ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF MEDICINE

DEPARTMENT OF DENTISTRY AND ORAL AND MAXILLOFACIAL SURGERY

A PROSPECTIVE STUDY ON DENTOALVEOLAR INJURIES AND ASSOCIATED FACTORS AMONG PATIENS SEEN AT ORAL AND MAXILLOFACIAL SURGERY AT TIKURANBESSA SPECIALIZED HOSPITAL AND AFFILIATED HOSPITALS.

BY: ZERIHUN ESHETU

JANUARY, 2024

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BY: DR.ZERIHUN ESHETU(ORAL AND MAXILLOFACIAL SURGERY REIDENT)

A RESEARCH PAPER TO BE SUBMITTED TO ADDIS ABABA UNIVERSITY , COLLEGE OF HEALTH SCIENCES, SCHOOL OF MEDICINE DEPARTMENT OF DENTISTRY AND ORAL AND MAXILLOFACIAL SURGERY AS A PARTIAL FULFILLMENT OF THE REQUIREMENT FOR A SPECIALITY /CERTIFICATE IN ORAL AND MAXILLOFACIAL SURGERY

JANUARY,2024

ADDIS ABABA,ETHIOPIA

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SCHOOL OF MEDICINE

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Duration of the project	April to June 30
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DECLARATION OF WORK

I hereby declare that this paper is entirely my own work and appropriate credit has been given to the references of the work of others.

ACKNOWLEDGEMENT

I would like to convey my gratitude to my instructors Dr. Surafel Adula ,Dr. Girma Uma and Dr. Gelana Garoma and the Department of Oral and Maxillofacial Surgery for giving me the chance to develop this research thesis and gain experience and knowledge on it. I would also like to acknowledge everybody else who assisted me by giving a moral support to make this effort a reality.

Above all, I thank GOD and my heavenly mother for giving me the time and knowledge.

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ABSTRACT

Introduction- The oral region accounts for around one percent of the total body size. Injuries to this region account for around one-third of all injuries among all ages groups and has physical and psychosocial impacts that it entails in the lives of individuals who are victims of theses injury. However, there is a shortage of informations regarding the prevalence of dentoalveolar injuries and associated factors in the study area.

Objective: The study was aimed to assess dentoalveolar injuries and associated factors among patients seen at Oral and Maxillofacial Surgery at Tikur Anbessa Specialized Hospital, and affiliated hospitals, Addis Ababa, Ethiopia, from April to June 30,2023.

Methods: Institutional based Prospective cross sectional study was conducted.. Data was collected using structured questionnaire. The collected data was checked for completeness, edited, coded and entered into Epi Data version 3.1 and exported to SPSS version 20.00 for analysis. Descriptive analyses has been done by computing proportions and summary statistics. Binary logistic regression was used to identify factors associated with dent-alveolar injury. The information was presented by using table and figures.

Duration of Study: April 30 to June 30

Result: In this study a total of 308 patients who visited TASH, Minilik and Saint Peter Hospital, Oral and Maxillofacial department were participated making the response rate of 91.4% of which 61 (19.8%) are patients with dentoalveolar injuries.About 46(75.4%) of the patients with dento-alveolar injuries were male presenting a male to female ratio of 3:1. Most affected age groups were less than 30 years, with an overall mean age of 22.32 ±13.71 years. From the total study participants about 195 (63.3%) of the participants were from urban areas and 40(14%) were drivers including motor cycle riders

Conclusion: Falling down is the main reason of dentoalvelar injury as of this study, which is associated with both indoor and outdoor activities like poor lighting, slippery floors, clutter and sporting activities.

LIST OF ABBREVIATIONS

TDI-Traumatic Dental Injury

A.A-Addis Ababa

TASH- Tikur Anbesa Specialized Hospita

1. INTRODUCTION

1.1. Background

The oral region accounts for around one percent of the total body size. However, injuries to this region account for around one third of all injuries among all ages group (1, 2). Dento-alveolar trauma is a set of traumatic injuries that compromises dental integrity and associated supporting tissues as a result of a release of energy on them, being a medium or high energy blow (3). These traumatic dental injuries often result in soft tissue injuries in 70% of all patients with maxillofacial traumas. In spite of this fact, the soft tissue injuries might be exposed to ignorance by the dentists who primarily focus on the patients' traumatized teeth(4)

Traumatic injuries commonly occur in pediatric and adolescent ages as a result of accidents, falling from heights, contact sports, violence, etc. The most common type of injury considered as a dental emergency is dentoalveolar fractures with teeth luxations followed by trauma to the maxillary anterior teeth(5). Traumatic intrusion is where the tooth is axially displaced into the alveolus. Intrusive luxation is more common in deciduous teeth, however, it is considered a rare occurrence in permanent teeth. Intrusion is a severe form of injury and accounts for only 3% of all traumatic injuries in permanent dentition(6, 7) Uncomplicated crown fracture is a fracture confined to the enamel or involving the enamel and dentin without exposing the pulp.

