

## Original Research Article

## Assessment of the Prevalence of Trauma Cases Visited At Emergency OPD in Dilla University Referral Hospital from April 20, 2008–May 20, 2008 E.C

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**Abstract:** *Background:* 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 insignificance, largely as a consequences 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. *Objective:* The objective of this study was to assess the prevalence of trauma cases visited at emergency OPD of DURTH and to describe the magnitude and pattern of injury. *Methods:* Health institutional based cross sectional study was conducted at emergency OPD from APRIL 20, 2008-MAY 20, 2008 E.C and the data was collected using questionnaires by using convenience sampling technique. All injury cases come to EOPD was studied. A questioner was used to collect the data and the data entered to computer and was analysed by using SPSS version 20. Ethical clearance was obtained from Rift valley University Hawassa campus before the study conducted and the hospital management. *Result:* 128 patients were visited EOPD of DURH during the study period. The commonest mechanism of injury was RTA, 42(32.8%), followed by falling related injury and cut by sharp instruments, 22(17.2%), 20(15.6%) respectively. More males had RTA, cut and falling related injuries compared to females. The commonest outcomes which resulted in severe injuries were RTA, stab and falling related injuries. *Conclusion:* The magnitude of injury in the hospital was considerably high. Appropriate prevention strategies should be designed and implemented against RTA, falling related injury and cut by sharp instruments.

**Keywords:** Trauma, suicide, drowning, cases, emergency outpatient department.

## INTRODUCTION

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 [3].

Globally, injury has been recognized as one of the most life threatening public health problems. Injuries represent 12% of the global burden of the disease and the third most important cause of overall mortality [4]. Millions have accidents occur each year and thousands of individuals lose their lives. This is well recorded in high income countries [5-7]. It was demonstrated that trauma patients occupied more than 12% of hospital beds in USA [5] and accounted for more than 50% of orthopaedic admissions in UK [8]. 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 [9]. Among African nations the rate of injury mortality in 2004 was the highest in Nigeria and the lowest in Egypt. South Africa and Ethiopia

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were second and third respectively [10]. Injury is more common among men and among persons aged 15-44 years [11]. Injury deaths attributable to road traffic crashes was the highest in Egypt (41%) followed by Ethiopia (30%) [10].

Each year, over 310,000 deaths occur due to fire related burns in the world [12]. Children ages 1-9 years are more vulnerable to fire related deaths than older children and adults [13]. On the other hand, regardless of age, fall related injuries account for more than half of non fatal injuries resulting in extensive health care utilization and protracted period of sick days with profound economic impact [14, 15].

In Ethiopia, there are very limited data on injury. Some institutions based studies conducted in different parts of the country. However it shows that injury is a public health problem that results in morbidity, mortality and disability. A study conducted in North Gondar in 2000 rivalled that 5.4% of the total patients seen in health institutions were injury cases and the leading cause of injury were assault (48.5%), fall (18.6%) and road traffic (14.7%) [16]. The study may provide important information for the responsible body to adjust the emergency care to trauma victims so as to reduce the immediate and long stand impact of the problem.

## SUBJECTS AND METHODS

### Study Area and Period

The study was conducted in DURH. DURH was first established as a clinic in 1920 E.C which latter in 1950 E.C upgraded to hospital and named as Leul Mekonen. In 1977 E.C. The hospital was upgraded to give service for 250,000 people bring the name Dilla district hospital and called DURTH. Currently it provide service for about 2 million catchment population with a total capacity of about 108 beds and it has 113 nurses (19 midwife), 83 general practitioners and 4 seniors. It provide range of service in outpatient (2576/month), in patient and emergency basis (625/month) in various areas; namely internal medicine, paediatrics, obstetrics and Gynaecology, surgery, dentistry, ophthalmology and psychiatry.

The study was conducted from APRIL 20, 2008-MAY 20, 2008 E.C

### Study Design

Institution based cross sectional study was conducted at emergency outpatient department of Dilla university referral hospital from APRIL 20, 2008-MAY 20, 2008 E.C.

### Study Population

All the patients who visited the emergency OPD of DURTH due to injury during the study period Inclusion and Exclusion criteria.

