ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

DEPARTMENT OF EMERGENCY MEDICINE

ASSESSMENT ON PATTERN OF ORTHOPEDIC INJURIES AND THEIR DISPOSITION OUTCOME AMONG ROAD TRAFFIC ACCIDENT VICTIMS VISITED EMERGENCY DEPARTMENT OF ADDIS ABEBA BURN, EMERGENCY AND TRAUMA HOSPITAL IN ADDIS ABABA, ETHIOPIA

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A THESIS SUBMITTED TO ADDIS ABEBA UNIVERSITY DEPARTMENT OF EMERGENCY MEDICINE IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER IN EMERGENCY MEDICINE AND CRITICAL CARE NURSING.

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DECLARATION

I certify that this thesis is my own original work and has not been presented for award of a degree at any other university.

SIGNATURE: _____DATE: _____

MAKEDA ENGIDA

CERTIFICATE OF APPROVAL

This thesis has been submitted with the approval of my supervisors:

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ACRONOMY AND ABBREVIATIONS

AaBET	Addis Ababa Burn Emergency and Trauma Hospital
ED	Emergency Department
HMIS	Health Management Information System
SPSS	Statistical Package for Social Sciences
US	United State
WHO	world Health Organization

OPERATIONAL DEFINITION

Injury: Physical damage on the body intentionally or unintentionally

The pattern of injury: Numerical representation of orthopedic injury due to road traffic accident it is maybe bones, joints, muscles, ligaments, tendons, nerves, skin, and musculoskeletal system.

Nature of injury: The physical nature of the injury, real or suspected, which brought the person to the emergency department.

Pedestrian: A person walking rather than traveling in a vehicle

Passanger : A person traveling/transport/ by vehile

Vehicles: A device for carrying or transporting individuals or objects.

RTA: Is a collision between vehicles, between vehicles and pedestrians, between vehicles and animals, or between vehicles and geographical or architectural obstacles

Chart with any missing information: any chart who misses the valuable information about the patient condition example diagnosis, which skeletal part was injured and their disposition.

Near to Addis Ababa: the cities found around 200 radiuses in Addis Ababa

Far from Addis Ababa: the cities found above 200 radiuses from Addis Ababa

Disposition outcome: the area where the orthopedic injured patient transferred after getting emergency management

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ABSTRACT

BACKGROUND Road Traffic Accident can be defined as an accident that occurs on a way or street open to public traffic, resulting in one or more persons being killed or injured, and involving at least one moving vehicle. World Health Organization (WHO) global status report estimated that 1.35 million deaths occurred due to Road traffic accident worldwide in 2016. In developing countries, road traffic injuries particularly affect economically active and productive age's group with peak age ranges 15-44 years.

OBJECTIVES The general objective of this study is to assess the pattern of orthopedic injuries due to the road traffic accident in a patient visiting the emergency department of Addis Ababa burn emergency and trauma Hospital.

METHODS Institutional based retrospective study was carried out among orthopedic injury due to road traffic accident victims presenting to addis abeba burn, emergency and truma hspital Totally 384 patients chart selected by using systematic sampling technique and data was entered in Epi info 7 and export to SPSS version 25.

RESULT Total numbers of 384 RTA victims with orthopedic injury were undertaken in this study. Types of injury, pattern and outcome were also analyzed. It is clear that fractures was common.

CONCLUSION Road traffic accident victims were predominantly males and people aged 15-30 years. Pediastrian and passangers were the most commonly affected victims.

Keywords: pattern, road traffic accident, orthopedic injury

CHAPTER ONE

1. INTRODUCTION

1.1. BACKGROUND

All over the world, roads are shared by cars, buses, trucks, motorcycles,pedestrians, animals, taxis and other categories of travelers. Travel made possible by motor vehicles supports economic and social development in many countries. Yet each year, these vehicles are involved in crashes that are responsible for millions of deaths and injuries.

Road Traffic Accident can be defined as an accident that occurs on a way or street open to public traffic, resulting in one or more persons being killed or injured, and involving at least one moving vehicle (1). According to a global status report on road safety, which is generated by World Health Organization (WHO) in 2018 (2), a number of deaths due to road traffic accidents are estimated 1.35 million worldwide in the year 2016, which is found to be slightly down from 1.37 million in the year 2009.

Death rates are typically lowest across Western Europe and Japan, with less than 5 deaths per 100,000 individuals. Across the Americas, rates are typically slightly higher at 5-15; most countries in the Asia region lie between 20 and 25, and rates are typically highest across Sub-Saharan Africa with over 25 per 100,000 (4). In the year 2013, the road traffic death rate in Ethiopia per 100,000 individuals was 25.3 (5); this rate was decreased to 22.1 death per 100,000 individuals in 2016 (4).

As it is indicated above, road traffic accident includes those from motor vehicles (including drivers and passengers within the car), pedestrians, motorcyclists and cyclists. The largest share of deaths at the global level are pedestrians (with 38 percent of the share), closely followed by those in motor vehicles (36 percent); motorcyclists (19 percent); and cyclists (6 percent) (4). The injury characteristics of a road traffic accident in developing countries differ from developed countries. In Africa specifically, the highest proportion of pedestrian and cyclist mortalities are 44% of deaths (pedestrian took 40% and cyclist took 4% of the injury and death) (2). This data showed as the pedestrians are the most vulnerable to road traffic injury and death in Africa too.