Complicated crown fracture involves enamel and dentin with exposure of the pulp while uncomplicated crown-root fracture-Involves enamel, dentin, and cementum without exposure of the pulp.Complicated crown-root fracture involves enamel, dentin, and cementum with exposure of the pulp.Concussion is an injury to the tooth-supporting structures without abnormal loosening or displacement of the tooth, but with marked reaction to percussion (29)
Soft tissue traumas in dento-alveolar injuries are usually seen as abrasion, contusion, laceration (tear in mucosa), and rarely seen as penetration (produced by sharp object) and avulsion (loss of tissue).

1.2. Statement of the Problem

Dento-alveolar traumas have been examined for many years to gather information about their characteristics, etiology and most commonly affected patients, which is of paramount importance

to contribute in preventing their occurrence. Globally its prevalences vary depending on cultural and social factors. Studies showed that dental trauma accounts for about 5 % of all injuries leading to inpatient or outpatient treatment and that the oral region is the sixth most frequently injured part of the body(9). The most common cause is teeth luxations with a prevalence of 15% to 61%.The incidence of trauma from maxillary anterior teeth ranges from 4% to 91%(10). The incidence of trauma for maxillary anterior teeth and premolars is reported in between 4%-91% and 0.6%, respectively. The incidence reported for luxation injury is 26%, for alveolar fracture 5.5%, for soft tissue injury 47%-58%, and 4%-22% for avulsion in the literature(11).

Most dental injuries involving the anterior teeth result from simple falls, accidents, sports activities, or childish pranks, which were not intended to cause harm. Injuries can cause esthetic, psychological, social, functional, and therapeutic problems, both at the time of the mishap, as well as later during treatment(13). Children with TDIs can experience emotional stress, teasing, and distress, influencing their self-image. Moreover, there is a relationship between dental issues and scholastic accomplishment and learning in children(14, 15).

Most of the time, traumatic dental injuries involve anterior teeth and represent painful events that may result in complications such as crown discoloration, pulp necrosis, apical periodontitis, ankyloses and inflammatory root resorption and tooth loss as a consequence of the above mentioned complications or primary event (16). In addition to functional problems, traumatic dental injuries (TDIs) may cause aesthetic, psychological and social problems by affecting the appearance and speech of patients(17). Several studies showed that factors associated with higher prevalence of dental injuries were inadequate lip coverage, increased overjet, class II type malocclusion, having orthodontic needs, and male gender(19,21, 23, 24). Addressing factors contributing to dento-alveolar injury is essential to ensure safe and reliable service for the victims. Even though studies were conducted on the prevalence and associated factors of dentoalveolar injury in some country, there is no study published in our country Ethiopia. In addition epidemiologically reliable prevalence and associated factors of dento alveolar injury with adequate sample size were not well studied**.** As there was no data on the magnitude of dento alveolar injury and associated factor in the study area this study will fill the gap by identifying the existing magnitude and factor associated with dento alveolar injury. Therefore, the aim of this study will be to determine prevalence of dentoalveolar injuries and associated factors among

patients seen at Oral and Maxillofacial Surgery at Tikur Anbesa specialized hospital, and affiliated hospitals, Addis Ababa, Ethiopia, from April 2023 to June 2023.

1.3 Significance of the Study

The aim of this study was to draw attention to the importance of a meticulous clinical examination to reach the correct diagnosis aimed for appropriate treatment and consequently a good prognosis through a clinical case of dentoalveolar injuries.

2. LITERATURE REVIEW

2.1. Prevalence of dento-alveolar injury

A retrospective cross sectional study conducted in Turkey Ankara on dento-alveolar Injuries showed the most common injuries were uncomplicated crown fracture (23.57%), subluxation (15.85%), avulsion (10.16%), lateral luxation (9.75%), complicated crown fracture and intrusion (8.4% and 8.94%,respectively)(18). In addition cross sectional study from Anatolia region, Turkey, conducted on distribution of some risk factors related to soft tissue injuries in dento-alveolar showed that traumas on soft tissue trauma was noted in 90 (33.6%) children. With regard to the type of soft tissue trauma, 18.9% were contusions, 7.8% were abrasions, 43.3% were lacerations, and 30% were mixed injuries. Soft tissue injuries were frequently (64.4%) accompanied by periodontal injuries(19).

