ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
DEPARTMENT OF EMERGENCY MEDICINE

CLINICAL PROFILE AND OUTCOME OF ROAD TRAFFIC ACCIDENT AMONG ADULT PATIENTS TREATED AT GOVERNMENT HOSPITALS IN ADDIS ABABA

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A THESIS REPORT TO BE SUBMITTED TO ADDIS ABABA UNIVERSITY COLLEGE OF MEDICINE & HEALTH SCIENCES, DEPARTMENT OF EMERGENCY MEDICINE IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE SPECIALITY CERTIFICATE IN EMERGENCY MEDICINE AND CRITICAL CARE.

JANUARY, 2023
ADDIS ABABA, ETHIOPIA

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ACKNOWLEGEMENT

My sincere appreciation goes out to my advisors for their insightful feedback during the writing of my thesis. I would want to express my gratitude to the Addis Ababa University College of Health Sciences, specifically the Department of Emergency Medicine and Critical Care, for providing this opportunity. After that, I would like to sincerely thank my friends for their assistance and close advice in helping me to complete this proposal. I also greatly value the efforts of my colleagues. I would also like to express my gratitude to the entire emergency department staff for their cooperation and information exchange.

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ACRONYMS AND ABBREVIATIONS

AaBET ……Addis Ababa Burn& Emergency Trauma

ALERT……All African leprosy Tuberculosis Rehabilitation &Training Center

ATLS……. Advanced Trauma Life Support

AVPU ……Alert, Verbal, Pain, Unresponsive

C.P.R.……. Cardiopulmonary Resuscitation

C.N.S.……. Central Nervous System

ED…….…. Emergency Department

EMS……. Emergency Medical Service

G.C.S.……...…. Glasgow Coma Scale

I.C.U.……...Intensive Care Unit

LMIC ……. Low Middle-Income Country

MV……. Mechanical Ventilation

OR ……. Operating Room

ROSC……. Return of spontaneous circulation

RTA……... Road Traffic Accident

SPSS……...……Statistical Package for Social Sciences

THI……Traumatic Head Injury

TASH……Tikur Anbesa Specialized Hospital

WHO ……World Health Organization

ABSTRACT

BACKGROUND: Around 1.25 million people per year die as a result of traffic collisions worldwide. According to data from the worldwide safety report, road traffic injuries are on the decline in industrialized nations but rising in many developing nations, including Ethiopia. This study aims to evaluate the clinical characteristics and outcomes of Addis Ababa public hospitals' chosen hospitals for road traffic accident victims.

OBJECTIVES: The purpose of this research is to evaluate the clinical characteristics and results of traffic accidents among adult patients receiving care at five government hospital emergency rooms in Addis Ababa, Ethiopia, between July 1 and July 31, 2023.

METHODS: A cross-sectional prospective study with an institutional basis was conducted on trauma patients receiving treatment at the trauma and emergency departments of a selected group of government hospitals over the study periods. We used SPSS version 26 and Epi-data version 4.6 for statistical analysis**.**

RESULT: Male to female ratio was 2.07:1, with trauma primarily affecting the 24-to 33-year-old age group. The most typical time for an injury to occur was between 0:00 and 6:00 PM, and 89.7% of patients arrived at the hospital via ambulance.

Taxies 108(48.2%) & heavy good car 49(21.9%) dominated over others vehicles. Mostly pedestrian was affected 161(71.9%). The Kampala severity score II (KTS II) was showing moderate trauma (46%), Sever trauma (36.6%), and Mild trauma account (17.4%). Poly trauma (52.2%) and lower Extremity fracture (22.3%) were the front runners of injury, with 16.1% of the victims were head injury patients. The Case fatality rate was 1.8%.

CONCLUSION: According to this survey, Addis Ababa was the site of the majority of road traffic accidents (RTAs**)**, primarily harming young, economically engaged men. RTAs were found to often affect pedestrians, and while some casualties received pre-hospital care, the majorities were retrieved by onlookers. These findings highlight the need for improvements to socioeconomic infrastructure and pre-hospital emergency services.

1. INTRODUCTION

1.1. Background

Around 1.25 million people per year die in traffic accidents worldwide. This translates to daily mortality claims from traffic accidents of more over 3400(1). Additionally, between 20 and 50 million individuals suffer non-fatal injuries as a result of traffic accidents(2). By 2030, it is predicted that the issue will rank as the fifth biggest cause of mortality, with an annual death toll of 2.4 million, as a result of a rise in motor vehicle ownership and use linked to economic growth in emerging countries(3). In fact, it reduces the gross domestic product by 3% globally and by as much as 5% in low- and middle-income nations(1).

Road traffic accidents are down in wealthier countries, while injury patterns, especially in Ethiopia, are noticeably rising in middle- and low-income nations (3). With the seeming disparity between industrialized and developing countries, this trend will continue(2,3).

In Africa, there were 46.6 vehicles per 1000 inhabitants in 2015, compared to 510.3 in Europe. However, when compared to Europe, Africa has the highest recorded death rate from traffic accidents (26.6 per 100,000 versus 9.3 respectively)(4).

Road traffic collisions are a serious issue in Ethiopia's road transportation system(2). The total number of automobiles registered for Ethiopia's fiscal year 2011–2012 was 478,244, according to a 2015 assessment on worldwide road safety. WHO estimates that there are 25.3 fatalities for every 100,000 people. Compared to rates recorded in industrialized countries, this rate was significantly higher (1).

Ethiopia has many issues with driving safety, but little is known about the country's road traffic collision (RTC) rate. There hasn't been much published research on how common road accidents are in the country (2,4–6).

To the best of the researchers' knowledge, no research has been done on the variables influencing the Severity of RTC injuries in Ethiopia. The causal relationship between

the seriousness of the injuries sustained by victims of traffic accidents and probable risk factors in Ethiopia is therefore still unknown. Therefore, the purpose of this study is to evaluate the factors that influence the injury severity levels of RTC victims who are referred to particular public hospitals in Addis Ababa.

1.2 statement of the problem

Road traffic accidents are a significant public health concern worldwide. In Ethiopia, the situation is alarming, with over 17,000 deaths and 35,000 injuries reported in 2018. Among the cities in Ethiopia, Addis Ababa is the most densely populated and the most affected by road traffic accidents, with a significant number of fatalities and injuries.

Perhaps some studies were done before five years or before COVID 19.road safety authority says incidence is decreasing recently. Again studies undergone in many hospitals are rare.

A research conducted between 2010/11 and 2014/15 by the Ministry of Federal Democratic Republic of Ethiopia on the Health Sector Development Program IV indicated that 27% of all emergency visits, 5% of all hospitalizations, and 3% of deaths in Addis Ababa occurred due to traffic accidents.

My research therefore postulates that the pattern and result of road traffic injuries at Addis Ababa's government hospital trauma centers will differ from those of earlier investigations.

1.3 significance of the study

The study contributes to the limited knowledge on road traffic injury in Addis Ababa, Ethiopia. The results of this research will facilitate the creation of evidence-based plans and programs aimed at lowering the incidence of traffic accidents in urban areas. The research offers insights into the traits and consequences of traffic accidents, allowing for the identification of high-risk demographics, injury types, and strategies to lower the frequency or severity of accident-related injuries.

2. LITRATURE REVIEW

2.1. Socio-demographic Characteristics of the patients

The study done in Hawassa University Comprehensive Specialized Hospital a total of 350 patients medical record (charts) were included in the study. Among these, 206 (59.9%) were male, 70% were in age ranges of 20–49 years and 206 (58.9%) were living in urban area of residence(7).Similar research was conducted in a tertiary care hospital in India, and the findings showed that males (82%) and girls (around 18%) make up the bulk of trauma patients, with the age groups between 21 and 30 years being the most affected(8).

