COLLEGE OF MEDICINE AND HEALTH SCIENCE.

DEPARTMENT OF PUBLIC HEALTH.

ASSESSMENT OF PATTERNS OF TRAUMA CASES VISITED IN HEALTH INSTITUTIONS EMERGENCY OPD IN AGENA TOWN, EZHA WOREDA, GURAGE ZONE, CENTERAL ETHIOPIA, 2024/25 G.C.

ASSESSMENT OF PATTERNS OF TRAUMA CASES VISITED IN HEALTH INSTITUTIONS EMERGENCY OPD IN AGENA TOWN, EZHA WOREDA, GURAGE ZONE, CENTERAL ETHIOPIA, FROM DECEMBER 23, 2024- JANUARY 6, 2025 G.C

RESEARCH PAPER SUBMITTED TO WOLKITE UNIVERSITY DEPARTMENT OF PUBLIC HEALTH IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE BACHELOR DEGREE OF PUBLIC HEALTH.

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LIST OF ABBREVIATIONS

AMR	Americans region
BTL	Basic tabulation list
DALY	Disability adjusted life year
EMR	Eastern Mediterranean region
EOPD	Emergency outpatient department
GBD	Global burden of disease
HIC	High income countries
ICD	International classification of disease
IPV	Interpersonal violence
RTI	Road traffic injuries
SEAR	South East Asian region
WHO	World health organization
WPR	western pacific region
AMR	Amhara region
AFR	African region

ABSTRACT

Back ground

Injuries and violence poses a major public health and developmental problem globally. Injuries are ranked among the leading cause of death and disability particularly in low income and middle income countries including our country, where they are growing insignificantly. Trauma is the most serious problem and increasing in an alarming rate from year to year, in developing countries including our country, Ethiopia. Moreover, in these, routine trauma information are seriously lacking. This study aimed to reveal the study area's burden of different injuries and hoped to inform responsible body to adjust the emergency care to trauma victims so as to reduce immediate and long stand impact of the problem in Ethiopia.

Objective

This aim of this study was to assess Patterns of Trauma cases visited in health institution emergency OPD in Agena Town, Ezha Woreda, Gurage Zone from December 23, 2024-January 6, 2025 G.C.

Methods

Health institutional based cross sectional study was conducted at emergency OPD from December 23/2024- January 6/2025 G.C and the data was collected using structured questionnaires by using Convenience Sampling technique due to small study unit to incorporate all eligible cases and face to face interview was used. 114 trauma cases, who consecutively came to EOPD during study period was assessed. All data which was collected was checked, edited, tail on master sheet, coded and entered into statistical software SPSS version 25 and result was presented by using tables and graphs.

Result

114 patients were visited in health institution EOPD during the study period and data was collected from 111 patients. The commonest mechanism of injury was RTA, 39 (35.1%), followed by falling related injury and cut by sharp instruments, 28 (25.2%), 22 (19.8%) respectively. More males had more injuries (57.7%) when compared to female (42.3%). The study revealed that more trauma cases occurred in urban areas. More Traumas occurred unintentionally.

Conclusion

Injury has been recognized as one of the most life threatening public health problems worldwide. Injury is a public health problem that result in morbidity, disability and mortality. When compared with females males had higher proportion of trauma victims and those aged 15–49 years had more trauma. RTA followed by falling related injury and cut by sharp instruments was the leading cause of trauma. Trauma occurs in urban area than rural areas. Appropriate prevention strategies should be designed and implemented against trauma to prevent its impacts.

Keywords: Trauma, suicide, drowning, injury, road traffic accidents

CHAPTER ONE; INTRODUCTION

1.1. Background

Injury is defined as a bodily lesion at the organic level, resulting from acute exposure to energy (mechanical, thermal, electrical, or radiant) in amounts that exceed the threshold of physiological tolerance. In some cases (e.g. drowning, strangulation, freezing) the injury results from an insufficiency of a vital element. (1)

Injuries have traditionally been regarded as random, unavoidable accidents. Within the first few decades, however, a better understanding of the nature of injuries has changed this old attitude, and today both unintentional and intentional injuries are viewed as largely preventable events. As a result of this shift in perception, injuries and their health implications have demanded the attention of decision makers worldwide and injury policy has been firmly placed in the public health arena. Furthermore the growing acceptance of injuries as a preventable public health problem over the past decade or so has to lead to the development of preventable strategies and consequently a decrease in the human health toll due to injuries in some countries (1, 2).

In Ethiopia, like other developing countries, injury is a common health problem. Although injuries are known to be preventable, still it continues to be the widespread health problem. In Ethiopia, despite government efforts to reduce road traffic injuries, injury is increasing at an alarming rate and constitute around half of all surgical emergencies (5). Based on the premise that access to accurate, reliable information is the key to sound policy making by reflecting what the real problem on particular study area is.

On the other hand, lack of sufficient data about its magnitude leads to underestimation of injury burden. Thus to design effective prevention strategies, there is need of findings about the magnitude of injury and patterns and its associated factors. Therefore, the aim of this study will be to determine the magnitude and patterns of injury among visiting at emergency outpatient department. It is hoped that this study will be important to adjust the emergency care to trauma victims so as to reduce the immediate and long stand impact of the problem.

1.2. Statement of the Problem

Injuries and violence pose a major public health and developmental problem globally. Each year over 5 million people around the world die as a result of injury. Injuries are ranked among the leading cause of death and disability particularly in low income and middle income countries where they are growing in significance, largely as a consequence of epidemiologic, demographic, and socioeconomic transitions. Moreover, it is in these very setting that the vital statistics and routine health information are often seriously lacking (1).