A study conducted by Gichuhi (6) on victims of road traffic crashes and treated at Kenyatta National Hospital indicated that the commonest injuries were fractures (69.0%) and the tibia/fibula being the most fractured bones (30.3%). A prospective hospital-based study was undertaken to assess injury characteristics and outcome of road traffic accident among victims at Adult Emergency Department of Tikur Anbessa specialized hospital, Addis Ababa, Ethiopia. This study shows that head injuries (50.4 %) and musculoskeletal (extremities) injuries (47.0 %) were the most common body region injuries. Fractures (78.0 %) and open wounds (56.5 %) were the most common type of injuries sustained (8). In addition to this, in 2017 a research conducted in Arba Minch General hospital shows that the contribution of a road traffic accident is around 47% of the total trauma incidence, which is much higher than the other cause of trauma in the specified hospital (1).

A study conducted by Sinha on orthopedic injuries pattern on road traffic victims in India in 2016 disclosed that, from the total 384 patients that faced a road traffic accidents the out come after treatment (disposition out come after treated at ED) greater number of victims improved accounts 354 (92%),reffered 14 (4%),death 3(1%) and absconded 13(3%) (17).

Therefore, With respect to the number of road traffic accident availability in the country, the author believes that the study which is conducted on this area is limited, specifically a study on the pattern of orthopedic injuries due to a road traffic accident. So that, by considering the unavailability of a detailed study conducted about the pattern of orthopedic injury in a road traffic accident, and by considering the importance of the study for different stakeholders of a road traffic accident for further investigation and policy making, the author decided to make a study.

The main objective of this study is to conduct a hospital-based investigation on the pattern of orthopedic injury in a road traffic accident in Addis Ababa city specifically at ABET hospital. The study explicitly focuses on the identification of which part of the skeletal were injured, it is may be bones, joints, muscles, ligaments, tendons, nerves, skin, and musculoskeletal system.

1.2. STATEMENT OF THE PROBLEM

The injury characteristics of a road traffic accident in developing countries differ from developed countries (9–11). As it is indicated in the introduction part of this document the death and injuries more burden in the developing country. The study entitles with "the neglected epidemic: road traffic injuries in developing countries" conducted by Nantulya and Reich (10) indicates clearly the high burden of a road traffic accident death and injuries in developing countries with the reason for that. As per this research, the main reasons for high burden in developing countries are growth in motor vehicle numbers, vehicles type, and variation in vehicles technologies, people killed or injured per crash, poor enforcement of traffic safety regulations, the inadequacy of public health infrastructure, and poor access to health services. If there is a variation on the burden per country, the variation on the injury pattern is expected. In addition to finding a tactic and methods for decreasing the happening of a road traffic accident, it is very important to know as which part of the body will injure more both in number and injury magnitude. As the knowledge level of the author, there is a limited number of research work which is conducted on the related idea.

As per the data disclosed in 2017 by the Federal Transport Authority of Ethiopia, the number of cars in Ethiopia has exceeded 831,000 (12) which were around 708,000 in the year 2016 (13). From the entire number of cars, 62 percent of them, i.e. 515, 000 are found in Addis Ababa. Addis Ababa is the capital city of Ethiopia. According to the latest world health organization data published in 2017 on the website www.worldlifeexpectancy.com, Road Traffic Accidents deaths in Ethiopia reached 27,140 or 4.27% of total deaths. The age adjusted Death Rate is 36.36 per 100,000 of population ranks Ethiopia at 22 in the world (14).

For this number of vehicles and injuries in Addis Ababa, there is no that much study conducted on the pattern of road traffic injury. But, knowing the size and patterns of the injuries have an advantage for finding a reliable solution for the incidence although there dispersed data/studies on road traffic accident in Ethiopia, as per my knowelage there are no studies done regarding the pattern of orthopedic injuries and their disposition outcome. Therefore, the objective of this study is to fill this gap by studying the injury type and magnitude of orthopedic injuries and their disposition outcome in Addis Ababa specifically at AaBET hospital.

1.3. SIGNIFICANCE OF THE STUDY

The Significance of the study is to determine the pattern of orthopedic injury on a road traffic accident and disposition out come in-patient visiting the emergency department of AaBET hospital. This will help to know the impact of the problem and the most common Anatomical location involved in the injuries. By identifying the size and patterns of the injuries this study will play a great role for planning, intervention, and policymaker Also, the result of this study will lead to an organized injury data in this teaching hospital that provide update information about patterns of orthopedic injury due to road traffic accident visiting and their disposition out come of patients at AaBET Hospital. The finding of this study in the study setting is essential for prioritization of care in the future and contributes to the improvement of patient care in the Emergency Hospital. Therefore, this study were intended to fill this gap by assessing the pattern of orthopedic injury on a road traffic accident and serve as a baseline for those who further wish to conduct a study on this area.

CHAPTER TWO

2.LITERATURE REVIEW

Globally road traffic accident is the 8th leading Couse of death for people of all ages, and the number cause of deaths for children and young adults 5-29 years of age. As per the data presented by WHO status report in 2018, the number of road traffic accident related death recorded three times higher death rates for low-income countries than others. The number of death on the worlds remains unacceptably high with 1.35 million people dying each year (2).