This study found that about three fourth 278(76.6%) of those who sustained RTCA were males. Age group 21 to 30 years were mainly affected by RTC; followed by age group 12 to 20 years, and they account for 141(38.8%) and 74(20.4%)(9).

The biographical data analysis phase of a study conducted in Canada revealed that males make up 71.3% of trauma patients, the mean age is 22 years, and the number of patients 65 and older is 33.9%. Additionally, females account for 28.6% of all trauma(10)

According to a study conducted at Black Lion Hospital in Addis Ababa, Ethiopia, there were 3287 new patients seen in the emergency department, 989 (32.5%) of them were injured. A sample of 334 trauma patients out of 989 were used for the study, and 321 (32%; response rate: 96.1%) volunteered to take part. The M: F ratio of the study's patients was 3.6:1, with 251 (78.2%) men and 70 (21.8%) women. 20-29 years, which made up 41% of the affected age group, were followed by 30-39 years (18%)(11).

A total of 356 accident victims from an earlier investigation at Black Lion Hospital in Addis Ababa, Ethiopia, gave their approval and agreed to take part by a sex ratio of 3:0.7, men outnumbered women. More than 76% of these individuals were discovered to be in the 20–59 age range. The most prevalent professions were public servant72 and farmer74 (20.8%)(12).

In the general hospital in Jazan, Saudi Arabia 1 050 emergency trauma patients in all participated in the study. The report states that the patients' age ranged from 25.3 to 16.8 years. 45.1% of the total number of patients were between the ages of 18 and 30. 64.3% more men than women experience trauma, while 60.6% more women than men experience trauma in metropolitan areas(13).

According to an analysis of a Sub-Saharan African hospital-based injury surveillance registry, the average ages of the inpatient trauma population were 27 years, with a male preponderance of 76% and a female 24%. Men had a greater death rate than women, and patients who passed away were often older than those who survived(14).

A retrospective record Investigations were carried out at Kilimanjaro Christian Medical Center over a seven-month period among the individuals who arrived with severe injuries to an emergency department of a referral hospital in Moshi, Tanzania. The results revealed that 1224 patients suffered injuries, Men (73.4%) and people between the ages of 15 and 44 (57.8%) are the most injured(15).

Based on a comparable study conducted in our nation using one-year retrospective data on trends of trauma inpatients seen at public hospital emergency in Mekelle, Tigray, northern Ethiopia, Ages 16 to 25 accounted for 38.5% of the cases, making them the most commonly affected age group. The 26 to 35 age group came in second with 21.4% of the cases. The percentage of men involved is higher than that of women (74.3%) compared to 25.7%. The majority of patients—83 percent—come from cities (16).

According to a study conducted in Ethiopia at the Dilla University Teaching and Referral Hospital, 52.1% of victims were between the ages of 20 and 40, while 7.7% of victims were over 40.Mortality is greater in the 20–40 age range (56.5%) and among men (52.2%), and 69.6% of deaths occur in rural areas compared to 30.4% in metropolitan areas.40.2% of trauma cases happened in urban regions, whereas 59.8% of trauma cases happened in rural areas (17).

According to estimates, it took 41.3 to 79.8 minutes from the time of the incident till the patient arrived at the Jazan General Hospital in Saudi Arabia(18).

2.2. Clinical profile of patients

Research done in Zewditu Memorial Hospital's emergency department (ED), Addis Ababa, Ethiopia Only 29% of instances received pre-hospital care, and an ambulance brought 14% of those individuals to the emergency room. In 41% of cases, a private or public health facility referred the patient. Lower limb injuries accounted for 36% of all injuries, with head injuries coming in second at 20% and upper limb injuries at 15%(6).

Similar research in India found that head injuries accounted for 50% of all reported injury patterns, whereas fractured extremities made for 54% of cases of poly trauma. The specific procedures and treatments were rapid sequence intubation (3%) and chest tube insertion (6.4%), sutures and casting (38%), and suturing and dressing (33%)(8).

In Germany, adult patients experiencing traumatic cardio-respiratory arrest are assessed using a multicenter database to ascertain the prognosis and factors that indicate appropriate resuscitation in the emergency room, The findings reveal that out of 38,499 patients, 5.5% of all admitted patients received CPR in the ER, and 3.1% of those patients were only revived there (19).

According to a study conducted in the emergency room of Tikur Anbessa Specialized Teaching Hospital in Addis Ababa, Ethiopia, road traffic injuries occur 36.8% of the time. The bulk of these victims (71.7%) were pedestrians. Drivers and passengers made up the next largest groups of victims (12.2% and 13%, respectively), and the remaining victims were drivers' helpers.74% of traffic injuries occurred to residents of metropolitan areas. Streets are where the majority of these road traffic injuries occurred, accounting for 89.3% of all injuries, followed by workplace areas. 10% and 0.8% of injuries happened in the area around the residence. Morning and evening hours accounted for 70.2% of accidents, with afternoon hours accounting for

25.9%.The remaining activities took place after midnight. A significant portion of RTI (35.1%) was traveled by minibus (12).

Road traffic collision injury severity was associated with the type of motor vehicle involved. This study depicted that victims involved in large heavy vehicle collision were 2.14 times more likely to develop severe injury than those involved in alight heavy vehicle with AOR 2.14(95% CI; 1.01–4.52(9).

In a study conducted in the Ethiopian city of Hawassa's Comprehensive Specialized Hospital there were 40.9% more road traffic accidents than expected. For those who were killed in traffic accidents, 74.1% of the accidents involved the public transportation they utilized, 18.8% involved pedestrians, and 6.9% involved street accidents. Regarding the cause of RTA, 48.9% of cases were brought on by excessive speed, 32.2% by contact with another vehicle, 9.8% by failing to pass a pedestrian, and 11.8% by an unidentified cause that wasn't noted in the patient's report. Regarding the accident's timing, 11.2% happened during the night, 33.6% happened in the morning, and 35.6% happened in the evening. The head, which makes up 38.5% of the injured anatomical location, and the lower extremity, which makes up 27.9%**(7).**

Patients who passed away in Sub-Saharan Africa arrived at the hospital with lower degrees of consciousness. Trauma patients may experience hypotension, hypoxia, and severe brain damage, which can all impact their mental health. none survivors have an average heart rate of 83, an average systolic blood pressure of 124, and an average respiratory rate of 27 at the time of admission. The average trauma score in Kampala was 13.9, while the average GCS score among non-survivors is 12. At the time of admission, a greater shock index was more frequently associated with abdominal/pelvic injuries. The most common causes of injuries resulting in hospital admission were assaults, falls, and traffic accidents. The only cause of injury linked to higher-than-average fatality was traffic accidents, which claimed the lives of 62% of patients.

Injury to the head or spine and injury to extremities were the most frequent (39 percent and 47 percent, respectively). Patients with multiple trauma or injuries to the head or spine had the highest death rates. There was a significant risk of death for patients who arrived with head/spine and abdominal/pelvic injuries. Injury to the head

and spine region had the strongest correlation with mortality, accounting for more than 70% of inpatient deaths(14).

According to a retrospective chart research investigation that was done at Kilimanjaro Christian Medical Center, auto accidents, which account for 43.9% of all incidents, are the most frequent mechanism of damage. Head injuries made up 36.5% of all injuries, and extremities injuries made up 59.5%(15).