On the other hand study conducted on prevalence of dentoalveolar trauma in patients at Barros Luco Trudeau Hospital among 280 records showed upper central incisors had the highest frequency of involvement (57.67%), followed by upper lateral incisors. The supporting tissues were more affected, being the diagnosis of Subluxation the most prevalent (27.6%), followed by uncomplicated crown fracture (20%) and concussion (9.7%)(20).

A prospective study of dentoalveolar trauma at the Hospital Das Clínicas, São Paulo University Medical School observed that 4.7% of the patients that sought treatment at the service had sustained dentoalveolar. The most affected individuals were children aged 0 to 5 years and fall was the most prevalent etiologic factor. Avulsion and coronal/crown-root fractures were the most common types of dentoalveolar traumatic injures(21).

On the other hand study conducted on etiology of dento-alveolar injuries and factors influencing attendance for emergency care of adolescents in the North West of England revealed that out of 2022 school children examined for evidence of dental trauma, 696 (34%) had experienced injury and were interviewed regarding this injury. Of these, 403 knew about their damaged front tooth,

but only 330 recollected the incident causing the injury. Over one third of accidents occurred at home and a further 25% at school. The most common cause of injury was falling onto a hard surface or object (34%) with accidents involving bicycles or other sporting activities accounting for a further 30 (22).

In addition study conducted on risk factors and patterns of traumatic dental injuries among Indian adolescents showed that the prevalence of traumatic dental injuries to anterior teeth was 10.9%. Maxillary central incisors (83.7%) were frequently involved. The predominant injury type was enamel fracture (68.3%) mainly due to falls (52.5%)(23).

A Retrospective study conducted at Sahloul Sousse hospital on Incidence of Complications of Dental Trauma and Associated Factors showed that the incidence of complications was 8%: external root resorption was present in 70% of cases, surface resorption was observed in 10% of cases, and replacement resorption in 10%, ankylosis in 10%. About pulpal complications, pulp necrosis was found after 4 weeks of follow-up, as well as the internal root resorption after one year. The most common cause of the trauma was the fall (40%). The majority of patients came for emergency consultation within "1 to 3 days," and the crown fracture without pulp exposure was the first diagnosis (20.60%)(24).

Moreover study conducted on prevalence and predisposing factors associated with facial and dentoalveolar trauma among children and adolescents aged between 06 Months and 15 years at Casablanca dental Emergency department showed that prevalence of TDI 18.1% with a sex ratio of 2.5 in favor of boys, a mean age of the participants was 10.1±2.9 years. The 9- to 12-year-old group was the most affected (41.2%). The street was the main place where the trauma occurred (47.3%). Meanwhile, accidental falls were the predominant reported etiology (59.5%). The percentage of patients who consulted on the day of the trauma was 36.6%, and 40.4% of children consulted the dental emergency service as a second line. The prevalence of permanent teeth affected was 75.9%. In the primary dentition, the most frequent type of trauma was avulsion, while in permanent dentition, uncomplicated crown fractures were predominant(25).

On the other hand etiology and type of dento-alveolar injuries in preschool children at Gulhane Medical academy showed that out of 2492 children included in the study, a total of 355 traumatic

primary teeth injuries were observed among 210 children. Boys accounted for a higher percent of these children (54.8%) than girls (45.2%), and children aged 2-3 had more traumatic dental injuries than children in other age group. Of the 210 children with injuries, 107 children had injured 1 primary tooth, 78 children had injured 2 primary teeth, 8 children had injured 3 primary teeth and 17 children had injured 4 primary teeth. The most frequently injured teeth were the maxillary central incisors (74.6%), with the maxillary right central incisor accounting for 43.9 percent of all injured teeth(26).

Furthermore study conducted on prevalence, pattern and factors associated with dentoalveolar injuries of Permanent dentition in trauma victims presenting at Mulago Hospital, Uganda showed a total of 246 patients with dentoalveolar injuries were recruited in the study. Approximately 76.0% were male presenting a male to female ratio of 3.2:1 with a mean age of 27.2 ± 9.6 (range, 5 to 58) years. Dentoalveolar injuries associated with fracture of the mandible were recorded in 27.5% of cases; crown fracture without root fracture in 19.7% and tooth avulsion in 15.6%. The anterior teeth were more frequently involved compared to the posterior; 85.4% versus 14.6%. The maxillary central incisors were the most affected teeth (25.8%). Most participants (78.0%) had accidents and in urban areas. Road traffic accidents were the most common cause of injury (51.2%) followed by assault (34.6%) (27).