Injury has been recognized as one of the most life threatening public health problems worldwide. Global injuries deaths are higher than deaths due to Human immunodeficiency virus /acquired immunodeficiency syndrome (HIV/AIDS), malaria, and tuberculosis combined, more than 5 million deaths per year and are expected to be the seventh leading cause of death worldwide by 2030. Injuries represent 12% of the global burden of the disease and the third most important cause of overall mortality (1, 2, 4). Millions have accidents occur each year and thousands of individuals lose their lives. This is well recorded in high income countries. It was demonstrated that trauma patients occupied more than 12% of hospital beds in USA and accounted for more than 50% of orthopedics admissions in UK (3-4). Trauma is seen as a substantial economic burden in many countries worldwide. It is the third-largest cause of mortality in the United States among people aged 1 to 44, accounting for 59 % of deaths in this age group and 20 % of all deaths. Trauma causes 37.7 million emergency hospital visits per year, costing $671 billion yearly (5).

For each death from injury there are many more injuries that resulted in hospitalization, treatment in the emergency department, treatment by practitioners outside the formal health sector or never received treatment at all. The world health organization (WHO) global burden of injury estimate ranks injury among the top ten leading cause of death, with an estimated 5 million deaths annually of which men in Africa have the highest injury related mortality rates in the world. Among African nations the rate of injury mortality in 2020 was the highest in Nigeria and the lowest in Egypt. South Africa and Ethiopia were second and third respectively. Injury is more common among men and among persons aged 15-44 years. Injury deaths attributable to

road traffic crashes was the highest in Egypt (41%) followed by Ethiopia (30%) (4, 5). Each year, over 310,000 deaths occur due to fire related burns in the world (11, 12). Children ages 1-9 years are more vulnerable to fire related deaths than older children and adults.

Trauma is the most serious problem and increasing in an alarming rate from year to year, in developing countries like Ethiopia, which is among the leading cause of death. In Ethiopia, a number of injuries are increasing in frequency and patterns in an alarming rate. According to WHO, 2020 report road traffic-related deaths in Ethiopia reached 22,786 or 2.77% of the total deaths in the country, with over 100 fatalities per 10,000 vehicles (8, 10). The main reason for the increment of high number of injuries per accidents could be due to the rise in the number of vehicles that is not balanced to road density per person, poor transport conditions, lack of periodically vehicle technical inspections and poor implementation of road safety policy (10). However, there was paucity of data with regard to pattern of general trauma cases and treatment outcomes in Ethiopia. So this study is aimed to look for the specific causes of trauma cases, patterns and its magnitude.

1.3. Significance of the study

The aim of this study is for evaluation of the magnitudes, patterns and intents of injury for improvement of trauma management in the country, and also to reduce healthcare costs by addressing trauma effectively by informing responsible body to reduce long-term health impacts. This study also use to identify causes of trauma, and to educate community about safety measures and potential risks to prevent injuries and to protect community. The necessary data on the prevalence and magnitude of trauma cases visited is lacking. In line with this, the study will seek ways and means for proper descriptions of magnitude and pattern of injuries.

The study serve as a pill over for further research in the area on top of that, it is believed that the research may turn out to be valuable in bringing significant ideas to fore so as to provoke discussions on the impact of trauma. And help to improve emergency response protocols, health care services and public safety measures. Also this study helps healthcare systems to understand patterns of trauma to allocate resources and to plan for effective intervention strategies to ensure

that community's healthcare needs are met effectively. and also this study can be used as a reference for the the other researchers.

The study also provide important information for the responsible body like Government officials, NGOs, Policymakers and other officials to adjust the emergency care to trauma victims and to create laws and regulations to reduce trauma, improve mental health services, support systems and funding for trauma related issues to reduce the immediate and long stand impact of the problem. Generally, this study is crucial for enhancing community safety, improving healthcare services, and implementing preventive measures to reduce burden of traumatic injuries on individual and society as whole.

CHAPTER TWO

LITERATURE REVIEW

Worldwide, approximately 5 million persons died as a result of an injury each year (1). If current trends continue, road traffic and intentional injuries (i.e. self-inflicted injuries, interpersonal violence and war related injuries) will rank among the 15 leading causes of death and burden of disease. Worldwide, twice as many men die as a result of injury as women. One quarter of all injury deaths are due to road traffic injuries; suicide and interpersonal violence combined account for another quarter of the global total. Worldwide, Road Traffic Accident's responsible for the highest mortality rates (2).

Males in America and Africa have the highest injury related mortality rates worldwide. Females in the Americans have the lowest injury related mortality rates worldwide (3, 5). Taken together, South East Asia Region (SEAR) and the Western pacific region (WPR) account for approximately one half of the total number of injury related deaths worldwide. SEAR and WPR combined account for more than 50% of the total number of Daily's lost globally to injury (3). For most injury related deaths, males have higher mortality rates than females. Fire related deaths are the notable exception. Mortality rates from road traffic injuries and interpersonal violence among men are almost 3 times higher than those among women (3, 4). Males in low and middle income countries of Europe (EURLMIC) have highest injury related mortality rates worldwide. Among females, the highest injury related mortality rates are found in Africa and India. Almost 50% of the world's injury related mortality occurs in young people aged between 15-44 years, the most economically productive members of the global population. Injuries account for 12% of the total burden of disease worldwide (4). Males account for twice the members of DALY's loss due to injury compared with females. Road traffic injuries, falls, self-inflicted violence and other unspecified type of injury are the greatest contributors to the global burden of injury. A road traffic injury (RTI) is any injury due to crashes originating, terminating or involving a vehicle partially or fully on a public highway. In 2019, an estimated 1.26 million people worldwide died

as a result of road traffic injuries. 90% of all road traffic injury deaths occurred in the low and middle income countries. (2)

Globally, the road traffic injury mortality rate for males are almost 3 times higher than that for females. Males in South East Asia and Africa have the highest road traffic injury mortality rates worldwide. Of the WHO regions, SEAR accounts for the highest proportion of road traffic injury deaths (5). The highest road traffic injury mortality rates among the females are found in Africa and India. Over 50% of the global mortality due to road traffic injury occurs among young adults aged between 15-44 years. Males in china and India have the greatest road traffic injury burden, with the number of DALY's lost by men in these countries exceeding those lost in any other world region. Around 60% of the total number of DALY's lost globally as a result of road traffic injuries occurs among young adults aged between 15-44 years (5, 6).