A study conducted by Burns et al, on Epidemiology and patterns of musculoskeletal motorcycle injuries in the USA in 2008 indicated that, from the total of 1252 motorcycle crash injuries, the type of the most common orthopedic injuries were tibia /fibula that occupies (19.01%), spine (16.21%), and forearm (10.14%) fractures (15).

A research work which was conducted in North West Iran in 2009 in related to traffic accident injuries showed that from a total 608 cases, 45.7% were drivers, 30.3% passengers, and 24.0% pedestrians. From this all, 193 (36.6%) sustained traffic accident was happed in open roads and 335 (63.4%) was in urban corridors. Most cases of the car accident happened in urban areas, and the male victims were largely in the driver group. The most frequent type of injury was knee, leg and head trauma (16)

A study conducted by Sinha on orthopedic injuries pattern on road traffic victims in India in 2016 disclosed that, from the total 384 patients that faced a road traffic accident, head and face fracture took the highest share, it accounts for 50% of the total patient, 32% got a fracture in the upper limb and 26% got fracture in lower limb, 29% of victims got multiple injuries, 23% fracture on the chest. When we see the mode of causation from this study maximum number of victims 48% were motorcyclist and cyclist,16% were pedestrian's (17).

Another study which was conducted by Shiva Prakash et al, this research investigates the contribution of injuries by different causes. The result showed the following: during the 12

months study period, 1753 injured patients were seen in the emergency department. Out of these, the maximum (n=1232, 70.27 percent) were in the age group of 11-45 years. There were 1286 males (73.35 percent) and 467 (26.64 percent) females patients. A road traffic accident was the most common cause of injuries being responsible for 61.03 percent (n=1070) of patient injuries. Other causes fell from height in 302 cases (17.22%), fall from bed in 28 cases (1.59%) fall from stairs in 45 cases (2.56%), fall on ground in 72 cases (4.10%), occupational injuries in 65 cases (3.70%), assault in 161 cases (9.18%) and sports-related in 10 cases (0.57%) (18).

A retrospective hospital-based study was undertaken to assess the epidemiology of orthopedic fractures in the underdeveloped country at Lahore General Hospital, in Pakistan 2014 showed that from the total of 740 patients, 577 patients were male and 163 patients were female. Majority of patients were young adults with a mean age of 34 years. A road traffic accident was common among 20 and 40 years age group. Out of 740 patients, 414 patients (56%) had road traffic accidents. The femur was the commonest bone that suffered fracture 281 (38%), and then was Tibia 185 (25%). In upper limb Radius and Ulna fractures, 118 (16%) were more common than Humors 67 (9%). 540 patients (73%) had closed fractures while 200 patients (27%) had an open fracture. Majority of patients 636 (86%) were riding a motorcycle at the time of the accident (19).

A study conducted by Al-Zamanan et al, on the injury pattern among road traffic accident victims in Nijran city, Saudi Arabia in the year 2017 indicated that the highest incidence of road traffic accident was found in the age group of 20-29 years old and the most frequent injury was head injury which represented 36% of cases, 23% spinal injury, 23% lower limb injury, 20% upper limb injury, 17% thoracic injury and 8% pelvic injury (20).

Research which was conducted by Ranti et al., on the injury pattern among patients with road traffic crash presenting at a territory health facility in Nigeria in the year 2013. From the total of 160 road traffic crash victims, 85 were male and 32 were female, in this study the lower limb region was the most frequently injured region. Open tibia, femoral and ankle fractures were the commonest lower injuries in pedestrians and motorcyclists. Closed femoral and pelvic fractures were the commonest in 4-wheeled vehicle occupants. The upper limb was the second most injured region in all groups with 4-wheeled vehicle occupants having a notably larger number of closed humeral fractures (21).

A study conducted by Admassie et al., on adult limb fracture in Tikur Anbessa specialized hospital caused by road traffic injuries in the year 2010. From a total of 422 patients, 202 patients injured by road traffic accident; the highest age group affected mostly was between 15-25 years. Injuries to the upper limb alone accounted for 41.1%. The highest frequency of fractures occurred was the femur 32(15.8%) followed by tibia fibular 29(14.4%) and humors 26(12.9%). The isolated patellar fracture occurred for 22(10%) of the patient, ankle fractures accounted for 9(4.5%) patients; pelvic fracture was seen in 6(3%)patients (22).

CHAPTER THREE

3. OBJECTIVE

3.1. GENERAL OBJECTIVE

The general objective of this study is to assess the pattern of orthopedic injuries and their disposition outcome among road traffic accident victims visited emergency department of Addis Ababa burn emergency and trauma Hospital (AaBET) from January 1st 2018 to January 1st 2019.

3.2. SPECIFIC OBJECTIVE

The specific objective of this study is:

1. To investigate the major anatomic site of the orthopedic injuries among road traffic accident victims visited AaBET Hospital.
2. To identify the type of orthopedic injury based on skin integrity among road traffic accident victims visited AaBET Hospital.
3. To determine their disposition outcome of orthopedic injuries among road traffic accident victims visited AaBET Hospital.