2.2. Factor associated with dento-alveolar injury

A retrospective cross sectional study conducted in Turkey Ankara on dento-alveolar injuries showed that the occurrence of uncomplicated crown fractures was significantly higher ($P<0.05$) in the 10–12 years age group than other age groups. Lateral luxation and intrusion were significantly higher in the 1–6 and 7–9 years age groups ($P<0.05$, respectively)(18). Cross sectional study from Anatolia region, Turkey showed there was no statistically significant difference between the patients according to gender, age, and the time elapsed between the injury and treatment(19).

Study conducted on prevalence of dentoalveolar trauma in patients at Barros Luco Trudeau Hospital among 280 records showed second and third decades were the most present, with a male predominance, since the fourth decade there was a greater frequency in the female gender(20). In addition prospective study on dentoalveolar trauma at the Hospital Das Clínicas, São Paulo University Medical School Showed that as the age increases, the most common

etiologic factors are traffic accidents and physical assault(21). Study from India on risk factors for traumatic dental injuries indicated that, with an odds ratio of 7.2 inadequate lip coverage was identified, using binary logistic regression, as the single most independent risk factor for the occurrence of traumatic injury to the maxillary anterior teeth(28).

Age and gender distribution indicated that most injuries occurred in 15-year-old age group (11.3%) In addition study conducted on risk factors and patterns of traumatic dental injuries among Indian adolescents showed that Increased overjet, inadequate lip coverage, type of school, and gender were significant contributing factors for traumatic dental injuries(23).

3. OBJECTIVE

3.1 General Objective

To assess prevalences of dentoalveolar injuries and associated factors among patients seen at oral and maxillofacial surgery at Tikur Anbesa specialized hospital, and affiliated hospitals, Addis Ababa, Ethiopia, from June 1, 2023 to June 30,2023 .

3.2 Specific objectives

1. To determine prevalence of dentoalveolar injuries
2. To identify factors associated with dentoalveolar injuries among patient seen at Oral and Maxillofacial surgery at Tikur Anbesa specialized hospital, and affiliated hospitals, Addis Ababa, Ethiopia, from June1 ,2023 to June 30, 2023.

4. METHODOLOGY

4.1 Study area and period

The study was conducted at Addis Ababa University College of health science, Tikur Anbessa Specialized Hospital and affiliated hospitals. TASH is one of the largest hospitals found in nation's capital city Addis Ababa. It is one of the largest referral centers of the country and the main teaching hospital. The hospital provides a tertiary level referral treatment with over 900 beds and is open 24hrs for emergency services. The study was conducted from April 2023 to June 2023

4.2 Study Design

Prospective cross sectional study design was conducted.

4.3 Source Population

All patients who visited Oral and Maxillofacial surgery unit was considered as source population.

4.4 Study population

All patients who visited Oral and Maxillo facial surgery unit during data collection time was considered as study population.

4.5 Inclusion and Exclusion Criteria

4.5.1 Inclusion Criteria

All patients with traumatic dental injuries who visited Oral and Maxillo facial surgery unit was included.

4.5.2 Exclusion criteria

Patients who were not able to respond to the questions are excluded.

4.6 Sample size determination and sampling technique

All patients with traumatic dental injuries who visited the Oral and Maxillofacial Surgery within study time.

4.7 Sampling technique

Study participant was selected by convenience sampling.

4.8 Data collection instrument and procedure

4.8.1 Data collection tool

Data was collected using structured and pretested questionnaire. Patient information like Socio-demographic characteristics such as age sex, causes of dento-alveolar injuries, type of dento-alveolar injuries was included.

4.8.2 Data collection procedure

The data collector was informed about the objective of study by the principal investigator (PI). The data was collected by dentists at respective hospitals.

4.9 Study variable

4.9.1 Dependent variable

Dento-alveolar injury

Type of Dento-alveolar injury

4.9.2 Independent variable

Socio demographic characteristics

Cause of Dento-alveolar injury

4.10 Data quality control

Two days training was given for both data collectors and supervisor regarding the objective of the study, data collection tool, ways of data collection, checking the completeness of data collection tool and how to maintain confidentiality. Proper coding and categorization of data was maintained for the quality of the data to be analyzed. All data was checked for completeness, accuracy, clarity and consistency by principal investigator and supervisors before data entry in to software. Simple frequencies and cross tabulation was done for missing values and variables.