A burn occurs when some or all of the different layers of cells in the skin are destroyed by a hot liquid (scald), a hot solid (contact burn) or flame burn, skin injuries due to ultraviolet radiation, radioactive, electricity or chemical, as well as respiratory damage resulting from smoke inhalation, are also considered to be burns (11). Data presented here refer to fire related burns only (i.e. flame burns and respiratory damage due to smoke inhalation) and do not include burns due to contact with hot substances, or skin injuries due to ultraviolet radiation, radioactivity, electricity or chemicals. Globally, fire related burns were responsible for 238 000 deaths in 2017 More than 95% of fatal fire related burns occurred in low and middle income countries (11, 12). Females in South East Asia have the highest fire related burn mortality rates worldwide, Followed by males in Africa and, females in Eastern Mediterranean sea. Among the various age groups, children under 5 years and the elderly (i.e. those aged over 70 years) have the highest fire related burn mortality rates. SEAR alone accounts for just over one half of the total number of fire related burn deaths worldwide. SEAR also accounts for more than 50% of the total number of DALY's lost global to fire related burns (11). Females in the countries of the SEAR's have the highest fire related burn mortality rates worldwide. Children and young persons under the age of 44 years account for the highest proportion of the global mortality due to fire related burns (12). The number of DALY's lost to fire related burns by females in the low and middle income

countries of SEAR exceeds the number lost by both sexes in any other region. Over 50% of the total number of DALY's lost globally, to fire related burns are among children aged between 0-14 years (12).

According to ICD, all unintentional drowning and submersion (with exceptions of those which occur as a result of cataclysms, transport and water transport accidents) are classified as drowning deaths. Worldwide, an estimated 372,000 people drowned each year. 97% of all drowning deaths occurred in low and middle income countries (30). Males in Africa and the Western pacific have the highest drowning related mortality rates worldwide. Among the various age groups, children's Under 5 years of age have the highest drowning mortality rates worldwide. The greatest number of drowning deaths occurs in the WPR (30).

The WPR accounts for nearly 40% of total number of DALY's lost globally to drowning. Males in Africa, china and low and middle income countries of Europe have the highest drowning mortality rates worldwide. Among females worldwide, those in Africa, china and India have the highest drowning mortality rates. Over one half of the global mortality due to drowning occurs among children aged between 0-14 years. Males in China followed by males in Africa and women in China, accounts for the highest number of DALY's lost to drowning worldwide Over 60% of the total number of DALY's lost globally to drowning occurs among children under 15 years of age (30). Fall related deaths and non-fatal injuries exclude those due to assault and intentional self-harm. Falls from animals, burning buildings and transport vehicles, and falls into fire, water and machinery are also excluded worldwide, an estimated 283,000 people died due to falls in 2019. A quarter of all fatal falls occurred in the high income countries (13).

In all regions of the world, adults over the age of 70 years, particularly females, have significantly higher fall related mortality rates than younger persons. Europe and Western pacific regions combined account for nearly 60% of the total number of fall related deaths worldwide. The pacific regions alone accounts for 35% of the total number of DALY's lost globally due fall related injuries (13). Males in low and middle income countries of Europe have by far the highest fall related mortality rates worldwide. Among females worldwide, those in China followed by those of the low and middle income of countries of Europe have the highest fall related mortality rates. Over 40% of the global mortality due to falls occurs among persons aged 70 years and over

(13, 14). China has the greatest fall related injury burden, with almost twice as many DALY's lost to this type of injury than any other world region. Approximately 50% of the total number of DALY's lost globally to falls occurs in children under 15 years of age (14, 17).

The category "poisoning" as used here refers to all unintentional poisoning related deaths and non-fatal outcomes caused by exposure to noxious substance. Those which are intentional or for which the intent is undetermined as well as those resulting from reactions to drugs are excluded from the definition used here. In 2023, there are 2.2 million Poisoning globally, and about 940,000of it under 20 years age. About 315,000 people worldwide died as a result of unintentional poisoning. More than 94% of fatal poisonings occurred in low and middle income countries (14, 17).

The overall poisoning mortality rate among males in Europe is approximately 3 times higher than the rate in either sex in any other world region. The European region alone accounts for around 1/3 of all poisoning deaths Worldwide. EUR and SEAR together account for over one half of the total number of DALY's lost globally to poisoning (16). The highest poisoning mortality rates found in males populations of EUR-LMIC. Over 60% of the global mortality due to poisoning occurs among adolescents and adults aged between 15-59 years. Males in EURLMIC accounts for the highest number of DALY's lost to poisoning worldwide. The majority number of DALY's lost globally to poisoning are among young children and young adults (15, 16).

Interpersonal violence is defined as the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community that either results in or has a high likelihood of resulting in injury, death, psychological harm, mal development, or deprivation. IPV related mortality includes deaths due to homicide, sexual assault, neglect or abandonment, and other forms of maltreatment. Globally, about 520,000 people worldwide died as a result of IPV. 95% of homicide occurred in low and middle income countries (22).

Suicide is defined as a death arising from an act inflicted up on oneself with intent to kill oneself. An estimated 815,000 people worldwide committed suicide. 86% of all suicides occurred in the low and middle income countries (18). Worldwide the highest suicide rates are found among

males in European region and among both sexes in WPR. The WPR has the greatest share of suicide deaths relative to the other world regions. The WPR accounts for 38% of the total number of DALYs lost globally to suicide. Males in LMIC of Europe have a suicide rate that is almost twice among men in the other regional groupings. Similarly, women in china have a suicide rate i.e. approximately twice that of women in the other parts of the world. Over 50% of global mortality due to suicide occurs among young persons aged between 15-44 years. The greatest numbers of DALYs are lost to suicidal behavior by women in China. Men in China, India and low and middle income countries of Europe also account for a significant proportion of the number of DALYs lost globally to suicidal behavior. Over 40% of the total number of DALYs lost globally to suicidal behavior occurs in young adults aged between 15-29 years (18, 20).