### Inclusion Criteria

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

### Exclusion Criteria

- Those patients who come to emergency OPD because of medical cases.
- Those who are severely injured and cannot respond and not able to hear, speak and those who mentally ill Cases that die before they reach the hospital or minor cases that sought care at other facilities.
- Those patients who referred and visit to these hospital but are out of the catchment of DURTH.

### Sample Size and Sampling Technique

The sample size was determined by using a single population proportion formula by assuming study done on Jimma University.

$$N = Z^2 P (1-P) / D^2 \quad (1.96)(1.96)0.082(1-0.082) / (0.05)(0.05) = 116$$

Where n=numbered required

z=critical value (1.96)

p=prevalence (8.2% according to the study conducted in Jimma university, 2014)

D=margin of error (5%). and by adding 10% of non response rate the sample will be 128

Convenience non-probability sampling technique was used to collect the data.

### Data Collection Procedures

Data was collected using questionnaires the socio demographic characteristics and characteristics of injury i.e. mechanism, place of injury, activity at the time of injury, site and degree (severity) of injury and outcomes will be collected by questionnaires.

Data was collected by investigator at emergency OPD on their respective days. The investigator was trained how to collect this particular questioner and the data collection process was supervised closely by the investigator.

### Data Quality Assurance

All Group members of research were undertake data collection .Before the actual data collection, the questionnaire was pre tested in 5 % of population in yirgalem referral hospital Based on the pretest, necessary modification were made on the questions and the data of the pretest was excluded in the actual data analysis

To keep the data as accurate as possible, the structured check list for data collection was used thoroughly throughout the process. Completeness of the data and possible errors was also be monitored carefully.

### Data Processing and Analysis

After the data was collected the frequency distribution of dependent and independent variables was organized using frequency table, graph, and chart. Chi-square was used to determine the associations between the selected variables. *P*-value also was calculated in order to identify possible statistically significant risk factors.

### Ethical Considerations

Ethical clearance was obtained from research and ethical committee (REC) of rift valley University, department of public health. Permission for conducting the study were obtained from Dilla university referral hospital. In addition written informed consent was obtained from the study participant before data collection and the patient name was not be recorded on the questionnaire to grant confidentiality of the information.

## RESULTS

One hundred twenty eight injury cases were visited at EOPD of DURH during one month's period from April 20-May 20, 2008 E.C. and all visited cases analyzed in the study. From the injury cases visited 74(57.8%) were males and 54(42.2%) were females. 100(78.1%) Of cases were 15-49 years old, 14(10.9%) were 5-14 years old, 2(1.6%) were >65 years, and 12(9.4%) were 50-65 years old.

The educational status of the cases were 36(28.1%), 30(23.4%), 29(22.7%), &33(25.8%) were illiterate, elementary school, secondary school and above and read and write only respectively. From the injury cases visited at EOPD on the study time 62(48.4%) were protestants, 43(33.6%) were orthodox, and 21(16.4%) were Muslim and 2(1.6%) were others. The occupational status of the cases majority cases were students which was 32(25%) and 29(22.7%), 16 (12.5%), 13(10.2%) were farmers, private business, and daily labourer respectively. Majority of cases married 67(52.3%) and the rests were unmarried 50(39.1%) & 11(8.6%) windowed (See Table 1a and b).

**Table-1a: Socio-demographic characteristics of injury cases who visited EOPD OF DURH from April 20-May 20, 2008 E.C**

| Variable                          | Frequency | Percent (%) |
|-----------------------------------|-----------|-------------|
| <b>Sex(n=128)</b>                 |           |             |
| Male                              | 74        | 57.8        |
| Female                            | 54        | 42.2        |
| <b>Age(n=128)</b>                 |           |             |
| 5-14                              | 14        | 10.9        |
| 15-49                             | 100       | 78.1        |
| 50-65                             | 12        | 9.4         |
| >65                               | 2         | 1.6         |
| <b>Educational status (n=128)</b> |           |             |
| High school and above             | 29        | 22.7        |
| Elementary school                 | 30        | 23.4        |
| Read and write only               | 33        | 25.8        |
| Illiterate                        | 36        | 28.1        |