4.11 Data Processing and Analysis

The collected data was checked for completeness, cleaned, edited, coded and entered into Epi data version 3.1 to minimize logical errors and design skipping patterns. Then, the data was exported to SPSS window version 20 for analysis. Descriptive analysis was done by computing proportions and summary statistics. Binary logistic regression was used to identify factor associated with dent-alveolar injury Then the information was presented by using simple frequencies, summary measures, tables and figures.

4.12 Operational Definitions

Uncomplicated crown fracture -A fracture confined to the enamel or involving the enamel and dentin without exposing the pulp.

Complicated crown fracture-Involves enamel and dentin with exposure of the pulp

Uncomplicated crown-root fracture-Involves enamel, dentin, and cementum without exposure of the pulp

Complicated crownroot fracture-Involves enamel, dentin, and cementum with exposure of the pulp

Concussion -An injury to the tooth-supporting structures without abnormal loosening or displacement of the tooth, but with marked reaction to percussion

Subluxation (loosening)- An injury to the tooth-supporting structures with abnormal loosening, but without displacement of the tooth

Intrusive luxation (central dislocation)- Displacement of the tooth into the alveolar bone with comminution or fracture of the alveolar socket

Extrusive luxation (peripheral dislocation, partial avulsion)-Partial displacement of the tooth out of the alveolar socket

Lateral luxation- Displacement of the tooth in a direction other than axially, accompanied by a comminution or fracture of the alveolar socket

Exarticulation (complete avulsion) -Complete displacement of a tooth out of the alveolar socket (29)

4.13 Limitation of the Study

The limitation of this study was that since previous study has not been found of this nature in this country there is a reference limitation and small sample size used for generalizability.

4.14 Dissemination of Study Findings

. These findings disseminated to AAU school of medicine and AAU University department of Oral and Maxillofacial Surgery in partial fulfillment of the requirement for the award of Oral and Maxillofacial Surgeon in Addis Ababa University, to Ethiopian Oral and Maxillofacial Surgery Society, to Ethiopian Dental Professionals Associations. Copies of the findings will be submitted to articles of peer review journals.

4.15 Ethical Consideration

Written ethical clearance letters was obtained from the departments' research and ethics committee. Any piece of information was kept confidential by keeping anonymity of the study subjects. A formal letter of permission and support was written from the college to Oral and Maxillofacial

surgery department. Then informed, voluntary, written and signed consent obtained from the study participants before the actual data collection.

5 RESULTS

Socio-demographic characteristics of study participants

In this study a total of 308 patients who visited TASH, Minilik and Saint Peter Hospital, Oral and Maxillofacial unit were participated making the response rate of 91.4% of which 61 (19.8%) are patients with dentoalveolar injuries.About 46(75.4%) of the patients with dento-alveolar injuries were male presenting a male to female ratio of 3:1 (Table 1). Most affected age groups were less than 30 years, with an overall mean age of 22.32 ±13.71 years (Table 1). From the total study participants about 195 (63.3%) of the participants were from urban areas and 40(14%) were drivers including motor cycle riders (Table1).

Table 1: Socio-demographic characteristics of study participants who visited Oral and Maxillofacial Surgery at TASH, Saint Peter and Minilik Hospital,June 2023

S. No	variables	Category	Frequency	Percentage
1	**Sex**	Male	167	54.2
		Female	141	45.8
2	**Age**	Less/= 30	221	71.8
		Greater/=31	87	28.2
3	**Residence**	Urban	295	95.7
		Rural	13	4.3
4	**Occupation**	Divers including motor cycles	43	14
		Student	67	21.7
		GOV'T Employee	46	14.9
		Housewife	62	20.1
		Merchant	55	17.8
		others	35	11.3

Etiology and prevalence of dento-alveolar injuries

Among the total study participants included in this study 61(19.8%) have Dento-alveolara injuries. The mean time elapsed between the accidents and seeking dental treatment was 24.79 hours ranging from 1 hour to 96 hours. The most common etiology identified was fall (24%) followed by hit which is 62(20.1%) (See Figure 1).

