than a maximum 30-minute time commitment.

Inducement, Incentive, and Compensation: You will not receive any unique rewards, benefits, or remuneration for taking part in this study.

Freedom to withdraw: The participants in the study are informed that they are free to quit the research at any time.

Person to contact: To obtain further details and inquire about this initiative, please get in touch with the individuals listed below

Addis Ababa University, College of Medical and Health Science, Office Tel: _____

Principal Investigator Name and Address:

Dr. Seid Hussien Tel: **+251948956242**

Email hussienseid4@gmail.com

Advisors Name and Address: Dr. Kalkidan (MD, Assistant Professor**)**

Annex II

Participant Consent Form

Study Participant code: _____ Date_____, have gotten I was aware that any information gathered about me would be kept private and that I may decline or leave the study at any moment without it having an impact on my employment.

The information above has either been read to me in a language I can understand or I have personally read it. I got a chance to ask questions about it and any other questions that I had, and I got satisfactory answers to all of them. My voluntary consent to be a study subject has been given. Name and Signature of study participant: _____

Name and Signature of principal investigator: _____

Annex III

QUESTIONNAIRES

Sociodemographic characteristics of health care professionals practicing in health centers of Addis Ababa.

1. Age _____
2. Gender 1. Male 2. Female
3. Marital status 1. Single 2. Married
4. Profession 1. Emergency medical technician 2. Nurse 3. Health officer 4. Medical doctors
5. Educational level 1. Diploma 2. Degree 3. MSc
6. Experience in years _____
7. Ever taking training 1. Yes 2. No
8. Sub-city of health facilities 1. Arada 2. Kirkos 3. Lidia
9. Name of health facilities _____

Knowledge of health care professionals about prehospital care at HCs in Addis Ababa.

10. Do you know the maneuvers that aid to open the airway? 1. Yes 2. No
11. Do you attend training sessions on pre-hospital emergency care? 1. Yes 2. No
12. Are you familiar with basic life support? 1. Yes 2. No
13. Do you know about advanced life support? 1. Yes 2. No
14. Do you know how CPR (cardiopulmonary resuscitation) is performed? 1. Yes 2. No
15. Have you learned anything about prehospital care from your job? 1. Yes 2. No
16. Do you know ABC's approach of primary survey? 1. Yes 2. No
17. Do you know the correct steps to be taken at the accident area for trauma patients? 1. Yes 2. No
18. Do you Know the techniques to stop bleeding for trauma patients? 1. Yes 2. No

19. Are you familiar with pre-hospital emergency care from your undergraduate studies?? 1. Yes 2. No

20. Are you able to handle an emergency patient on your own?? 1. Yes 2. No

21. Do you know for which type of trauma patients you should suspect C-spine injury?
1. Yes 2. No

22. Do you know how to apply cervical collar? 1. Yes 2. No

23. Do you know how to assess the patency of airway? 1. Yes 2. No

24. Do you know How can you assess if the victim has circulatory shock? 1. Yes 2. No

25. Do you know how to assess pelvic stability? 1. Yes 2. No

Attitude towards prehospital care health care professionals at HCs in Addis Ababa.

26. Do you believe that pre hospital care is important to improve survival of trauma patients?
1. Yes 2. No

27. Do you think pre hospital care should be strengthen by increasing the number of ambulances, training the health professionals, and community education? 1. Yes 2. No

28. Current feeling towards quality of prehospital care delivery to trauma patients.

1. Very bad 2. Bad 3. Good 4. Very good 5. Excellent

29. Do you think you need training to prehospital care delivery for trauma patients? 1.Yes 2. No

30. Prehospital care training should be mandatory for all health professionals working in primary health facilities? 1. Strongly agree 2. Agree 3. Neutral 4. Disagree 5. Strongly disagree

Pre-hospital care Practice of health care professionals at HCs of Addis Ababa.

31. Have you ever given basic life support (BLS) for trauma patients? 1. Yes 2. No

32. Do you perform cardio-pulmonary resuscitation (CPR) on individuals experiencing cardiac arrest??

1. Yes 2. No

33. Have you confidently delivered A B C D E assessment & care of the trauma patient?
    1. Yes 2. No

34. Do you have algorithms & protocols for managing trauma victims? 1.Yes 2. No

35. Are you equipped with basic life support equipment (mucous extractor, Ambu Bag, mouth-to-mouth airway)? 1. Yes 2. No

36. Have you ever applied cervical collar for trauma patient? 1. Yes 2. No

37. Have you accompanied on transporting critical patient to hospital? 1. Yes 2. No

38. Have you ever applied pelvic bind? 1. Yes 2. No

39. Have you attended an accident scene and involved in the management? 1. Yes 2. No

DECLARATION

The goal of the study is to evaluate the prehospital care delivery for trauma patients among medical professionals working in Addis Ababa, Ethiopia's health centers, in terms of knowledge, attitude, practice, and related aspects. The signatory affirms that they are the author of this research project. The thesis concept is entirely original with no presentations at other universities, and all references to materials used in its creation have been properly cited.

Principal investigator:

Dr. Seid Hussien (MD, EMCC Resident) **Signature** _____ **Date** _____

Advisors:

Dr. Kalkidan Kebede (MD, Assistant Professor**) Signature** _____ **Date** _____

Examiner:

Name _____ **Signature** _____ **Date** _____

Place: School of Medicine department of Emergency and Critical Care, College of Medicine and Health Science, Addis Ababa University, Addis Ababa, Ethiopia.