A retrospective record research study conducted at Dilla University Teaching and Referral Hospital over a five-year period looked at the pattern and results of trauma patients who visited the emergency room. Of the 46.6% total trauma prevalence, RTA makes up 47.3%. Lower extremity injuries made up 35.9% of all injuries, followed by upper extremity injuries (19.7%) and polytrauma injuries (15.4%), while chest injuries made up the least number of injuries. Deaths from traffic accidents accounted for 52.2% of all deaths. 43.5% of fatalities were caused by poly trauma and 39.1% by head injuries. Cases with lower trauma scores upon entry had a relatively high fatality rate. The death rate for patients who arrived at a hospital after an hour extremely high patients who had an associated abdominal injury, lower extremity injury, time to arrival > 24 hours, were admitted for more than 7 days in the hospital, had a revised trauma score 10, had a decrease in global cognitive score (GCS), and had undergone surgery had higher odds of dying from their injuries. Individuals who arrived within an hour and those who arrived within 24 hours had a decreased chance of passing away in the hospital as opposed to those who arrived more than 24 hours in advance (17).

2.3 Patient outcomes from emergency department

A research Black lion Addis Ababa Ethiopia research found that mild injuries made up 10.1% of all injuries, followed by severe injuries that required rigorous surgical therapy at 15.4% and moderate injury 70.2% of all injuries, respectively(11).

However , A study carried out at Jimma University Hospital revealed that 26.0% of patients had minor injuries, 41.3% had moderate injuries, and 32.7% had major injuries (21).

A research done in India found that of all the patients who were treated, 52% were sent home from the emergency room, 9% were referred, 29% were sent to the ward,

and 6.4% were admitted to the intensive care unit. In the emergency room, one percent of patients passed away and one percent ignored medical advice (8). Hospital mortality rate for CPR patients in Germany was 83.4% (19).

Similar research was conducted in Canada on 80,353 trauma patients admitted for significant trauma during the study period; 1.2% of these patients passed away upon arrival, 87.6% received treatment, and 9.9% died throughout the study period (10).A study conducted in Quebec, Canada, discovered that patients receiving care in a rural ED had odds of pre-hospital or ED mortality that were more than three times higher(10).

In Korea, a retrospective review of the trauma registry reveals 56 percent of all trauma patients were treated and released from the emergency room after receiving primary care, while 15.6% were transferred to a regional hospital. A total of 27.4% of the patients were transferred to the emergency room for further care. Additionally, 3% of patients were admitted to the critical care unit for close vital sign monitoring without requiring emergency surgery, while 21.4% of patients received in-hospital care on the general ward. Only 3% of individuals require urgent surgery. The remaining 0.6% perished after receiving cardiopulmonary resuscitation CPR in the emergency room(20).

According to a study conducted at the Jazan General Hospital in Saudi Arabia, 48.2% of patients were released after receiving treatment for mild trauma, while 2.3% were brought to the intensive care unit (ICU), 7.7% were transferred to inpatient wards, and 17.7% were monitored before being released. The death rate for the patients was 2.6%(18).

According to a study done in Sub-Saharan Africa , the overall death rate for inpatient trauma was 4.2%, but it fell over time, from 6.5% in 2010 to 3.1% in 2012 (14).

At Kilimanjaro Christian Medical Centre, 59.3% of injured patients were transferred from the emergency room to hospital wards, while 5.6% required transfer to an intensive care unit. 5.4% of the time, injured patients died(15).

A study carried out in Ethiopia at the Dilla University Teaching and Referral Hospital found that the death rate was 6%. (17).

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3. OBJECTIVES OF THE STUDY

3.1 General objective

To assess Clinical profile and outcome of Road traffic accident among adult patient treated at selected government hospital emergency department Addis Ababa, Ethiopia (July 1-30/2023).

3.2 Specific objective

- To assess the clinical profile of RTA among adult patient treated at selected government hospital emergency department Addis Ababa, Ethiopia.
- To assess factors affecting the severity of RTA among adult patient treated at selected government hospital emergency department Addis Ababa, Ethiopia.
- To determine the outcome of RTA among adult patient treated at selected government hospital emergency department Addis Ababa, Ethiopia.

4. METHODS AND MATERIALS

4.1 Study area

The study was conducted from July 1-30/2023 in selected public hospitals in Addis Ababa. Addis Ababa is the capital city of Ethiopia and is not only the seat of the Ethiopian federal government but also for African Union and many other international organizations including United Nations World Economic Commission. The selected hospitals provide trauma care at national level. These selected Public Hospitals are Tikur Anbesa Specialized Teaching Hospital, Saint Paul Millennium Medical College and Hospital /AaBET/, Zewuditu Memorial Hospital, Menelik II Specialized and Comprehensive Hospital and All African Leprosy Tuberculosis Rehabilitation and Training /ALERT/Hospital.

4.2 Study design and period

The study was done using institutional based prospective cross-sectional study, by interviewing patients and attendants as well as patient charts presenting with RTA injuries to the five selected public hospitals from July 1-30/2023.

4.3 Sampling technique

Non probability convenience sampling technique was used until the sample size is filled.

4.4. Source population

The source population was all RTA patients at five selected government trauma centers.

4.5. Study population

The study population were all adult RTA patients treated at five selected governmental trauma center that fulfill the inclusion criteria during the study period

4.6. Sample size determination

Since the study population is single and categorical, the necessary sample size to estimate the prevalence of injury was determined using the single population percentage calculation. The prior study carried out at AaBET Hospital provided the prevalence of injuries, which was P = 0.364 with a 95% confidence interval, 5% margin of error, and 5% non-response rate Hence, the required sample size was 355 injury patients visiting the trauma center emergency department.

Sample Size= $\underline{Z_{\alpha/2}^2 \text{ x } P(1-P)}=\underline{(1.96)^2 \text{ X } 0.364(1-0.364)}$ =355

E^2 0.05^2

n= the required sample size, P= 0.364(prevalence of RTA outcome), z= the standard normal distribution value of 95 % CI= 1.96, E= margin of error (0.05)

Since the Study population is less than 10,000 using correction formula **(n*N/n+N)** =355*604/355+604= 224.Afteradding10% non-response rate, the final sample size was247.(N=Source Population, n=sample size)

4.7 Eligibility criteria

4.7.1 Inclusion criteria

All RTA adult patients treated at five selected government hospitals during the study period.

4.7.2. Exclusion criteria

Non-traumatic patients visiting the emergency department, age less than or equal 13year and not volunteers to give interview and incomplete medical records were excluded.

Non-motorized vehicles like bicycles and carts were excluded.

4.8. Study variables

4.8.1. Dependent variable

- Injury severity & the Treatment outcome of RTA patients.

4.8.2. Independent variables

- Socio-demographic variables (age, gender, residence)
- Clinical profile of patients (mechanism of injury, date and time of injury, referral region, types of injury, mode of transportation, time of arrival to the institution, pre-hospital treatment, mode of transport)

4.8 Data collection tools and procedure

To address the research questions and accomplish the study objectives, a sufficiently precise, accurate, and valid pre-structured and tested data collection form was used, and the appropriate adjustments were made to the questioner tool derived from the WHO injury surveillance guidelines.

Four sections make up the questionnaire: the patients' socio-demographic features, their clinical profile, baseline clinical data, and the results of their ER visits..