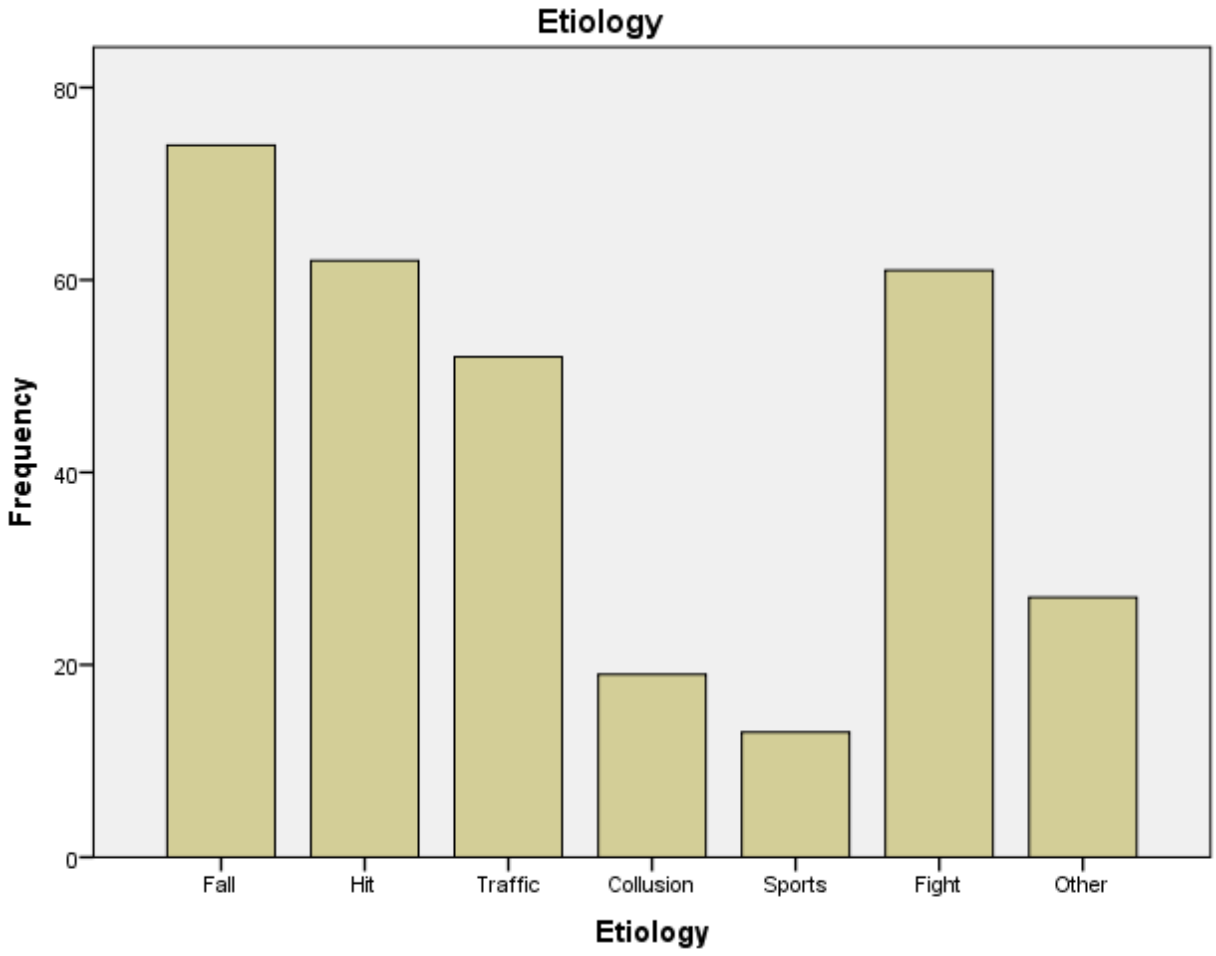

Figure 1: Etiology of Dento-alveolar injuries among patients who visited TASH, Saint Peter and Minilik Hospitals Oral and Maxillofacial Surgery,June, 2023.

Table 2:Pattern and site of dentoalveolar injury

S.No	Pattern	Frequency	Percentage
1	Socket fracture	10	3.2
2	Dentoalveolar injury with maxillary fracture	7	2.3
3	Dentoalveolar injury with mandibular fracture	8	2.6
4	Subluxation	13	4.2
5	Lateral luxation	2	.6
6	Intrusion	4	1.3
7	Extrusion	2	.6
8	Avulsion	8	2.6
9	Crown without root fracture	10	3.2
10	Crown with root fracture	1	0.3
Site of soft tissue injury			
1	Upperlip	23	7.5
2	Lowerlip	15	4.9
3	Uppergingiva	11	3.6
4	Cheek	6	1.9
5	Tongue	1	0.3
6	Perioral	9	2.9

Dentoalveolar injury according to wound type and any permanent teeth with trauma

In this study as far as dentoalveolar injury was concerned hard dental tissue and pulp accounts for 22(7.1%) and hard dental tissue accounts for 21(6.8%) followed by supporting tissue .On the other hand this study showed permanent teeth with trauma are maxillary central incisors 25(8.1%) and Maxillary lateral incisors 12(3.9%) (Table 3).