The increase life expectancy together with urbanization and change in life style has led to arise in the incidence of non-communicable disease and injury in developing countries (24, 28). An injury is one of the commonest causes of death and disability in the African region, particularly among those aged between 5-29 years. Three of top five causes of death for this age group are injury relate (18). Every day in Africa about 2400 people die from injuries. Injury related death in Africa among people aged 15-44 rank second to HIV/AIDS. For every person who dies of injury over 35 others suffer from non-fatal injuries (28). RTI are among leading cause of injuries in Africa. Death from RTI in Africa regions are 40% higher than in all over LMIC and 50% higher than the world average (31, 32). These injuries are an important and largely neglected health problem in developing countries. Injuries pattern study in Uganda showed an incidence of 116/1000/year and annual mortality rate of 92/1000 person in rural area and 217/1000 person in urban areas. The leading causes of death were drowning in the rural setting and road traffic in urban setting. Another in Kampala, Uganda 7% of all patients seen in hospital were injury cases and 50% of injuries were caused by traffic crashes followed by cuts/stabs (16%) and falls (13%) (38). Although injury related mortality was higher than urban than rural area, the burden of disability from non-fatal injuries are assumed by disability from non-fatal injuries as assessed by disability days, was however higher in rural than in urban areas (23, 25).

In Ethiopia there is limited data on injuries. Some institution based studies conducted different countries, however shows that injury is a public health problem that result in morbidity, disability

and mortality. The most frequently witnessed trauma in Ethiopia and the leading cause of death and disability from accidents is a Road Traffic Accident (RTA). According to WHO, 2013 report road traffic-related deaths in Ethiopia reached 22,786 or 2.77% of the total deaths in the country, with over 100 fatalities per 10,000 vehicles. In Addis Ababa, Ethiopia, RTA injury attributed to 7% of all deaths, mostly male (8). According to statistics, Ethiopia is one of the countries with the most road traffic accidents each year. Over 2000 persons are killed in road traffic collisions every year, with pedestrians accounting for 48%, passengers for 45%, and drivers for 7% (9). Another study conducted in Tikur Ambessa Hospital A.A reported that 77% of the injuries were unintentional and motor vehicle injuries account for 41% followed by fall and assault that accounted for 21% & 20% respectively. Pedestrians more affected by in both cases although the magnitude is significantly higher in Addis, (93%) than north Gondar, (64.1%). (40)

Some studies have documented that seriousness of physical sexual assault violence. A study in elementary school in A.A reported that 21% of urban and 64% of the rural children's had skin bruises or bodily swelling as a result of physical punishment. Among physical abused married women 46% had sustained minor and serious somatic injuries in their life time (39).

In Ethiopia also injuries constituent around a half all surgical emergencies and were a major reason for an emergency room visit in A.A more than a quarter of all surgical admissions and 62% of orthopedics admission in Black Lion Hospital. Data compiled by minister of health in 2010/2011 showed that injuries ranked fourth and fifth as a leading cause of admission and death respectively for 6.2% & 1.6%. Ethiopia hosts an annual road traffic fatality of 114 deaths per day 10,000 vehicle a property loss of over 56 million US dollar every year (39).

A community based study in Jimma zone similarly reported a magnitude of 8.9 %. Various studies also revealed that males and young adults aged below 40 years were the most vulnerable groups to injury. In a preliminary study in Tikur Ambessa Hospital, out of 3822 injuries, 77% were unintentional and it was 92% in the community based study in Jimma zone (44).

CHAPTER THREE:

OBJECTIVES

3.1. General Objective

The aim of this study was to assess Patterns of Trauma cases visited in Health Institutions emergency OPD in Agena Town, from December 23, 2024- January 6, 2025 G.C.

3.2. Specific Objectives

1. To describe demographic profile of trauma cases visiting Health institutions EOPD in Agena Town, from December 23, 2024 - January 6/2025 G.C.

2. To identify patterns of trauma cases presenting Health institutions Emergency OPD in Agena Town from December 23, 2024 - January 6/2025 G.C.

3. To assess the magnitude of trauma cases in Health institutions emergency OPD in Agena Town from December 23/2024 - January 6/2025 G.C.

CHAPTER FOUR

METHODS AND MATERIALS

4.1 Study Area.

The study was conducted in Agena Town, Ezha woreda, Gurage zone, centeral, Ethiopia. Agena is one of the Urban kebeles found in Ezha Woreda, Guraghe Zone. It is around 181 km from the capital city of Ethiopia, Addis Ababa and 41 km from Wolkite Town. In 2016 year, this town has a total population of 13,261, of which 6,067 are men and 7,194 female. This town has two Health Institution namely; Agena Health Center which was established in 1992 E.C. Currently it provides service for about 3 Kebeles population, namely Agena 01, Yesiray and Shebraden. And it has 10 nurses, 7 midwife, 4 Lab technicians, 4 Pharmacists, 6 Health officers and 2 general practitioners. It gives various services; namely Triage and Emergency OPD, Adult, Under 5 OPD, ophthalmic, MCH, TB department, Laboratory service, Drug dispenser and ART. And, Agena Primary Hospital which was established in 2012 E.C and started to give service in 2014 E.C. It has 10 Nurses, 7 Midwifes, 8 Lab technicians, 4 Pharmacists, 4 Health Officers and 8 General Practitioners, 1 biomedical Engineer, 3 HEW, 1 environmental health professional and 38 supportive staff and give service for 29,642 peoples.

4.2 Study period

The study was conducted from December 23, 2024- January 6, 2025 G.C.