CHAPTER FOUR

4. STUDY METHODS AND MATERIAL

4.1 STUDY AREA AND STUDY PERIOD

4.1.1 STUDY AREA

Addis Ababa is the capital city of Ethiopia. It is also the largest city in the country by population, with a total population of around 4 million in the year 2017 census (23) This study Was conducted at Addis Ababa burn emergency and trauma Hospital. (AaBET Hospital) it is the part of Kidus Paulo's Millennium Medical college and one of the largest trauma Hospital in Addis Ababa Ethiopia established in 2007.AaBET provides a tertiary level referral treatment and is also open twenty-four hours for emergency services. The hospital is administered by the federal minister of health and it is the teaching hospital among in Ethiopia. Providing teaching about medical students and other health-related fields. The hospital offers diagnosis and treatment for approximately 36,650 patients per year. The hospital has 200 beds, with 115 teaching doctors and 295 nurses and from those 80 nurses serving in the emergency department. The emergency department sees in average 10,379 injured patients in a year and they have planned to start a new trauma unit in recent years.

4.1.2 STUDY PERIOD

The study was carried out from January 1st 2018 to January 1st 2019 G.C.

4.2 STUDY DESIGN

An institutional based retrospective study was conducted.

4.3` SOURCE AND STUDY POPULATION

4.3.1 SOURCE POPULATION

All patients who were visited the emergency department of AaBET referral Hospital from January 1st, 2018 up to January 1st, 2019 G.C

4.3.2 STUDY POPULATION

The study population was the selected orthopedic injured patients due to RTA, who visited the Emergency Department of AaBET Hospital from January 1st, 2018 up to January 1st, 2019 G.C

4.4 INCLUSION AND EXCLUSION CRITERION

4.4.1 INCLUSION CRITERION

Orthopedic injured patients due to RTA, who visited the Emergency Department of AaBET Hospital from January 1st, 2018 up to January 1st, 2019 G.C

4.4.2 EXCLUSION CRITERION

- Chart with any missing information

4.5 STUDY VARIABLE

4.5.1 DEPENDENT VARIABLE

- Orthopedic Injuries due to RTA

4.5.2 INDEPENDENT VARIABLES

- Age
- Sex
- Address
- Religion
- Marital Status
- Occupation and pattern of injuries.

4.5 SAMPLE SIZE DETERMINATION AND SAMPLING PROCEDURE

The minimum number of sample required for this study was determined by using a single population proportion formula considering the following assumptions.

$$\mathbf{n} = \frac{(\boldsymbol{Z}\ \boldsymbol{\alpha}/\mathbf{2})^{\mathbf{2}} * \boldsymbol{p}\ (\mathbf{1}-\boldsymbol{p})}{\boldsymbol{d}^{\mathbf{2}}}$$

Where:

N	=	*the minimum sample size required for the study*
Z	=	*standard normal distribution (Z=1.96), with confidence interval of 95% and α=0.05*
P	=	*the pattern of orthopedic injury and their disposition outcome on RTA patients visiting ED was unknown in my study area; Hence; p=50 %(0.5) is used*
D	=	*Absolute precision or tolerable margin of error= 5 %(0.05)*

$$\frac{(1.96)^2 \times 0.5(1-0.5)}{(0.05)^2} = 384$$

4.6 SAMPLING PROCEDURE

A Systematic sampling technique was used to select 384 patients chart with orthopedics injury due to road traffic accidents who fulfill the inclusion criteria during the study period using **Kth** interval the first patient chart was selected randemely and followed by every 6^{th} patient chart

K = 2496/384 = 6

Every 6th patients chart was selected

4.6.1 Data collection tool and procedure

A standardized structured checklist composed of closed-ended questions was used to collect the data.The questionnaire was adopted from Injury surveillance guidelines form which is developed by experts from the WHO and the US in 2001 with modification was used to gather the information from the orthopedic injured patient's chart reviewed in the study seasons. The data also collected by four nurses using a checklist and the data was taken from the patient chart and other documented sources.

4.6.2 DATA PROCESS ING AND ANALYSIS

First, the field checklist was check for completeness and consistency. Then, the data were entered using info 7 and were analyzed by using SPSS version 25. For evaluation of the study data, Descriptive statistical methods (frequency, percentage,mean and standard deviation)were used. The result ware presented using tables and figures.

4.6.3 DATA QUALITY MANAGEMENT

To ensure data quality, the data collectors and supervisors was trained. Properly designed data collection materials developed. The checklist was developed in English and Supervision were carried out on a daily bases to check completeness, consistency both by the supervisor and principal investigator to keep the quality of data highly. Pilot study of questioner was done at Alert truma center on 10% of study population before the start of actual data collection based on pre test some adjustment made after that Correctly complete format was collected from data collectors by supervisors and submitted to the principal investigator.

4.6.4 ETHICAL CONSIDERATIONS

Ethical clearance was obtained from the department of Emergency Medicine,Addis Abeba university. Official letters of permission from the department were submittted to Addis Ababa burn emergency and trauma hospital and ALERT hospital in order to conduct the study. All the collected data were kept confidential and the names/or other personal information was not be notified in any report.

CHAPTER FIVE

5. RESULTS

5.1 Socio-demographic characterstics of the study population

From the total of study populations 303(78.9%) were males and the rest 81(21.1%) females. (M: F ratio were 4:1) The age of injured patients was between 2 and 77 years, with the mean age of 29.75 (SD ±13.74) years and with peak frequency of 15-30 years that accounted, 257(66.9%), the list no of age group were grater than 61 years, that accounted 14(3.64%). Based on occupation of the study population majority patients occupation were not recorded that occupies 176(45.8%) the second injured patients were students 82(21.4%).