4.9. Data quality assurance

The data collection form was adapted with the necessary changes from the WHO injury surveillance guidelines. The structured questionnaire is prepared in English.5% Sample size underwent pretesting. One supervisor and five data collectors were employed. The supervisor and data collectors received training on the purpose of the study, the data collection instrument, and the protocols. Regular monitoring and follow-up were done during the data collection process. Every day, the lead investigator double-checked the accuracy and coherence of the data

4.10. Statistical analysis and procedure

After manually verifying that the data were complete, then it were coded and added to Epi-Data version 4.6. The data that was entered was imported into SPSS version 26. Sorting, displaying, and computing frequencies were used to clean the data. To describe the study population, frequencies and proportions were calculated. Fisher's exact test was used to perform statistical association analysis for categorical variables. Although Fisher's exact test is valid for all sample sizes, it is essentially only used in the analysis of small samples. Among the precise tests is Fisher's exact test. Fisher's exact test must be used, particularly when more than 20% of cells have predicted

frequencies less than 5. Because it is insufficient to employ the approximation approach, Using a hyper geometric distribution of the numbers in the table's cells, Fisher's exact test evaluates the null hypothesis of independence. Using Fisher's exact test for estimating association, the relationship between the dependent and independent variables was evaluated. To identify extremely significant relationships, we provided the precise P-value of less than 0.05. Tables, figures, and statistical summary metrics were utilized to offer the data once they had been summarized..

4.11. Operational definition

RTA: - Any instance of physical injury or damage to the body or body part collides with moving vehicle.

Adult: -According to institution age greater than or equal 14 is considered as adult.

Clinical profile: -The clinical profile of a trauma patient is defined in this study as any trauma-related information received after the patient has arrived for treatment.

Outcome: -Since the aim is to determine the outcome of trauma patient within 24hrs of the emergency department, it determined by five mechanisms (treated and discharged, death within in the emergency department, admission and referral with different reason) & injury Severity.

Poly Trauma: Poly trauma is generally used to describe trauma patients whose injuries involve multiple body regions, compromise the patient's physiology and potentially cause dysfunction of uninjured organs.

Mortality:- was defined as an injury-related death before arrival to the hospital, and death from the emergency department.

The severity of the injury

To quantify trauma severities and forecast their consequences, the Kampala Trauma Severity Scoring (KTS II) system was employed. It was designed to provide an injury severity score that requires the least amount of data in settings with limited resources. Patient age, systolic blood pressure at admission, respiration rate at admission, neurological state (AVPU), and score for major injuries were gathered and computed to compute the trauma severity, which is a precise method of determining severity(22).

Table 1: Description of Kampala Trauma Score (KTS II)

Description	Score
A. **Age (in years)**	
▪ 5–55	1
▪ <5 or > 55	0
B. **Systolic Blood Pressure on admission**	2
▪ More than 89 mm Hg	1
▪ Between 89–50 mm Hg	0
▪ Equal or below 49 mm Hg	
C. Respiratory rate on admission	
▪ 10-29/minute	2
▪ 30+	1
▪ ≤9/minutes	0
D. **Neurological status**	
▪ Alert	3
▪ Responds to verbal stimuli	2
▪ Responds to painful stimuli	1
▪ Unresponsive	0
E. **Score for serious injuries**	
▪ None	2
▪ One injury	1
▪ More than one	0

(KTS II) Score total = A + B + C + D + E; Mild injury = 9– 10

Moderate injury= 7–8 & Severe injury=≤6 [10]

4.12. Ethical consideration

First, the department of emergency medicine at Addis Ababa University College of Health Science's Ethical Review Committee was consulted. Through a formal letter of collaboration, permission was secured from the head office of the five public hospitals that were chosen, and patient confidentiality was maintained in an anonymous manner. Every piece of information was kept private, and the company made sure that

no information was disclosed to outside individuals or organizations without the consent of those parties.

CHAPTER FIVE

5. RESULT

From the total sample size calculated 247 patients, 224 victims of traffic accidents were enlisted with their permission, and interviews were conducted with them. The completion of the survey resulted in 85 % of response rate, & 15% of non response rate

Socio-demographic characteristics of patients

Out of the 224 RTI study participants who visited the adult emergency departments of Five Government Hospitals in the months of July 2023, 151 (67.4%) were male with a male to female ratio of 2.07:1. The majority of victims are between 24–33 years of age group, accounting for 104 (46.4%)Followed by 34-43 years of age accounting for 63 (28.1%). 112(50%) of the respondents were single followed by who are married group, 109 (48.7%). Regarding to occupational Status 50 (22.3%) respondents are Laborers followed by no formal job in 46 (20.5%). Majority; 201(89.7%) of the road traffic accidents occurred in urban whereas the rest 23 (10.3%) occurred in Rural, majority of the patients are from Addis Ababa accounting for 159 (71%)(See table 2)

Table 2: socio-demographic characteristics of patients visiting five Government Hospitals center emergency department, Addis Ababa, 2023

Variables with categories		Frequency	Percent
Sex	Male	151	67.4
	Female	73	32.6
Age	14-23	17	7.6
	24-33	104	46.4
	34-43	63	28.1
	44-53	24	10.7
	54-64	15	6.7
	>64	1	0.4
Marital status	Single	112	50
	Married	109	48.7
	Divorced	1	0.4
	Widowed	2	0.9
Place of residency	Urban	201	89.7

	Rural	23	10.3

5.1 General information of patients

A total of 159 (71%), or the trauma patients, came at the hospital within 24 hours following their injury. Sixty-five accidents, or 28.3% of the total, happened in the afternoon, between one and six o'clock. About 201 patients (89.7%) arrived at the hospital by ambulance, followed by 13 patients (5.8%) by private vehicle, and 9 patients (4%), by taxi. The majority of patients were referred to hospitals from health centers 128 (57.1%), with the remaining (27.1%) patients coming from private referrals & government referrals accounts for 66 (29.5%). Only 34 patients, or 15.1% of the total, got pre-hospital care. The bulk of patients—79, or 35.3%—live 16 to 25 kilometers around the hospitals. About 58 (25.9%) patients, were intoxicated when the event occurred.

Table 3: General information of RTI patients visiting Five Governmental Hospitals Trauma center emergency Department, Addis Ababa, 2023

Variables with categories		Frequency	Percent
Interval between injury and arrival to Tertiary hospital	<1hr	18	8
	1-24hr	159	71
	>24hr	47	21
Distance from injury site to Tertiary hospital	>5km	5	2.2
	5-15km	50	22.3
	16-25	79	35.3
	26-35	21	9.4
	36-45	4	1.8
	>45	65	29
Regions of referral	Addis Ababa	159	71
	Oromia	50	22.3
	Amhara	7	3.1
	Afar	6	2.7
	SNNP	1	0.4
	Others	1	0.4

modes of Transportation	Ambulance(From Health center & primary Hospital to Tertiary Hospitals)	201	89.7
	Taxi	9	4
	Private car	13	5.8
	Walking	1	0.4
Pre hospital care given	Yes	34	15.1%
	No	190	84.9%
Alcohol or substance use at time of injury	Yes	58	25.9
	No	166	74.1

5.2 Clinical profile of patients

The total prevalence of ED mortality in this study is 1.8%. Pedestrians are 169(71.9%) mostly affected by RTA, followed by drivers 31(13.8%). Passengers and motor cyclist accounted for 29(12.9%) and 3(1.3%), respectively. Commonly vehicle involved on RTA were minibus 108(48.2%) and heavy good car 49(21.9%). The most prevalent anatomical site of injury was poly trauma 117(52.9%) with followed by lower extremity, 50(22.3%), and head, 36(16.1%), while maxillofacial trauma was the least prevalent form of injury 1(0.4%).Most 159 (71%) of the patients arrived to the hospitals between 1-24hrs, followed by >24hr 47(21%) and the remaining 18(8%) arrived within one hour (See table 4).