4.3 Study design

A health institution based cross sectional study was conducted in Health Institutions emergency OPD in Agena Town (in Agena Health Center and Agena Primary Hospital).

4.4 Source population

All patients visiting Health Institution EOPD because of trauma were the source population.

4.5 Study population

All the patients who visited emergency OPD of health institution due to trauma during the study period were the study population.

4.6 Eligibility criteria

4.6.1 Inclusion criteria

- All patients visited at emergency OPD due to injuries during study time.

4.6.2 Exclusion criteria

- Cases that die before they reach the hospital and HC or minor cases that sought care at other facilities.
- Those patients who referred to and visited emergency OPD but are out of the catchment of Agena Town and those patients who were nonresponse

4.7 Sampling size determination

The sample size was determined by using a single population proportion formula at a 95% confidence interval which is equal to 1.96, 5% margin of error and non-response rate of 5% will be considered in the estimation of the sample size required for the study by assuming study done on Trauma cases among patients seen at EOPD of Gedeo health institutes (27).

N= $\frac{Z2P\ (1-P)}{D2}$ then, (1.96)(1.96)0.375(1-0.375)/(0.05)(0.05)=360.

Where

n=numbered required

z=critical value (1.96)

p= prevalence (37.5% according to the study done on Trauma cases among patients seen at EOPD in Gedeo health institutes, 2019) (27).

D=margin of error (5%).

Since the population are less than ten thousand the finite correction formula was used.

n=n / (1+ (n/N)) and

Where N=150.

n = (360)/1+360/150 = 106, and by adding 5% of non-response rate (8), the sample will be 114.

4.7.1 Sampling technique.

Convenience sampling technique used to collect the data, due to small study unit to incorporate all eligible cases.

4.8. Data Collection Instrument and Procedures

Data was collected by using structured questionnaires, which was adapted from literature review. We included in the questionnaire socio-demographic characteristics and characteristics of injury i.e. mechanism, place of injury, activity at the time of injury, site and Intent of injury was collected by using questionnaires. Data was collected by group members at emergency OPD on their respective day. The researchers or group members were trained how to collect this particular questionnaire and the data collection process was supervised closely by the group members.

4.10. Data Quality Assurance

The questionnaire was pretested to minimize ambiguity of words applicability to the local context. Additional adjustment was made based on the results of the pretest. Data collection was carried out by trained students who are from public health department. Close supervision was taken during data collection and questionnaire was checked daily for consistency and completeness by data collectors. Finally the completeness of the questionnaire was checked before entering data into computer software program and before analysis and interpretation.

4.9. Data processing and analysis

After the collection of data, the researchers checked the completeness of questionnaires, responses was coded, cleaned and entered to computer using SPSS version 25 statistical program. Descriptive statistics was used to summarize table and figures were used for presentation. A result of the study was presented by using tables and graphs.

4.10. Operational definition

***Cases*-** are defined as an injury presented by one person for first ti me, irrespective of whether that person has one or multiple injuries.
***Intentional injuries*-** injuries those occurred deliberately.
***Unintentional injuries*-** are those which occurred accidentally.
***Trauma outcome*:** the condition of a patient on whether discharged, referred or died.

Pedestrian- a person walking on foot along the road.

4.11. Study variables

Age

Sex

Occupation

Marital status

Educational status

Residence

Ethnicity

Mechanism of injury.

Part of body injured.

4.12. **Ethical consideration**

Ethical clearance, support letter was obtained from Wolkite University Department of health and medical science, Public Health Department and the health institution management before the study was conducted. The patient name was not recorded on the questionnaire to grant confidentially of the information.

4.13. Dissemination plan

The outcome of this study was disseminated to WKU, college of medicine and health sciences, department of public health and to Agena Town health bureau, Ezha Wereda and other Government and non-government officials.

CHAPTER FIVE: RESULTS

5.1 Socio-demographic Characteristics of respondents.

One hundred fourteen (114) injury cases were visited in Agena Town health Institutions EOPD during study period, and from all visited cases (114), 111 cases were analyzed in this study and 3(2.6%) cases were non respondents. From visited cases 64(57.7%) were males. From all cases 68 (61.3%) of cases were 15-49 years old.

The educational status of the cases were 56 (50.5%) were secondary school and above. From the injury cases visited at EOPD during the study time, 57(51.4%) were Orthodox, 39(35.1%) were Muslims. With regard to occupational status, majority of cases were students, which accounts 31(27.9%) and followed by Employed, which is 25(22.5%). Majority of cases were unmarried 67(60.4%) and the rests were married 41(36.9%). When assessed by mode of arrival, majority of cases presented to health institutions by themselves. Based on the residence, majority of cases occurred in urban 59(53.2%). (**Table 1)**

Table 1: **Socio-demographic characteristics of trauma cases who visited in Agena Town health Institutions EOPD from December 23, 2024-January 6, 2025 G.C**

Variables		**Frequency**	**Percent(%)**
Sex	Male	64	57.7
	Female	47	42.3
	Total	**111**	**100**

Age	5-14	21	18.9
	15-49	68	61.3
	50-65	15	13.5
	Above 65	7	6.3
Educational status	High school & above	56	50.5
	Primary school	39	35.1
	Read & write only	10	9.0
	Illiterate	6	5.4
	Total	**111**	**100**
Marital Status		**Frequency**	**Percent (%)**
	Single	67	60.4
	Married	41	36.9
	Widowed	3	2.7
	Total	**111**	**100**
Occupational Status			
	Students	31	27.9
	Employed	25	22.5
	Private business	22	19.8
	House wife	8	7.2
	Unemployed	7	6.3
	Daily Laborers	7	6.3
	Civil servant	4	3.6
	Farmer	3	2.7
	Old age retired	3	2.7
	Other	1	0.9
	Total	**111**	**100**