Table 1 Dimographic characterstics of study populations for assessing the pattern of orthopedic injury and their desposition outcome among RTA victims visited AaBET hospital in Addis Abeba,Ethiopia from January 1st 2018-January 1st 2019

Variables	Frequency	Percent
Age		
1-14	30	7.8
15-30	257	66.9
31-45	56	14.58
46-60	27	7
≥ 61	14	3.64
Sex		
Male	303	78.9
Female	81	21.1
Residency		
A.A	135	35.2
Near from A.A	128	33.3
Far from A.A	121	31.5
Total	384	100.0

5.2 Distribution of study subject according to major anatomic location /pattern/

Based on anatomical site the common injury was a fracture, from those study patient's 376(97.9%) came with fracture and the most common site was lower limbs which cover 104 (27.1%) from this lower limb tibia fibular 40(10.4%) being the most common bones of fractured. Next common site was skull bone fracture 76(19.8%) followed by upper limb 54(14.1%) the last fractured bone for this study was pelvic bone 22(5.7%) and single bone fracture was 319(83.1%) multiple bone fracture was 65(16.9%) And the rest 8(2.1%) were dislocation patients came for the treatment other type of orthopedics injury (sprain, strain) was not came for the treatement in the hospital durig study period.

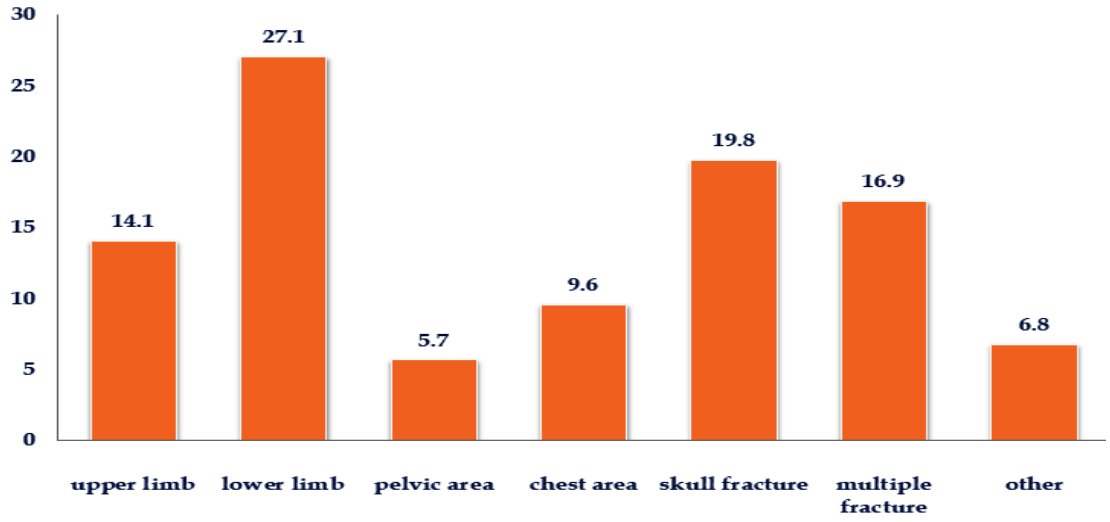

Figure 1 pattern of study populations for assessing the pattern of orthopedic injury and their desposition outcome among RTA victims visited AaBET hospital in Addis Abeba,Ethiopia from January 1st 2018-January 1st 2019

Key - ***other indicates those orthopedics injury not included in the list like vertebral and scapula fracture***

5.3 Distribution of patients based on skin integrity/type

From those study patients, 242(63%) were closed wound fracture followed by 142 (37%) open wound fracture.