Table 3: **Dentoalveolar injury according to wound type and any permanent teeth with trauma among patient attending Oral and Maxillofacial Surgery Unit at TASH, Saint Peter and Minilik Hospital,June,** 2023.

	Category	Frequency	Percentage
1	Hard dental tissue and pulp	22	7.1
2	Hard dental tissue	21	6.8
3	Supporting tissue	11	3.6
4	Multiple	11	3.6
Permanent teeth with trauma			
1	Maxillary central incisors	25	8.1
2	Maxillary lateral incisors	12	3.9
3	Maxillary canines	5	1.6
4	Maxillary premolars	1	0.3
5	Maxillary molars	2	0.6
6	Mandibular central incisors	7	2.3
7	Mandibular lateral incisors	4	1.3
8	Mandibular canines	5	1.6
9	Mandibular premolars	1	0.3
10	Mandibular molars	3	1.0

Factors associated with dentoalveloar injury

In this study we have tried to check the association between dentoaleveolar injury and some variables by using binary logistic regression. Thus far we have included three variables like sex, age and residence as follows.

S. No	Variables	Category	Dento alveolar injury		COR 95% CI
			Yes	No	
1	Sex	Male	46	121	3.19(1.69, 6.01)
		Female	15	126	1
2	Age	Less /= 30 years	52	143	1.89(1.05, 3.41)
		>/= 31 years	9	104	
3	Residence	Urban	37	184	1
		Rural	24	63	4.20(1.98, 8.90)

6 DISCUSSION

The prevalence of dental trauma observed in this study was (19.8%) 95% CI (15.3, 24.4). The finding from this study is in line with the study conducted in Morocco which showed a prevalence of 18.1% and Uganda which showed prevalence of 16.1%(23, 25).The finding from this study is higher than the finding from a prospective study of dentoalveolar trauma at the Hospital Das Clínicas, São Paulo University Medical School which is 4.7% and Germany which is 8%(27). In addition the finding from this study was higher than the finding from the study conducted in France 8.4 % and Greece 11%(28, 29). On the other hand the prevalence of dentoalveolar injury reported in this study is lower than the study finding reported United Kingdom which showed the prevalence of 34 %(20). This variation could be explained by the different sample size, study population and study design used among the studies. In addition the health coverage variation between the countries also contributes for the discrepancy among the studies.

In this study the most common injury pattern discovered was subluxation 11(3.9%) followed by Socket fracture (10%). This finding was consistent with the study on retrospective investigation on all dental trauma patients presenting at the dental emergency service of the University Medical Center Mainz, Germany and Australia(30, 31). These studies have shown a similar trend in the distribution of TDIs, with a higher number of soft-tissue injuries in the deciduous dentition and an increase in hard tissue injuries in the permanent dentition.

On the other hand this study showed that the younger population are highly affected by dentoalveolar injury than their counter parts. The finding from this study is supported from by the evidence from the study conducted in Morocco, Uganda and Pakistan(23, 25, 32). This is probably younger age group are commonly sustained injuries due to falls and sports activities. Moreover in this study men's are were more likely to visit the dental emergency service due to TDIs than women. This is probably due to men's more violent behavior and participation in more aggressive types of sports.

More over this study showed that falling and road traffic accidents are the most common cause of dentoalveolar injuries. Similar evidence was reported from study conducted in Uganda and England that the most common cause of injury was falling onto a hard surface or object with accidents involving bicycles or other sporting activities accounting for a further(20, 25).

This finding may partly be attributed to the high prevalence of business involving transport on roads with congested traffic in urban areas.

7 CONCLUSIONS AND RECOMMENDATION

Falling down is the main reason of dentoalvelar injury as of this study, which is associated with both indoor and outdoor activities like poor lighting, slippery floors, clutter and sporting activities.

Therefore, there is need to create awareness on causes and prevention of falling down accidents by taking extra caution when walking on wet or icy surfaces and wearing helmets in sporting activities.

8 REFERENCES

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9 ANNEX

QUESTIONNARIES

S.No	Variables	Category
1	sex	1. Male 2. Female
2	Age	_____years
3	Residence(site of accident)	1. Urban 2. Rural
4	Occupation	1. Motorcycle rider 2. Drivers 3. Students 4. Teacher 5. House wife 6. Other specify
5	Etiology	1. Fall 2. Hit 3. Traffic accident 4. Collusion 5. Sports accident 6. Fight 7. Occupational accidents 8. Other, specify
6	Time elapsed between the accident and seeking dental treatment	____hr
7	Is there any dentoalveolar injury	1. Yes 2. No
	If yes answer the following question	
8	Identify pattern of dentoalveolar injury	1. Fracture of socket/alveolas 2. Dentoa alveolar injury with fracture of maxilla