Religion			
	Orthodox	57	51.4
	Muslim	39	35.1
	Protestant	12	10.8
	Other	3	2.7
	Total	**111**	**100**
Residence			
	Urban	59	53,2
	Rural	52	46.8
Ethnicity			
	Gurage	59	53.2
	Silte	19	17.1
	Amhara	13	11.7
	Oromo	6	5.4
	Wolayita	9	8.1
	Other	5	4.5
	Total	**111**	**100**

Intent of Injury

Result on the intent of injury showed that 104 (93.7%) were injured unintentionally, 3 (2.7%) were injured intentionally. **(Figure 1)**

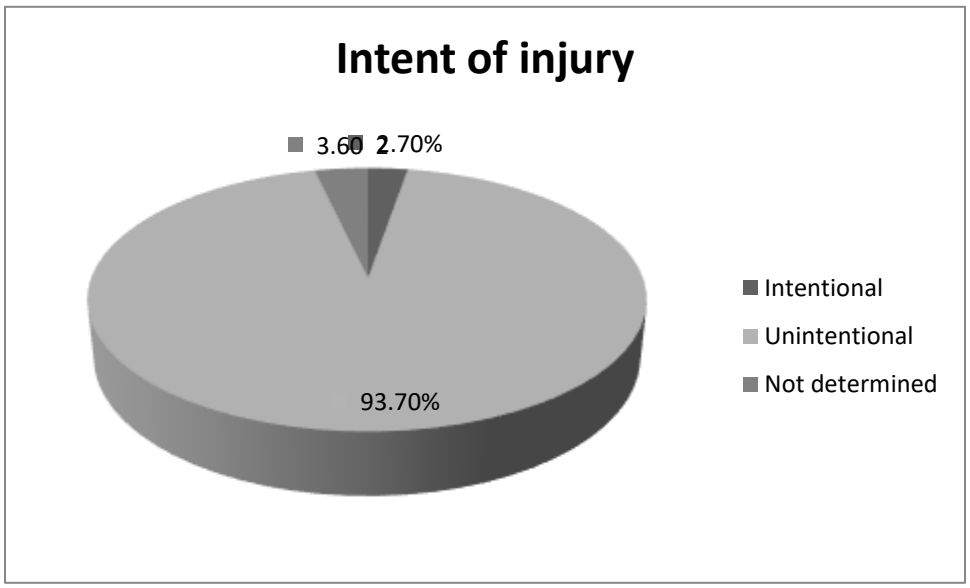

Figure 1: **Intent of injury cases of patients who visited Agena health institution EOPD from December 23- January 6, 2025 G.C**

Mechanisms of Injury

The commonest mechanism of injury was RTA, which accounts 39 (35.1%), followed by falling related injury 28 (25.2%). (**Table 3)**

Table 2: **Mechanism of injury cases of patients who visited Agena health institution EOPD from December 23- January 6, 2025 G.C**

Causes of Injury	**Frequency**	**Percent (%)**
Road Traffic Accidents	39	35.1
Falling related injury	28	25.2
Cut by sharp instrument	22	19.8
Burn	9	8.1
Stick Injury	4	3.6
Poisoning	2	1.8
Bitten by animal	2	1.8
Firearms	1	0.9
Suicide	1	0.9
Other	3	2.7
Total	**111**	**100**

Mode of arrival

From 111 assessed trauma cases, 54.1% cases presented to health institutions by themselves, while 40.5% presented assisted by family.

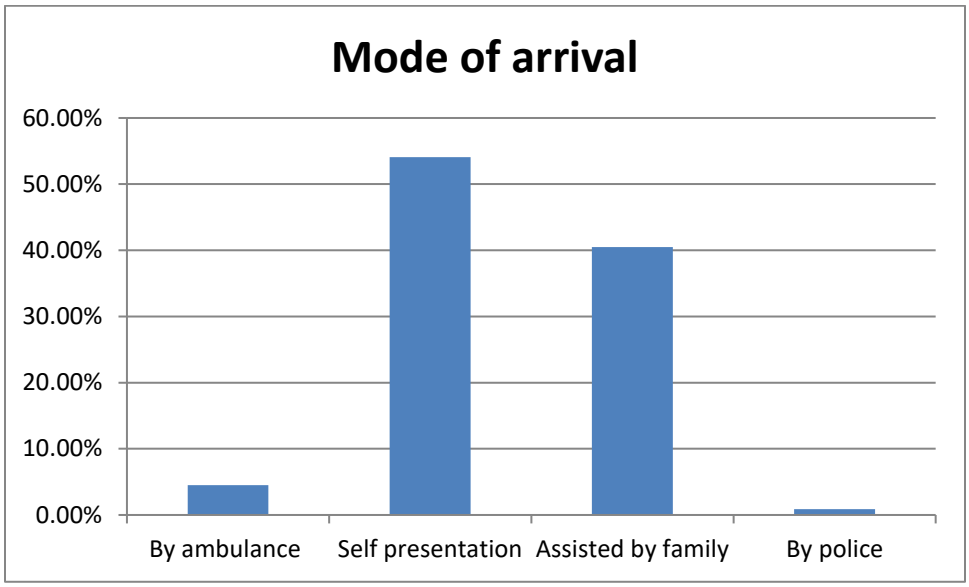

Figure 2: Shows modes of arrival of trauma cases of patients, who presented to Agena health institutions EOPD from December 23, 2024- January 6, 2025 G.C

Place of Injury

Out of the 111 cases visited at the EOPD, 32 (28.8%) took place on the road, and followed by 28 (25.2%), which occurred around home. **(Table 4)**

Table 3: **Place of injuries of patients who visited Agena health institution EOPD from December 23/2024- January 6, 2025 G.C**

Place of Injury	Frequency	Percent (%)
On the road	32	28.8
Around home	28	25.2
Inside home	21	18.9

On the job	19	17.1
In the School	6	5.4
Farming place	1	0.9
Other place	3	2.7

Body affected by Injury

From the injury cases during the study time, 37 (33.3%) sustained on only the upper extremities followed by 25 (22.5%) on the lower extremity. (**Table 5)**

Table 4: Body affected by injury cases who visited Agena health institution EOPD from December 23/2024- January 6, 2025 G.C

Body affected by injury	**Frequency**	**Percent (%)**
Only upper extremity	37	33.3
Only lower extremity	25	22.5
Both upper and lower extremities	19	17.1
Only head	14	12.6
Head and neck	6	5.4
The back	4	3.6
Thorax and abdomen	3	2.7
Groin and genitals	1	0.9
Whole body	2	1.8

Outcome of patients of injury cases.