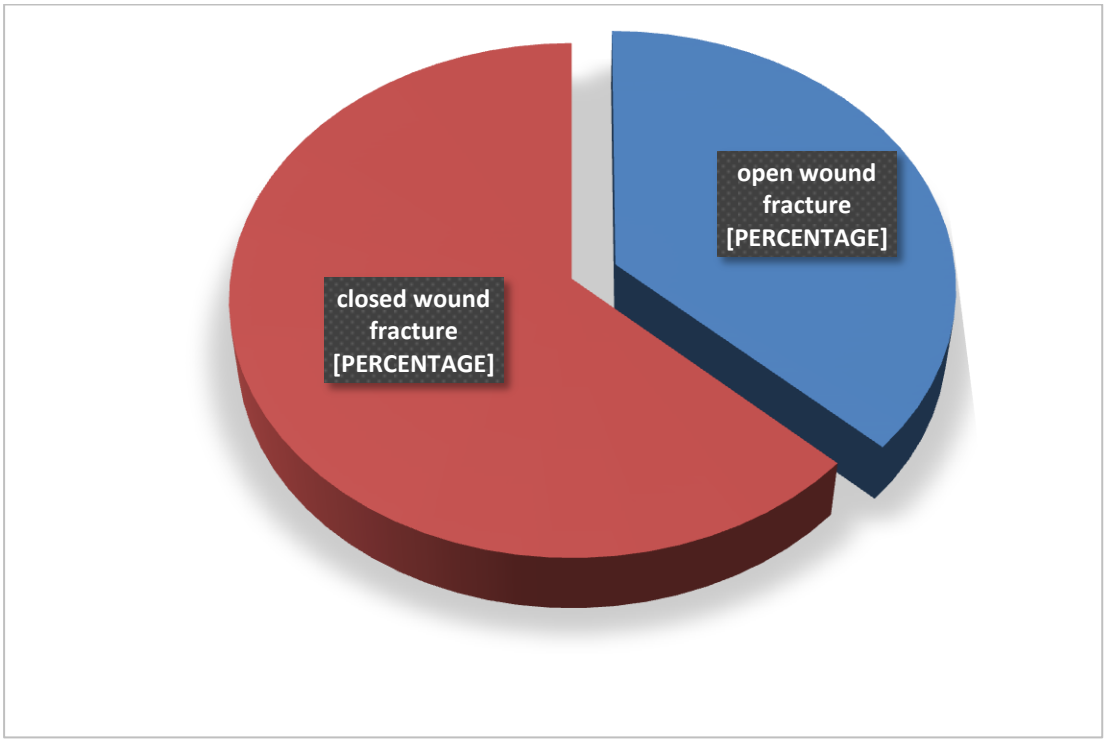

FIGURE 2 pattern of study populations based on skin integrity/type for assessing the pattern of orthopedic injury and their desposition outcome among rta victims visited aabet hospital in addis abeba,ethiopia from january 1st 2018-january 1st 2019

5.3.1 Distribution of patients based on role of the patients and referral

Most of injured persons 219(57.0%) were pedestrian the next 115(29.9%) were passenger, finally driver accounts 47(12.2 %) about the referral majority of patients 141(37%) patients came to AaBET emergency hospital directly from the scene without any intervention followed by121(31%) came from different government and regional hospital and the least came from 8 (2%) patients came from private health institution.

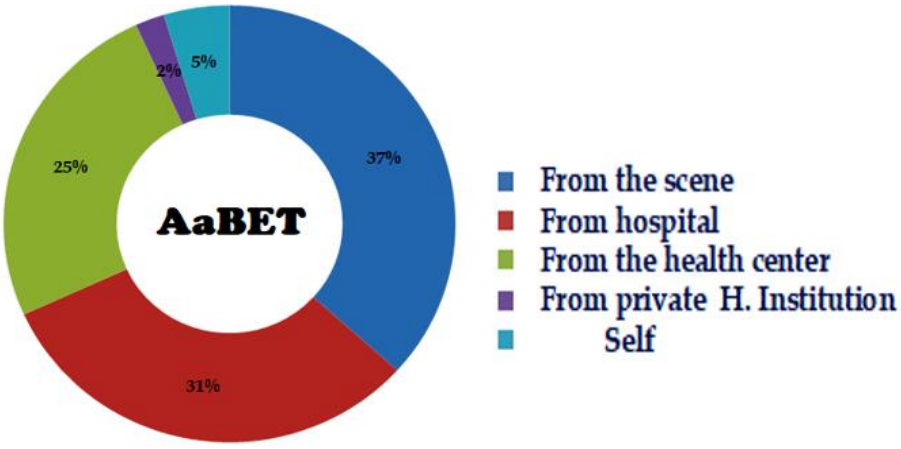

Figure 3 refferal of study populations for assessing the pattern of orthopedic injury and their desposition outcome among RTA victims visited AaBET hospital in Addis Abeba,Ethiopia from January 1st 2018-January 1st 2019

5.3.2 Distribution of patients based on treatment befor ED and at ED

The current study revaled that 215(56.0%) patients got treatment before arriving at AaBET hospital from this 103(26.8%) got first aid, 58(15.1%) got resuscitation and 54(14.1%) Patients got anti pain before arriving at AaBET ED And the rest 169(44.0%) came to hospital without any intervention. At AaBET ED 242(63.0%) they got resuscitation, 129(33.6%) got better evaluation and management at ED or they came to AaBET hospital for evaluation and the rest 13(3.4 %) got only anti pain.

Table 2 treatment before ED and at ED of study populations for assessing the pattern of orthopedic injury and their desposition outcome among RTA victims visited AaBET hospital in Addis Abeba,Ethiopia from January 1st 2018-January 1st 2019

TREATMENT BEFORE ED			TREATMENT AT ED		
	frequency	percent		frequency	Percent
First aid	103	26.8	First aid	none	
Resuscitation	58	15.1	resuscitation	242	63.0
Medication(anti pain)	54	14.1	medication	13	3.0
Others	169	44.0	others	129	33.6
Total	384	100.0			100.0

KEY – others indicate those patients came to AaBET from the scene with out intrvention and(at ED) patients came for better evaluation

5.3.3 Distribution Based on where patient kept at AaBET ED

Based on patient condition (vital sign taken at the time of arrival at AaBET emergency triage) 194(50.5%) was stable and the rest 190 (49.5%) was unstable.

From those study patients 50(13.0%) patients resuscitation started at AaBET triage, 155(40.4%) patients directly entered to the red zone for resuscitation 179(46.9%) was seen in the front evaluation and kept in the orange and yellow-green area.