**Table-1b: Socio-demographic characteristics of injury cases who visited EOPD OF DURH from April 20-May 20, 2008 E.C**

| Variable                          | Frequency | Percent (%) |
|-----------------------------------|-----------|-------------|
| <b>Marital status(n=128)</b>      |           |             |
| Married                           | 67        | 52.3        |
| Unmarried                         | 50        | 39.1        |
| Widowed                           | 11        | 8.6         |
| <b>Occupational status(n=128)</b> |           |             |
| Farmer                            | 29        | 22.7        |
| Student                           | 32        | 25.0        |
| House wife                        | 29        | 22.7        |
| Unemployed                        | 4         | 3.1         |
| Private business                  | 16        | 12.5        |
| Civil servant                     | 2         | 1.6         |
| Daily laborer                     | 13        | 10.2        |
| Retired                           | 2         | 1.6         |
| Others                            | 1         | 0.8         |
| <b>Religion(n=128)</b>            |           |             |
| Protestant                        | 62        | 48.4        |
| Orthodox                          | 43        | 33.6        |
| Muslim                            | 21        | 16.4        |
| Others                            | 2         | 1.6         |

Result on the intent of injury showed that 4(3.1%) were injured intentionally and 124(96.9%) were injured unintentionally (See Table-2).

**Table-2: Intent of injury who visited EOPD OF DURH from April 20- May 20, 2008 E.C**

| Intent of injury | Frequency | Percent (%) |
|------------------|-----------|-------------|
| Intentional      | 4         | 3.1         |
| Unintentional    | 124       | 96.9        |

The commonest mechanism of injury was RTA; 42(32.8%), followed by falling related injury 22(17.2%), cut by sharp instruments 20(15.6%), fire related burns 10(7.8%), firearm 8(6.3%), stab 7(5.5%) and others 2(1.6%) (See Table-3).

**Table-3: Mechanism of injury**

| Mechanism of injury          | Frequency | Percent (%) |
|------------------------------|-----------|-------------|
| Cut by sharp instruments     | 20        | 15.6        |
| Falling related accidents    | 22        | 17.2        |
| Stab injury                  | 7         | 5.5         |
| Bitten by animals            | 5         | 3.9         |
| Fire related burns           | 10        | 7.8         |
| Burn due to boiled water oil | 8         | 6.3         |
| RTA                          | 42        | 32.8        |
| Poisoning                    | 2         | 1.6         |
| Suicide                      | 2         | 1.6         |
| Firearm                      | 8         | 6.3         |
| Others                       | 2         | 1.6         |

Out of the 128 cases visited at the EOPD of DURH, 41(32%), 34(26.6%), 15(11.7%), 11(8.6%) took place on the road, inside home, on the job, and around home respectively (See Table-4).

**Table-4: Place of injury**

| Place of injury | Frequency | Percent (%) |
|-----------------|-----------|-------------|
| Around home     | 11        | 8.6         |
| Inside home     | 34        | 26.6        |
| Farming place   | 9         | 7.0         |
| On the job      | 15        | 11.7        |
| On the road     | 41        | 32.0        |
| In the school   | 4         | 3.1         |
| Other places    | 8         | 6.3         |

From the injury cases on the study time 28(21.9%) sustained on only the upper extremity followed by 23(18%) on the lower extremity (See Table-5).

**Table-5: Body affected by injury**

| Body affected by injury          | Frequency | Percent (%) |
|----------------------------------|-----------|-------------|
| Only head                        | 21        | 16.4        |
| Head and neck                    | 9         | 7.0         |
| Thorax and abdomen               | 11        | 8.6         |
| Back                             | 13        | 10.2        |
| Both upper and lower extremities | 17        | 13.3        |
| Only upper extremity             | 28        | 21.9        |
| Only lower extremity             | 23        | 18.0        |
| Groin and genitals               | 2         | 1.6         |
| Others                           | 4         | 3.1         |

From the 128 cases managed as an outpatient 77(60.2%) were treated and discharged as an outpatient, 10(7.8%) were referred immediately for further management (See Table-6).

**Table-6: Outcome of the patient from injury cases**

| Outcome of patients                         | Frequency | Percent (%) |
|---|-----------|-------------|
| Treated and discharged as an outpatient     | 77        | 60.2        |
| Referred immediately for further management | 10        | 7.8         |
| Died Immediately                            | 3         | 2.3         |
| Others                                      | 38        | 29.7        |

With regard to injury spectrum 29(22.7%) were classified as sever, 35(27.3%) were moderate and the rest 64(50.0%) were classified as minor injury (See Table-7).