From the 111 cases managed as an outpatient, 99 (89.2%) cases were treated and discharged as an outpatient, and 9 (8.1%) were referred immediately for further management. **See table 6**

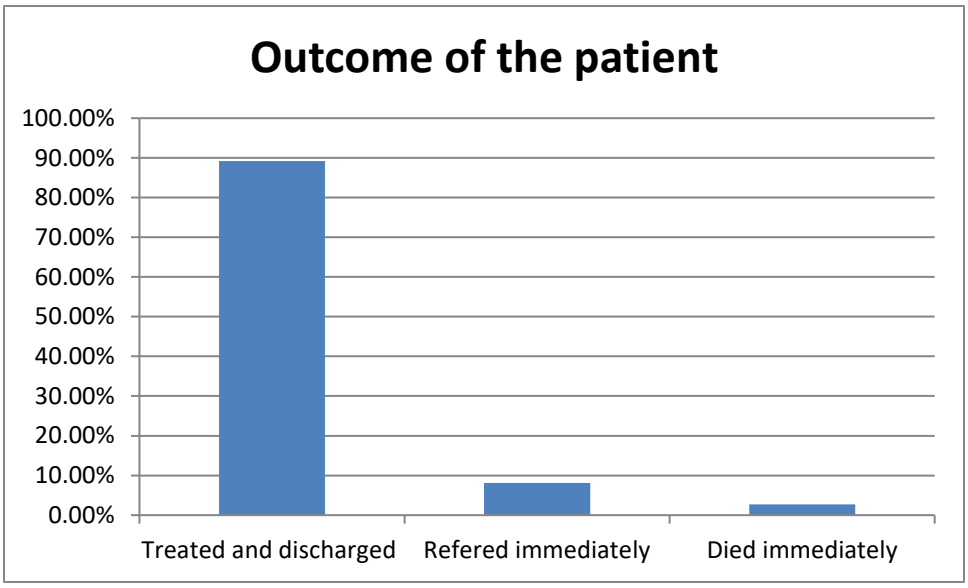

Figure 3: **Outcome of the patient from injury cases who visited Agena health institution EOPD from December 23/2024- January 6, 2025 G.C**

DISCUSSION

A total of 114 trauma cases assessed from December 23, 2024 to January 6, 2025. This study revealed that male gender were predominantly had majority of traumas cases which account 64 (57.7%), and most of injuries involved peoples who are aged 15-49 (61.3%) which is consistent with other similar studies (46, 54, 55). This finding is consistent with findings of WHO injury and violence surveillance facts and other studies conducted in Sub-Saharan African countries (52). Worldwide, twice as many males die as a result of injury as females (53). This high impact of males might be due to greater immersion of males in activities as life careers than females. It is expected that people in this age group tends to live a more active life than other age group. Obviously, this would signify a resultant economic impact and loss in productive years of life.

In regard to occupational status, majority of patients were Students 27.9% and followed by employed which accounts 22.5%. This finding is comparable with a study conducted in Tanzania and Yirgalem (52, 54). Considering the intent of trauma, this study revealed that 2.7% of the injuries were intentional and it is lower when compared with study done in Tikur Anbessa hospital, Addis Ababa, which accounts 23% (46), and 93.7% were unintentional. Similar study done in Jimma University Specialized Hospital shows that, about 75.4% of the admissions was unintentional injury. In relation to place of traumas, this study revealed that, the highest frequency of traumas 53.2% were occurred in Urban and about 46.8% were recorded in rural. Similar other study done in Gurage zone shows about 78.8% recorded on asphalt road surface, in urban area, and 67.1% occurred in rural area. Other multi-center study conducted in Amhara regional state and Sub-Saharan African countries, showed that more trauma cases occur in urban

area. (52). With regard to mode of arrival, majority of the patients (54.1%) presented to health institutions by themselves, and 40.5% patient presented assisted by family.

The commonest mechanisms of injury were RTA 35.1% and followed by falling related injury 25.2% and cut by sharp instruments 19.8%. Worldwide, Road Traffic Accident's responsible for the highest cause of trauma and mortality rates (13,). The main reason for the increment of high number of injuries could be due to rise in number of vehicles that is not balanced to road density per person and poor transport condition, lack of periodically vehicle technical inspection and poor implementation road safety policy(9, 13). A similar finding was noted by Kifle *et al.* which was 49.7% was caused by RTA, 12.5% by stab injury, and 11.4 % by cut by a sharp tool, whereas B. Tadesse *et al.* reports RTA (38.3%) followed by interpersonal violence (31.5%) and fall (21.2%) are the possible cause for severe trauma in Tikur Anbessa Specialized Hospital (40, 56). A study done at Hawassa University Comprehensive Specialized Hospital in Central Ethiopia, also shows RTA as cause of more trauma with the result of 40.9% which was higher than this study. The possible explanation for the variation may be the difference in study time and setting.

The most common places of injury identified were on road 28.8%, around home 25.2% and inside home which is 18.9% respectively. Another study in the same zone reported that more than 2/3 of injuries occurred in and around home environment and farming places (53). Considering part of the body affected, this study showed that, upper extremities 33.3% were most affected followed by lower extremities 22.5%, head 12.6%. From these all cases 89.2% were treated and discharged, while 8.1% were referred for better investigation. And 2.7% of all cases died because of trauma. Similar study done in Gurage zone show that, 23(6%) deaths occurred from included samples visiting surgical emergency department. Also when compared to studies done in Jimma zone which accounts 14.7% deaths and Gedeo zone with 6% prevalence

of death, the prevalence of death of our study is low, that was 3(2.7%) death from included samples visiting emergency outpatient department. This is due to difference of time taken for investigation and differences in the level and number of facilities.