Table 4: Clinical profile of patients of RTI patients visiting Five Governmental Hospitals Trauma center emergency Department, Addis Ababa, 2023

Variables with categories		Frequency	Percent
Trauma due to RTA	Pedestrian	161	71.9
	Passenger	29	12.9
	Driver	31	13.8
	Motor cyclist	3	1.3
Type of vehicle	Mini bus	108	48.2
	Heavy good car	49	21.9
	Taxi	48	21.4
	tricycle	11	4.9
	Motorcycle	6	2.7
	Others	2	0.9
Anatomical site of Injury	Poly trauma	117	52.2
	Lower extremity	50	22.3
	Head	36	16.1
	Chest	8	3.6
	Upper extremity	10	4.5
	Maxillofacial	1	0.4
	Others	2	0.9

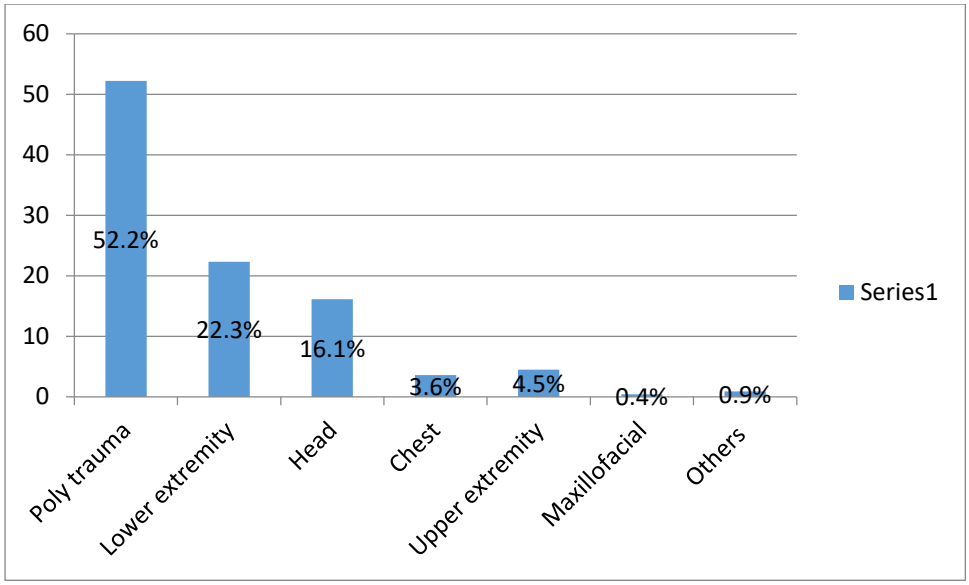


Figure 1: Anatomical site of injury of RTI patients visiting Five Governmental Hospitals Trauma center emergency Department, Addis Ababa, 2023

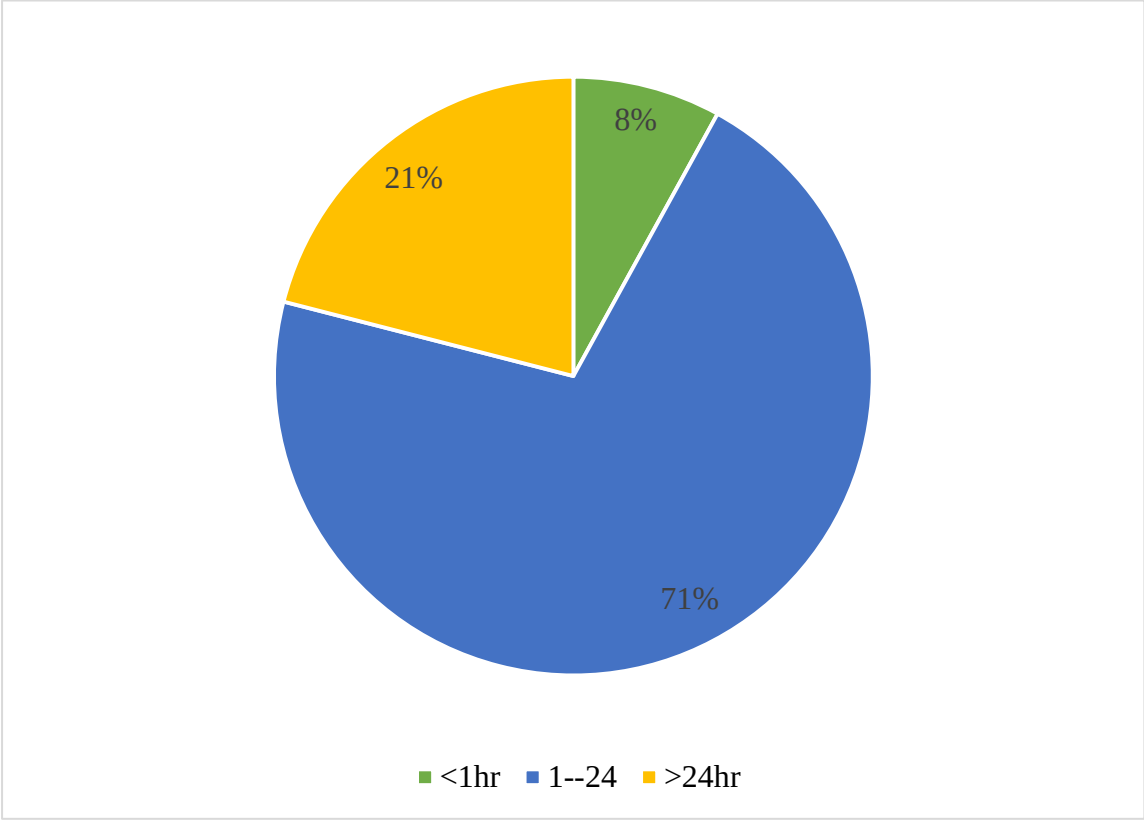


Figure 2: Interval between injury and arrival of RTI patients visiting Five Governmental Hospitals Trauma center emergency Department, Addis Ababa, 2023

5.3 Types of surgical procedure done

Details of the surgical procedure included the following: 136 (60.7%) cases of fracture treatment and cast application, 192 cases of suturing and wound care (85.7%), and 25 cases of chest tube insertion (11.2%). 9 cases of dislocation occurred (4%), followed by a craniotomy 19 cases (8.5%), a bur hole 1 (1.3%), Laparotomy 4 cases (1.8%), CPR and resuscitation 6 cases (2.7%), and 52 cases of other joint management surgery (23.2%).

5.4 Patient outcomes from the emergency department

Sixty-eight (26.7%) of the injured people were admitted to trauma units, while the remaining 94 (42%), were treated and discharged. A critical care unit admission was required for about 45 patients, or 20.1% of the total. The emergency department evaluated the remaining 21 patients (9.4%), who were then referred to different hospitals. 4 (1.8%) of injured patients died after arriving at the emergency department and receiving CPR, regarding to severity of injury 103(46%) had moderate Kampala trauma, 82(36.6%) had sever Kampala trauma score &39(17.4%) had mild Kampala trauma score

Table 5: Emergency visit outcome of RTI patients visiting Five Governmental Hospitals Trauma center emergency Department, Addis Ababa, 2023

	Frequency	Percent
Admitted to ward	60	26.8
Treated & discharged	94	42
Admitted to ICU	45	20.1
Referral	21	9.4
Died after arrival	4	1.8
Total	224	100