**Table-7: Severity of injury**

| Severity of injury | Frequency | Percent (%) |
|--------------------|-----------|-------------|
| Minor              | 64        | 50.0        |
| Moderate           | 35        | 27.3        |
| Severe             | 29        | 22.7        |

## DISCUSSION AND CONCLUSION

The study revealed magnitude of injury In DURH to be 0.256%. This is relatively lower when compared to a study conducted in North Gondar zone in 2000 using twenty institutions which revealed a magnitude of 5.4% [16]. The magnitude is lower than a study of total surgical admission (5,907) to the rift valley provincial general hospital of Kenya in 2002 where 3411(57.7%) were trauma cases [56]. Similarly, another study at Viet Duc hospital in 2006 had reported a higher magnitude with 17,643 injury cases treated in emergency department, representing 70% of all emergencies [58]. The time of investigation and differences in the level and number of facilities studied could partly explain this difference. The injured cases were predominantly males which are consistent with other similar studies [16-46, 59] and most of injuries involved people aged 15-49 years. This pattern remained the same for most injury mechanisms and outcomes. This is also an agreement with other similar studies [53, 46, 59]. It is expected that people in this age group tend to live a more active life than other age group [58]. Obviously, this would signify a resultant economic impact and loss in productive years of life [15].

The study revealed that 3.1% of the injuries were intentional and is lower than 23% reported from Tikur Anbessa hospital, Addis Ababa [46] and 8% from Vietnamese hospital [58]. However, another study conducted in Canadian hospitals reported more intentional injuries. The possible explanation for the variation may be the difference in study time and setting. The commonest mechanisms of injury were RTA and falling related followed by cut by sharp instruments. Similarly, studies conducted in Tikur Anbessa, Addis Ababa [46], in North Gondar zone [16] and in rift valley provincial general hospital of Kenya [56] had reported same trend with RTA at top followed by interpersonal assault and accidental fall. However, another study conducted in St Paul's hospital, Addis Ababa, eldort, Kenya, assaults were the leading cause for injury [15].

Females, as compared to males, were almost twice more likely to have had cut injuries by sharp instruments. Studies from western Kenya [58] and Ghana reported the same observation. Similarly, males were less likely to have had burn which is consistent with other studies [15, 59]. This may be attributed to the high exposure women have due to their role in domestic activities such as cooking, baking, and ironing [15]. Moreover, males were more likely to have had RTA. This is partly supported by the study conducted in Ghana were males predominated in all mechanisms of injury. This study also showed that cut and assault injury was higher among

age group 15-49 and 50-64 years compared to 0-4 years. Similarly, the study from Ghana reported that assault was more common in 15-34 and 35-59 years than 0-4 years. The two most common places of injury were road and home. Another study in the same zone however reported that more than 2/3 of injuries occurred in and around home environment and funning places [53]. On the other hand higher prevalence of injuries from road accidents were observed in the hospital for it serves as a referral centre not only for Dilla zone but also for other adjacent zones and as well the injuries might be more serious in nature. The three leading outcomes of injuries were bruise or skin laceration, fracture and internal organ injury and this is a different pattern as compared to various studies. Cut or bite wound, sprain, bruise, fracture, and internal organ injury were reported to be the commonest outcomes in the community based study [53]. In a Kenyan hospital study, the most common injuries were fractures, burn, soft tissue and head injuries [56]. In another Nigerian teaching hospital study, lacerations and fractures represented most of injuries. Possibly, differences in the definition of what a "case" means in the studies being compared might have also contributed to the variation. Fracture cases were more frequent in 50-64 & 64 years old and above and this is consistent with other report [59].

In conclusion, the magnitude of injury in the hospital was considerably high with more unintentional injuries; predominantly involving males, people aged 15-49 years, farmers and students. RTA, cut by sharp tool and falling were the commonest mechanisms. The commonest places of injury were on the road, around and in home. RTA, falling related injury and cut by sharp tool resulted in more severe injuries.

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