LIMITATION OF THE STUDY

The study was conducted at a relatively shorter study period in a single small area, which might not be generalized to national or international status of trauma.

This study has the following limitations.

- Selection bias might have been introduced as the study used non probability sampling technique.
- Exclude cases that die before they reach the hospital or minor cases that sought care at other facilities.

Moreover, injuries might have been clustered among particular individuals who were not addressed in the study. Therefore, a larger sample and more time will be needed for which this study might help as a stepping stone.

CHAPTER 6.

6.1 CONCLUSION

Higher proportions of trauma victims were male patients who are aged 15–49 years. Road traffic injury and falling related injury are the two most common causes of injury which counted for more than seventy percent of deaths and was the leading cause of trauma and mortality. Awareness creation about RTA, improving road safety and posing strict regulation on pedestrians and drivers need further measures. The findings of this study are anticipated to contribute to provide clear and convincing support for the Health institutions to enhance health care service as well as alarm the road safety authority and traffic management to act on road safety and the use of safety measures. Lastly, as trauma is an ever evolving problem, so Agena Town administration and health bureau has to address those that causes trauma to prevent it and government also has to establish trauma centers to work on this preventable neglected global problem.

6.2 Recommendations

Appropriate prevention strategies should be designed and implemented against RTA, falling related injury and cut by sharp tools to prevent trauma and its lasting effects. Strategies like;

- Agena Town road Traffic Agency should Educate the community, and students by uniting with schools about traffic laws, rules and regulations,
- Religious institutions should hold their followers with discipline to reduce interpersonal violence.
- Agena Town Health Institution should teach community about trauma prevention and safety measures how can they protect themselves.

- ❖ High prevalence of injury among males and students can be potential research areas. Factors associated with RTA also need to be identified in the future.

Data from hospital studies can corroborate with community based data and can help practitioners, researchers, program managers and policy makers at different levels identify populations at risk, implement and evaluate prevention programs.

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QUESTIONNAIRE

Introduction and Consent

Greeting

My Name is _____, students of WKU. We are conducting a research for the partial fulfillment of Bachelor science of degree in Public health on "Assessment of Patterns of Trauma Cases Visited in Health Institutions EOPD in Agena Town, Ezha Woreda. Therefore, we are going to ask you several questions about issues related to the research. We have received permission from WKU, Ezha Wereda and respective health offices to conduct this study. We would like to appreciate you for your participation in this interview. This information will help the government and NGOs to plan health services. We assure that the interview process will not bring any harm to you and your family. Whatever information you provide will be kept strictly confidential, and will not be shared with anyone other than the investigator. Participation in this survey is voluntary, and if we should come to any question you don't want to answer, just let me know and we will go on to the next question; or you can stop the interview at any time. However, we hope you will participate in the survey since your views are important. At this time, do you want to ask me anything about the survey?

Would you be willing to participate? Yes _____

No _____

Interviewer name: _____

Signature: _____ Date:_____

PART ONE:-SOCIODEMOGRAPHIC CHARACTERSTICS

1. Age.....…

2. **2. Sex;** 1. Male, 2. Female.

3. Educational status; 1. Illiterate,

2. Read and write only,

3. Elementary school,

4. Secondary school and above.

4. Occupational status;

1. Farmer, 6. Employed

2. Student 7. Private business

3.Civil Servant 8. Daily labourers

4. Old age retired 9. House wife,

5. Unemployed 10. Other(specify)……..

5. Marital status; 1. Married,

2. Unmarried.

3. Widowed.

4. Divorced.

6. Religion;

1.protestant,

2. Orthodox,

3. Muslim,

4. Others (specify)…….

7. Residence

1. Urban 2. Rular.

8. Ethnicity 1. Gurage, 4. Oromo,

2. Silte, 5. Wolayita,

3. Amhara, 6. Other (Specify)……..

PART TWO:-INTENT OF INJURY

1. **Is the injury;** 1. Intentional,

2.Unintentional.

3. Not determined.

PART THREE:-MECHANISM OF INJURY

1. What causes the injury?

1. Cut by sharp instruments, 7. Poisoning,

2. Bitten by animal, 8. Stab,

3. Road Traffic Accident, 9. Firearm,

4.Suicide, 10. Drowning,

5. Falling related injury 11. Stick injury,

6. Burn 12. Others (specify)…….

PART FOUR:-PLACE OF INJURY

1. **Where did the injury Occurred?**

1. Around home, 5. On the road,

2. Inside home, 6. In the bush,

3. Farming place, 7. In the school,

4. On the job, 8. Other places(specify)……

2. Mode of Arrival 1. By Ambulance 3. Self Presentation

2. By Police 4. Assisted by Family.

PART FIVE:-ACTIVITY AT THE TIME OF INJURY

1 .On what activity did you engaged at the time of injury?

1. On usual work, 5. On trip to other places,

2. On the way to work/back home, 6. Walking around,

3. On sleep/food/shower, 7. Others. (specify)……..

4. On household activity,

PART SIX:- SITE OF THE BODY INVOLVED BY THE TRAUMA

1. Which part of your body was injured?

1. Only head, 6. Head and neck,

2. The back, 7. Groin and genitals,

3. Only upper extremities 8. Thorax and abdomen,

4. Only lower extremities 9. The whole body.

5. Both upper and lower extremities,

PART SEVEN:- OUTCOME OF INJURY

1. Is the patient admitted? 1. Yes

2. No

2. **If no, what done?** 1. Treated and discharged,

2.Referred immediately for further management,

3. Died immediately.