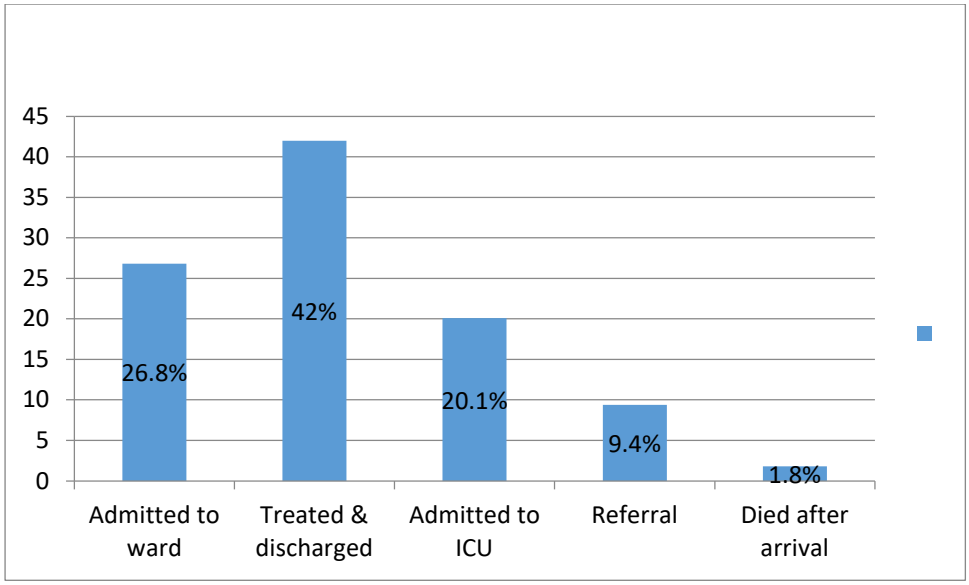


Figure 3: Emergency visit outcome of RTI patients visiting Five Governmental Hospitals Trauma center emergency Department, Addis Ababa, 2023

Table 6: Kampala trauma score of RTI patients visiting Five Governmental Hospitals Trauma center emergency Department, Addis Ababa, 2023

Kampala trauma score	Frequency	Percent
Sever	82	36.6
Moderate	103	46
mild	39	17.4
Total	224	100

5.5 Effect of baseline clinical factors on Severity of Trauma

The results of a cross-tabulation between ED trauma injury Severity & General information of trauma patients are summarized in the table below. The Chi Square test were calculated to assess the relationship between patients who used alcohol or Substances at the time of injury and Severity of Kampala trauma score outcome , The figured numbers show patients who used alcohol or Substances at the time of injury (P-value=0.000), were statistically associated with Severity of Kampala trauma score outcome, Regarding the patient used alcohol or Substances at the time of injury patients who used alcohol or Substances at the time of injury 46(56% had Sever Kampala Trauma score outcome than patients not used alcohol or Substances

at the time of injury. regarding to interval between injury &arrival those patients arrived between 1-24hrs had Sever Kampala Trauma score 66(80.5%) than Patients arrived <1hr (P-value= 0.000),whereas regarding to Pre hospital care those patients who don't took hospital care treatment had sever Kampala trauma Score 72 (87.8%) than patients who took pre hospital care treatment(P-value= 0.000) whereas Types of Vehicles and activities during RTA has no significant statistical association.

Table 7: Effect of baseline clinical factors on severity of trauma, Addis Ababa, 2023

Variables with categories		Kampala trauma score			Total	Chi-square	P-value
		Sever	Moderate	Mild			
Alcohol or substance use at time of injury	Yes	46(56%)	9 (8.4%)	3(7.7%)	58(26%1%)	23.57	<0.001
	No	36 (44%)	84(91.6%)	36 (92.3%)	166(74%)		
Interval between injury and arrival	<1hr	5(6.1%)	5(4.9%)	8(20.5%)	18(8%)	28.71	<0.001
	Between 1&24hr	66(80.5%)	63(61.2%)	30(76.9%)	159(71%)		
	>24hr	11(13.4%)	35(21.6%)	1(2.6%)	47(21%)		
Pre Hospital care	yes	10(12.2%)	18(17.5%)	6(18.1%)	34(17.8)	22.6	0.000
	No	72(87.8%)	85(82.5%)	33(81.9%)	190(82.2%)		
Activities during RTA	Pedestrian	51(62.5%)	78(75.7%)	32(82.1%)	161(71.9%)	9.94	0.092
	Passenger	14(17.1%)	11(10.7%)	4(10.3%)	29(12.9%)		
	Driver	17(20.7%)	11(10.7%)	3(7.7%)	31(13.8%)		
	Motor cyclist	0(0%)	3(2.9%)	0(0%)	3(1.3%)		
Type of vehicle	Minibus	37(45.1%)	50(48.5%)	21(54%)	108(48.2%)	10.19	0.372
	heavy good car	23(28%)	22(21.4%)	4(10.3%)	49(21.9%)		
	Taxi	15(18.3%)	21(20.4%)	12(31%)	48(21.4%)		
	Bajaj	3(3.7%)	7(6.8%)	1(2.6%)	11(4.9%)		
	Motor cycle	2(2.4%)	3(2.9%)	1(2.6%)	6(2.7%)		
	Others	2(2.4%	0(0%)	0(0%)	2(0.9%		

		)			)		
Anatomical site of Injury	Poly trauma	50(22.3%)	58(26%)	9(4%)	117(52.2%)	43.7	0.000
	Lower extremity	8(3.6%)	27(12.1%)	15(6.7%)	50(22.3%)		
	Head	17(7.6%)	8(3.6%)	11(4.9%)	36(16.1%)		
	Chest	6(2.7%)	2(0.9%)	0(0%)	8(3.6%)		
	Upper extremity	1(0.4%)	6(2.7%)	3(1.3%)	10(4.5%)		
	Maxillofacial	0(0%)	0(0%)	1(0.4%)	1(0.4%)		
	Others	0(0%)	2(0.9%)	0(0%)	2(0.9%)		
Total		**82(36.6%)**	**103(46%)**	**39(17.4%)**	**224(100%)**		

5.6 Effect of patients clinical profile on mortality

Fisher's exact tests were calculated to assess the relationship between clinical profile and ED Trauma mortality, The resulting numbers show that patients who used alcohol or substance at time of injury were statistically not associated with mortality (P=0.227). Regarding to time of injury & arrival those patients arrived between 1-24hr has significant statistical association high rate of mortality (1.3%) than patients arrived within 1hr&>24hr (=0.024). Fisher's exact tests were calculated to assess the relationship between types of vehicles with mortality, the resulting numbers show that types of vehicles were statistically not associated with mortality (p=0.87), Regarding to anatomic site of injury & pre-hospital care, poly trauma patients &patients who don't took pre-hospital care have significant association high mortality (1.3%) (p=0.016) & (1.3%) (P=0.01) respectively.

Table 8: Effect of patients' clinical profile on emergency RTA mortality, Addis Ababa, 2023

Variables with categories		Mortality		Total	Test used	P-value
		Survivors	Non-survivors			
Type of vehicle	Mini bus	105(46.9%)	3(1.3%)	108(48.2%)	Fisher's exact Test	0.87
	Heavy good car	48(21.4%)	1(0.4%)	49(21.9%)		
	Taxi	48(21.4%)	0(0%)	48(21.4%)		
	Bajaj	11(4.9%)	0(0%)	11(4.9%)		
	Motor cycle	6(2.7%)	0(0%)	6(2.7%)		