Table 3 Dimographic characterstics of study populations for assessing the pattern of orthopedic injury and their desposition outcome among RTA victims visited AaBET hospital in Addis Abeba,Ethiopia from January 1st 2018-January 1st 2019

	frequency	Percent
Triage resuscitation started	50	13.0
Red zone	155	40.4
Front evaluation (after evaluation patient kept orange and yellow-green)	179	46.6
Total	384	100.0

5.3.4 Distribution of patients based on time of injury

When we saw distribution of the study subject based on the time of injury we gots from triage sheet, majority of accidents occurred in the afternoon 185(48.2%) followed by in the morning 106(27.6%) then at night 70(18.2%) and the least number of injury occurred after midnight 8(2.1%) and also 15(3.9%) of injured patients time of injury were unknown

5.4 Distribution of study subject based on disposition out come

From the total of 384 patients chart, 251(65.4%) admitted to different wards 117(30.5%) patients sent to home after the emergency service, 6(1.6%) patients referred to other hospital and 5(1.3%) patients against medical advice

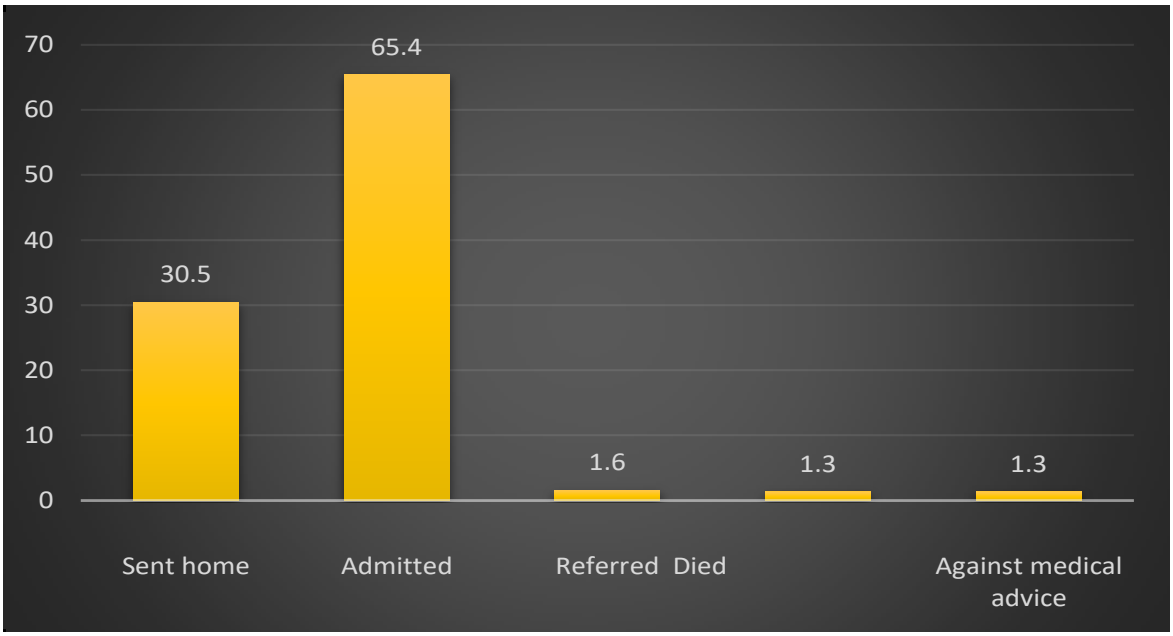

Figure 5 disposition out come of study populations for assessing the pattern of orthopedic injury and their desposition outcome among RTA victims visited AaBET hospital in Addis Abeba,Ethiopia from January 1st 2018-January 1st 2019

CHAPTER SIX

6. DISCUSSION

Every day thousands of people are killed and injured on our roads. Millions of people each year will spend long weeks in the hospital after severe crashes and many will never be able to live, work or play as they used to do (24) Based on the current study there were 2496 ortopedic injured patients due to the couse of road traffic accident seen in the AaBET ED.

The current study revealed that (66.9%) of the victims were in the age group between 15-30 years which is consistent with other similar studies done by WHO revaled that road traffic accident is the couse of mortality and morbidity at the age of 5-29 (2). This shows that a large number of sufferers are people of most economically active, educated, future generation for the city and energetic age group that subsequently leads an economic lost both to the family and the nation.

The results of this study discovered that males (78.9 %) were much more likely to suffer from injuries than females (21.1%). Another study done in arbaminch hospital revealed that from A total of 238 trauma victims visited the hospitals (68.1%) were male and (31.9%) were female.(1) and another study also done in india conducted by Sinha in 2016 disclosed that, from the total 384 patients that faced a road traffic accident, (57.6%) were male and (42.4%) were female This is may be due to the nature of work exposing, usually driver is the proffessions of males in our set up or the increased level of participation in high-risk activities among male individuals.

This study revealed that from the total of study populations the most common site of fractured bone was lower limbs (27.1%) from this lower limb tibia /fibula (10.4%) being the most common bones of fractured. A study inrelated to motorcycle injuries was done by Burns et al (15), in USA 2008 showed that the most common orthopedic injuries were tibia /fibula that occupies (19.01%), and another study conducted by Gichuhi (6) on victims of road traffic crashes and treated at Kenyatta National Hospital also indicated that the commonest injuries were fractures (69.0%) and the tibia/fibula being the most fractured bones (30.3%). This is may

be due to pediastrian are more vulnerable for road traffic accidents and poor road safety playes a great role.

In the current study from the total of study patients closed fracture accounted the largest number (59.6%) and followed by (34.9 %) open wound fracture. A study was done by Admassie D, et al, at Tikur anbessa hospital in 2010 revealed that the majority of fractures were closed fracture accounting (82.2%) and the open fracture was smaller in number and proportions only responsible for (17.8 %).