		3. Dentoa alveolar injury with fracture of mandible 4. Subluxation 5. /lateral luxation 6. Intrusion/ 7. extrusion 8. Avulsion 9. Crown fracture without root fracture 10. Crown fracture with root fracture
9	Is there soft tissue injury	1. Yes 2. No
10	If yes which one	1. Upper lip 2. Lower lip 3. Upper gingiva 4. Cheek 5. Tongue 6. Perioral tisse
11	If there is dento alveolar injury identify any permanent teeth with traumatic sign	1. Maxillary central incisors 2. Maxillary lateral incisors 3. Maxillary canines 4. Maxillary premoral 5. Maxillary moral incisors

		6. Mandibular central incisors 7. Mandibular lateral incisors 8. Mandibular canine 9. Mandibular premoral 10. Mandibular moral
12	Identify dento-alveolar fracture according to wound type	1. Hard dental tissue &pulp 2. Hard dental tissue 3. Supporting tissue 4. Multiple

ተ.ቁ		
1	ፆታ	3. ወንድ 4. ሴት
2	እድሜ	_____ ዓመት
3	አድራሻ፡-(የአደጋው ቦታ	
4	ሥራ	7. ሞተር ሳይክል አሽከርካሪ 8. ሹፌር 9. ተማሪ 10. አስተማሪ 11. የቤት እመቤት 12. ሌላ
5	የአደጋው መንስኤ	9. መውደቅ 10. መገጨት 11. የትራፊክ አደጋ

		12. **የስፖርት አደጋ** 13. **ድብድብ** 14. **የስራ ቦታ አደጋ** 15. **ሌላ**
6	**የአደጋውና የጥርስ ህክምና መካከል ያለው ሰዓት**	____**ሰዓት**
7	**ያጋጠመና የጥርስና አቃፊ አካል ጉዳት አለ?**	3. **አለ** 4. **የለም**
8	**የጥርስ እና አቃፊው አደጋ አይነት ይግለፁ**	11. **የጥርስ አቃፊ አጥንት ስብራት** 12. **የጥርስና የላይኛው መንጋጋ አጥንት ስብራት** 13. **የጥርስና የታችኛው መንጋጋ አጥንት ስብራት** 14. *መጠነኛ መንቀሳቀስ* 15. *ወደጎን መንቀሳቀስ* 16. *ወደ ውስጥ መግባት* 17. *ወደ ውጭ መውጣት* 18. *መውለቅ* 19. የውጨኛው የጥርስ ክፍል ሳይሰበር የስር ስብራት 20. የውጨኛው የጥርስ ክፍል እና የስር ስብራት
9	**አካባቢው ያለ ስጋ ላይ የደረሰ አደጋ አለ?**	3. **አለ** 4. **የለም**
10	**አዎ ከሆነ የቱጋ ነው**	7. **የላይኛው ከንፈር** 8. **የታችናው ከንፈር** 9. **የላይኛው ድድ** 10. **ጉንጭ** 11. **ምላስ**

		12. **የአፍ አከባቢ ስጋ**
11	**የጥርስ እና አቃፊው ጉዳት ከደረሰ የትኛው ጥርስ እንደሆነ ይግለፁ**	11. **የላይኛው መካከለኛው የፊትለፊት ጥርስ** 12. **የላይኛው የጎን የፊትለፊት ጥርስ** 13. **የላይኛው የውሻ ክራንቻ ጥርስ** 14. **የላይኛው ቅድመ መንጋጋ ጥርስ** 15. **የላይኛው መንጋጋ ጥርስ** 16. **የታችኛው የመካከልየፊትለፊት ጥርስ** 17. **የታችኛው የጎን የፊትለፊት ጥርስ** 18. **የታችኛወ የውሻ ክራንቻ ጥርስ** 19. **የታችኛው ቅድመ መንጋጋ ጥርስ** 20. **የታችኛው መንጋጋ ጥርስ**
12	**የደረሰውን አደጋ እንደ ቁስሉ ሁኔታ**	5. የላይኛው የጥርስ ክፍል እና የነርቭ አደጋ 6. የላይኛው የጥርስ ክፍል ብቻ አደጋ 7. የጥርስ አቃፊ አደጋ 8. ብዙ አይነት
13	**የተደረገሎት ህክምና**	1. **ጊዜያዊ ሙሌት** 2. **ስፌት** 3. **ማጣበቅ** 4. **መንቀል** 5. **መድሀኒት** 6. **መስታገሻ**