	Others	2(0.9%)	0(0%)	2(0.9%)		
Interval between injury and arrival	<1hr	17(7.6%)	1(0.4%)	18(8%)	Fisher's exact Test	0.024
	1-24hr	156(69.6%)	3(1.3%)	159(71%)		
	>24hr	47(21%)	0(0%)	47(21%)		
Alcohol use	Yes	57(25.4%)	1(0.4%)	58(25.9%)	Fisher's exact Test	0.227
	No	163(72%)	3(1.3%)	166(74.1%)		
Anatomical site of Injury	Poly trauma	114(50.9%)	3(1.3%)	117(52.2%)	Fisher's exact Test	0.016
	Lower extremity	50(22.3%)	0(0%)	50(22.3%)		
	Head	36(16.1%)	0(0%)	36(16.1%)		
	Chest	7(3.1%)	1(0.4%)	8(3.6%)		
	Upper extremity	10(4.5%)	0(0%)	10(4.5%)		
	Maxillofacial	1(0.4%)	0(0%)	1(0.4%)		
	Others	2(0.9%)	0(0%)	2(0.9%)		
Pre-hospital care given	Yes	33(14.7%)	1(0.4%)	34(15.1%)	Fisher's exact Test	0.01
	No	187(85.3%)	3(1.3%)	190(84.8%)		
Total		220(98.2%)	4(1.8%)	224(100%)	-	

Binary logistic regression is done to predict the likelihood of patient clinical profile effect on patient emergency outcome. Patient who was use not alcohol or substance at the time of injury patients has 4 times likelihood discharged from ED directly than those patients who used alcohol or substance at the time of injury AOR 4.236 (CI, 95%; 1.365-13.141)

Table 9: Multivariable binary logistic regression analysis of factors associated with RTA emergency outcome [direct discharge & admission to (ward& ICU)]

Variables	**Categories**	**P-value**	**AOR**	**95% C.I.for AOR**	
				Lower	**Upper**
Sex	Female	0.309	0.654	0.289	1.481
Marital status	Married	0.299	0	0.621	2.572
	Divorced	0.109	0	0.214	1.134
	Widowed	0.103	0	0.521	1.231
Modes of transportation	Ambulance	1	0	0.358	3.952
	Taxi	1	0	0.125	1.032
	Private car	1	0	0.456	1.1471
Distance from injury site to hospital	<5km	0.105	0.753	0.534	1.061
	5-15km				

	16-25km				
	26-35				
	36-45km				
	>45km				
Interval b/n injury and arrival	<1hr	0.085	0.351	0.107	1.157
	1-24hr				
	>24hr				
Pre hospital care given	yes	0.125	0.412	0.133	1.279
	No				
Alcohol or substance use at time of injury	yes	**0.012**	4.236	1.365	13.141
	No				
Anatomical site of Injury	Lower extremity	0.581	1.80	0.7	7.5
	Head	0.259	5.59	0.6	1.143
	Chest	0.392	1.2	0.4	2.345
	Upper extremity	0.292	2.38	0.523	1.063
	Maxillofacial	0.242	1.18	0.251	3.207
	Others	0.247	4.5	0.703	1.562

CHAPTER SIX

6 DISCUSSION

Ethiopia has witnessed a rise in road traffic accidents, resulting in significant loss of life, injuries, and socioeconomic impact. Factors contributing to this trend include rapid urbanization, insufficient enforcement of traffic laws, inadequate road infrastructure, and a lack of comprehensive safety measures.

A cross-sectional prospective study with an institutional basis was conducted on trauma patients receiving treatment at the trauma and emergency departments of a selected group of government hospitals over the study periods. Future injury prevention strategies and system improvement initiatives can benefit from these insights.

With regard to adult patients treated at five government hospital emergency rooms in Addis Ababa, Ethiopia, the purpose of this study is to evaluate the clinical profile and results of road traffic accidents.

The findings of this study revealed that the most common injury result was moderate injury which accounts for (46%) followed by (36.6%) had severe injury & (17.4%) had mild injury which is similar to A research Black lion Addis Ababa Ethiopia research found that mild injuries made up 10.1% of all injuries, followed by severe injuries that required rigorous surgical therapy at 15.4% and a comparable study carried out at Jimma Hospital revealed that 26 percent of injuries were considered minor, 41.3% were considered moderate, and 2.7% were classed as serious (21). The distinctions between these three institutions may be attributed to variations in the criteria employed in the individual research to classify injuries as moderate or severe as well as The discrepancy could be also due to the nature of the studies, This study was conducted in Five hospitals that mainly provide trauma care at the national level while the previous studies in Ethiopia were conducted in one hospital. According to this survey, 224 patients in total—9.8%—were driven by taxi or private vehicle, while the remaining patients—89.7%—were driven by ambulance to the hospital, however according to a study conducted in the emergency room of Tikur Anbessa Specialized Teaching Hospital in Addis Ababa, Ethiopia, large majority of RTI 35.1% used minibus as mode of Transportation (12).

The difference can be explained by the fact that there is involvement of private business groups in the ambulance and the pre hospital services, such as Tebita

Ambulance in Addis Ababa, may be the cause of the higher ambulance utilizations in ambulance transportation in recent years.

The study's 1.8% mortality prevalence suggests that more deaths are reported at the emergency room, which is not comparable to data from the Tikur Anbessa Specialty Hospital (1.47%),(12) , India (1%)(8) , Canada (1.2%)(10), and Korea (0.6%)(20). The outcome, however, is substantially less than that of the study carried out in sub-Saharan Africa (4.2%)(14)and Dilla Hospital (6%)(17). The lack of pre hospital care, the availability of various specialties for trauma care, the variability in the study sample, the study sites, and the lack of ATLS and emergency care training among the healthcare professionals in this study setting could all be contributing factors to the discrepancies, regarding to age of RTA victims majority of about 46.4% of patients within the age group of 24-33. This finding was in line with previous studies from Ethiopia[(11) (7)].Concerning sex, males (67.4)were more frequently affected by road traffic accident than females (32%). The higher male prevalence inroad traffic accidents was previously reported by several studies[(7)(11)(8)]

RTC was more common among pedestrians 161 (71.9%), drivers 31 (13.8%), and passengers 29 (12.9%) (Table 4). This result was consistent with other research from low- and middle-income nations as well as earlier research carried out in Ethiopia[(12), (14)]. This may be the result of poorly designed roads, insufficient pedestrian-friendly sidewalks, and insufficient pedestrian-friendly traffic signals nationwide. It might also be the result of a lack of public awareness of traffic laws, rude driving and motorist conduct, and countrywide traffic law violations by pedestrians and drivers (12).

The majority of collisions occurred in the afternoon throughout the day, 65 (28.3%). This result was in line with the results of prior research [**(7),**(12) , (16)] . Additionally, 201 collisions, or 89.7% of the total, happened in metropolitan areas. This result was not consistent with study done on Dilla teaching Hospital (17). There may be more collisions in metropolitan locations and throughout the day due to factors like mixed traffic flow systems, poor road networks, and traffic jams during the day(12).

About 34 casualties or 15.1% of the total, received pre hospital care. This result was greater than that of earlier research in Tanzania, which is reported to 0% (15) and Ethiopia which is reported to 14.3%[(6)(12)] that documented pre hospital care for

RTA patients. The development of organized pre hospital services in Addis Ababa and the involvement of private business groups in the ambulance and the pre hospital services, such as Tebita Ambulance in Addis Ababa, may be the cause of the higher ambulance utilizations and pre hospital services received by victims in this study.

After an injury, there is a critical window of time during which life-sustaining treatment should be started. Prompt management begins during this window of opportunity, giving the victim the best chance of survival and reducing the likelihood of subsequent problems leading to death. According to this study, the majority of the 159 (71%) victims of traffic accidents arrived at the first medical facility between one and twenty-four hours, however this study is not consistent with study done in Saudi Arabia Jazza Hospital According to estimates, it took 41.3 to 79.8 minutes from the time of the incident till the patient arrived at the Jazan General Hospital in Saudi Arabia(18).

The study result showed that there is no significant association between sex, age, source of referral, activities during accident, Types of Vehicles with emergency department treatment outcome /death / of RTA victims.