The current study showed that majority of victims that is (57%) were pedestrian (29.9%) passenger, and lastely driver accounts (12.2 %) but A research work which was conducted in North West Iran in 2009 in related to traffic accident injuries showed that 45.7% were drivers, 30.3% passengers, and 24.0% pedestrians (16). as we see in the resalt part from the above pediastrians result majority 34.7 percent (n=76) were from capital city of Ethiopia, followed by 33.7 percent (n=74) far from A.A and 31.5 percent (n=69) around A.A This shows that probably, poor awareness of the pedestrian about appropriate road use like zebra use in urban(A.A) than rural, poor road safety that is not consider the number of pediastian in capital city, increasing vehicle number without road intervention, finally good road use, riding and driving habits are essentials among all road users.

The current study revaled that about the disposition out come of study population From the total of patients , (65.4%) admitted to different wards (30.5%) patients sent to home after the emergency service, (1.6 %) patients referred to other hospital and (1.3%) patients against medical advice. A study conducted by Sinha on orthopedic injuries pattern on road traffic victims in India in 2016 also disclosed that, from the total 384 patients that faced a road traffic accidents the out come after treatment (disposition out come after treated at ED) greater number of victims improved accounts 354 (92%), reffered 14 (4%), death 3(1%) and absconded 13(%) (17). This is may be due to poor access of pre hospital care, unessary movement during transportatation ,going to unessary hospitals or health center rather than appropriate truma hospitals, time between accident and the truma victim got emergency care and severity of truma plays a great role to increase hospital stays (admission rate) in our set up.

CHAPTER SEVEN

7. CONCLUSION

World wide Road traffic accidents are responsible for premature mortality and morbidity. Based on this study majority of patients age group were between 15-30 years. This study showed that the majority of accident takes place in the capital city of Ethiopia. Pedestrians and passengers were the most commonly affected victims. The most common types of orthopedic injury in this study were lower limb and from this lower limb tibia fibular fracture was the leading one. And also the current study revealed based on their skin integrity closed wound fracture the most common one. In the present study, Road Traffic Accidents (RTA) were evaluation to be a common cause of bone fractures especially in individuals in their 2nd and 3rd decades of life, constituting most of it victims. So it is well known that RTA problems a major public health issues having a great economic consequences. Mostly males were observed to be predominantly involved with the lower extremity the most affected site of bone fractures.

CHAPTER EIGHT

8.1 LIMITATION OF THE STUDY

- Inadequacy of published data that gives information about disposition out come of patients after ED management
- Only less datas are available on pattern of orthopedics injury
- Since the data were retrospective the result is based on physician notes found in patient chart

8.2 RECOMMENDATIONS

Based on the findings that originated from this study, the following recommendations were forwarded for respective stacke holders.

To ministry of health

- The cause of injury by road traffic accident was high in young and productive age group so it should include in health education to teach the society to prevent RTA injury and raising public awareness to the consequence of injury.

To AaBET hospital

- Continuous emergency patient handling Training for health workers working in emergency department.
- Responsible body in the hospital should communicate with road traffic authority to develop linkage with the hospital to improve the health care system on trauma

To the society

- The pedestrian and driver should respect the road traffic lows while crossing the road.

Future resercher

- further study should be done on the same topic to improve the health care system and reduce injury coused by road traffic accidents.

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APPENDIX

QUESTIONER

Serial number	**PART I SOCIODEMOGRAPHIC DATA**	**Possible response (make a circle for answers)**
1	Age	_____in number
2	Gender	a. Male b. Female
3	Occupation	a. Government b. NGO c. Student d. Farmer e. Merchant f. unemployed g. Other _____.
4	Residence	a. A.A b. near A.A c. Far from A.A
Part II Effects of injury on the body		
5	Which anatomic part of the body was injured? .	a. upper limb b. lower limb c. Pelvic area d. chest area e. skull fracture f. multiple fracture

6	Specifically which part was injured (specially for upper and lower part)	----------
7	Characteristics / nature of injury in the body	a. Fracture b. Dislocation. c. Other _____.
8	Types of wound/skin break or not	a. open wound fracture b. closed wound fracture c. comminuted fracture
9	What was the role of the patient doing at the time of injury?	a. Pedestrian b. Driver or operator of the transport, including bicyclists and motorcyclists c. Passenger, including motorcycle passengers e. Other_____.
10	From where does the patient come to the emergency department?	a From the scene b. From hospital. c. From health center d. From private health institution e. self.
11	Was treatment given Before arriving to ED?	a. Yes b. No c .unknown
12	If yes Q11 which type of treatment was given?	a. First aid (basic) b. resuscitation c. medication (ant pain) d. Others_____
13	How was the condition of the patient at the emergency department? (based on vital sign)	a. Stable b. Unstable c. died on arrival

14	What was the care is given in the emergency department?	a. resuscitation b. only medication c. other_____.
15	Where was patient kept/ treated at ED?	a.triage resuscitation started b. red area c. front evaluation d. other
16	The disposition outcome of the patient after theemergency room.	a. sent home b. Admitted c. Referred d. died e. against medical advice
17	Time of injury occurrences	a. In the morning b. In the afternoon c. At night d. after midnight e. unknown