Road traffic accident victims those who didn't use Substance or Alcohol, were 4 times more likely to discharge, (AOR= 4.236:95%: CI; 1.365-13.141), than RTA victims used Alcohol or Substance at times of injury.

Alcohol consumption and driving had a clear effect on injury severity& outcome as reported by previous studies from Tikur Anbesa Hospital ,Addis Ababa ,Ethiopia (12)

7 STRENGTHS AND LIMITATIONS

7.1 STRENGTHS

In order to obtain a more accurate image of the community's RTA injury burden, it is imperative to compare the data with other sources, such as hospital logs and records, despite the fact that it cannot be generalized to the entire population. In order to provide a more complete picture of the RTA load in Five Government Hospitals, more research is required to correlate access, utilization, and effectiveness of pre-hospital care services.

7.2 LIMITATIONS OF THE STUDY

It's possible that some variables' self-reporting led to an overestimation or underestimating of the results. Fear of facing legal repercussions may have also contributed to bias in certain individual replies, as people tend to overstate or underestimate the association. Because of incomplete data and inflated response bias, vehicle speed at the time of collision was not included in this analysis. Furthermore, the study did not impose any limitations on the year of the car model.

8 CONCLUSION AND RECOMMENDATIONS

8.1 CONCLUSION

Two hundred Twenty four victims were included in this study. Majority of the RTAs occurred in Addis Ababa city. Young male individuals that are in their economically active age group were predominantly affected by road traffic accident. Most of them were in the Single (not ever married) group. Pedestrians found to be frequently affected by RTA. Sustaining injury at multiple body parts is associated with severe injury as well as victims who sustained two or more types of injury (multiple injury type) had developing higher severe injury when compared with those with single injury type. Alcohol and substances use were reported by some respondents. Most of the accidents were attributed to 4 and above wheeled vehicles and occurred in the afternoon time of period. Only some of patients received pre-hospital care, majority of the victims were extracted by bystanders from the scene of the accident and most used Ambulance to go to Tertiary institution. Majority of the victims reached Tertiary institution after one hour. There is an urgent need to improve per hospital care, The Federal Ministry of Health of Ethiopia should work on training of paramedics, police officers/ traffic police and if possible, the general public on basic first-aid skills. There needs to be an improvement in availing ambulances with proper quality i.e. equipping them with child restraint, adult seatbelts, first-aid materials, emergency kits.

8.2 RECOMMENDATIONS

To Ministry of Health-Ethiopia

▪ only 15.1% of injured patients receive pre-hospital care, suggesting the need for more comprehensive EMS services to facilitate quicker patient transfers and care.

Additionally, over half of patients arrived at hospitals after hour of the accident, highlighting the shortcomings of the pre-hospital care system.

▪In order to facilitate a more organized and efficient pre-hospital response, the Ministry of Health should construct a centralized ambulance dispatch call center for Addis Ababa in addition to suitable ambulance "hubs" dispersed around the city. The study's findings offer strong evidence in favor of this service extension.

To Government Hospitals ED

▪ Additionally, about 10% of patients with severe injuries from traffic accidents passed away in the emergency department, emphasizing the need for trauma training for staff members such as ATLS and system reorganization to replenish the ER's supply of resources needed to treat patients right away.

To Road and safety authority

• The results of this study should compel management and road and traffic authorities to implement safety measures and focus on road safety, especially for urban transportation systems and large gold vehicle and bus fleets**.**

Health Center

• In order to resolve some of the improper referrals, the health institution should take steps to provide adequate training in ATLS and other trauma protocols**.**

▪ The health center should hire more general physicians so that the trauma center won't have to handle as much paperwork for minor injuries.

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7 ANEX1: ENGLISH VERSION QUESTIONER

For assessment of Clinical profile and outcome of RTA among patients treated at Five Selected public government Hospitals trauma center emergency department Addis Ababa, Ethiopia (July 1-31/2023)

Patient identification.	Card number _____
1. SOCIODEMOGRAPHIC CHARACTERISTICS OF PATIENT	
1.1. Sex	1. Male 2. Female
1.2. Age	1. 14- 23 2. 24 - 33 3. 34 - 43 4. 44 - 53 5. 54 -64 6. More than 64(65or more) 7. Age is unknown
1.3. Marital status	1. Single 2. Married 3. Widowed 4. Divorced
1.4. Occupation	1. Student 2. Government employee 3. Driver 4. Farmer 5. Laborer 6. Maid/servant 7. Merchant 8. No formal job 9. Others
1.5. Place of residence	1. Urban 2. Rural
2. BASE LINE CLINICAL INFORMATION	
2.1.Date of injury	1. DD __ MM___ YYYY__
2.2.Time of injury	1. 00:00 – 03:59 am 2. 04:00 – 07:59 am 3. 08:00 – 11:59 am 4. 12:00 – 15:59 pm 5. 16:00 – 19:59 pm 6. 20:00 – 23:59 pm 7. Unknown
2.3. Region of referral	1. Addis Ababa 2. Afar 3. Amhara

	4. Benishangul Gumuz 5. Diredawa 6. Gambela 7. Harar 8. Oromia 9. Somali 10. SNNPE 11. Tigray
2.4. Mode of transportation	1. Ambulance 2. Bajaj 3. Taxi 4. Private car 5. Walking 6. Others
2.5. Distance of patient's injury site and hospital in kilometers	1. <5 km 2. 5–15km 3. 16–25km 4. 26–35km 5. 36–45km 6. >45km
2.6. Interval between injury and arrival to the hospital	1. Immediate(<1hr) 2. Within hrs.(1-24hrs) 3. Within days(>24hrs) 4. Unknown
2.7. Referral source	1. Self 2. Health center 3. Private clinic 4. Government
2.8. Treatment given before arrival?	1. Yes 2. No
2.9 Is patient used alcohol or substanceat time of injury	1. Yes 2. No
3. CLINICAL PROFILE OF PATIENT	
3.1. If trauma is due to RTA	1. Pedestrian 2. Motorcyclist 3. passenger 4. driver 5. unknown
3.2. Types of vehicles for RTA	1. Minibus 2. Heavy good vehicle 3. Taxi

	4. Bajaj 5. Motorcycle 6. Others
3.3. Anatomical site of injury	1. Head 2. Chest 3. Abdomen 4. Upper extremities 5. Lower extremities 6. Spine 7. Pelvic 8. Polytrauma 9. Maxillofacial 10. Skin 11. Others _____
3.4. Types of injury sustained	1. Open wound/ Soft tissue injury 2. Fracture 3. Burn 4. Ribs fracture 5. Clavicular fracture 6. Hemothorax 7. Pneumothorax 8. Intracranial hemorrhage 9. Subdural hematoma 10. Blunt abdomen/visceral injury 11. Epidural hematoma 12. Pneumocephalus 13. Poly trauma 14. Others
3.5. Kampala trauma score (KTS II)	1. SBP _____ 2. GCS ____ 3. RR _____ 4. Score for series injury (none=2, One injury=1, more than one injury=0) ___ TOTAL SCORE _____
3.6. Types of surgical procedure done	1. Treatment of fracture 2. Wound debridement 3. Chest tube insertion 4. Relocation of dislocation 5. Craniotomy 6. Bur hole 7. Tracheostomy 8. Suturing and wound care 9. Limb amputation 10. Laparotomy 11. CPR and resuscitation 12. Others surgical procedure

3.7. Duration of hospitalization	1. Less than 24hr 2. Greater than 24hrs 3. Unknown
4. EMERGENCY VISIT OUTCOME	
4.1. Outcome from ED	1. Admitted to ward 2. Admitted to ICU 3. Treated and Discharged 4. Died before arrival 5. Died after arrival and CPR 6. Referred 7. Unknown