Prevalence of Traumatic Dental Injuries among School Children age 9-12 years in Khartoum State

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Outline

- Definition of T.D.I
- Classification
- T.D.I Globally
- T.D.I in Sudan
Traumatic Dental Injuries (TDI)

• Definition:

Trauma means a wound or injury, it could be physical or psychic.

Physical trauma applies when a wound or injury is inflicted on the body by an external force and that may lead to dystrophic changes and/or inflammatory response of the affected part.

Traumatic dental injuries:

• Pain

• Esthetic

• Psychological impact

• Morbidity

• Mortality
Classification of TDI

- 1942 Sweet → solely on radiographic examinations
- 1945 Ellis → started by 4 categories then modified by the same author in (1948) to 8 classes
- 1978 → W.H.O. developed a classification for dental injuries which was modified by Andreasen and Andreasen in (1990). Variations in luxation and intrusion injuries
- 1981 → Garcia Godoy classification that consists of ten categories, then modified by the same author in 1983.

TDI Globally

• Epidemiological studies indicate the annual incidence of dental trauma globally is at about 4.5%. Approximately one-third of children and toddlers (primary teeth) and one-fifth of adolescents and adults (permanent teeth) sustained a traumatic dental injury. (1)

• The incidence of traumatic dental injuries is 1%–3%, and the prevalence is steady at 20%–30%. (2)

• Etiologic factors vary between countries and with age groups. (2)


Baghdady et al conducted a comparative study 1981:

- A prevalence of 19.5% for TDI in boys at the age of 12 years in Iraq
  Compared to 16.5% in boys in the same age group in Sudan
- A prevalence of 16.1% for TDI among girls of the same age group in Iraq.
  Compared to 3.6% in girls in the same age group in Sudan
- A recent study on TDI in Wad Madani revealed prevalence of 9.2%

(2) Sahar M Elyas. Prevalence of traumatic Dental Injuries and associated risk factors among Sudanese school children. Pediatric Dentistry, MSc, Sudan, University of Khartoum. 2015
justification

• Prevalence of traumatic injuries among school children in Khartoum has not been investigated since 1981, a period during which social, cultural and economical changes had occurred and indeed its reflection on prevalence of trauma is expected.
Prevalence of T. D. I.

Main objective

To estimate the prevalence of traumatized anterior teeth in school children age 9-12 years in Khartoum state.
Prevalence of T. D. I.

Methodology

• Study Area:
  Khartoum State: seven localities, three major localities, greater Khartoum, greater Omdurman and greater Khartoum north were selected as study areas.

• Sample size: 1920 school children age 9-12 years

• Design: Multistage stratified sampling technique

• Both private and public schools (sampling units).

• Cases were Randomly selected (inquiry unit).
Sample distribution chart - Khartoum State (1920) - 24 schools

Greater Khartoum (640 student) 8 Schools

Greater Omdurman (640 student) 8 Schools

Khartoum North (640 student) 8 Schools

4 boys schools (320 students)
- 2 private schools (160 students)
  - Age 9-40 student
  - Age 10-40 student
  - Age 11-40 student
  - Age 12-40 student
- 2 public schools (160 students)
  - Age 9-40 student
  - Age 10-40 student
  - Age 11-40 student
  - Age 12-40 student

4 girls schools (320 students)
- 2 private schools (160 students)
- 2 public schools (160 Students)
Prevalence of T. D. I.

The prevalence was studied according to:

• **Age**

• **Gender**

• **Socioeconomic status of the Parents.**
Prevalence of T. D. I.

- The correlation between:
  - The occlusion status;
  - The overjet;
  - The overbite;
  - The upper lip position and prevalence of trauma was investigated.
Prevalence of T. D. I.
Results

542 students had 633 fractured teeth.
Boys showed a slight increase in prevalence of fractured anterior teeth than girls (52%, 48% respectively) but this was not significant among all age groups (p = 0.99).
School children from private schools showed a slight increase in prevalence of traumatic injuries.
Prevalence of T. D. I.

Findings:-

The Prevalence was found to:

• Increase with the increase in the father's educational level (P=0.01).

• Not affected by the mother’s educational level p (0.7)

• Decreased in children of working mothers (30%)

• Increased in children of non-working mothers (69%).
Prevalence of T. D. I.

Most of the trauma happened at home (55.7%) and school playground (15.6%).

Figure (B): Distribution of Trauma According to Place of Occurrence by Gender

- Home
- School playground
- Sport area
- Other places
- Don't remember
The most common etiological factor was falls followed by collision.
The most common affected teeth were the maxillary central incisors (86.7%).
The most common type of trauma was enamel fracture (89.7%). Enamel and dentin fracture (6.5%)
Class Π division I showed statistically significant relationship with trauma to the anterior teeth.
### Distribution of Traumatized Children in Relation to Overjet

<table>
<thead>
<tr>
<th></th>
<th>&lt; 0</th>
<th>%</th>
<th>Overjet 0-4.9</th>
<th>No</th>
<th>%</th>
<th>5-8.9mm</th>
<th>No</th>
<th>%</th>
<th>&gt; 9</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Without Trauma</strong></td>
<td>1</td>
<td>100</td>
<td>1164</td>
<td>184</td>
<td>58.1</td>
<td></td>
<td>5</td>
<td>33.3</td>
<td></td>
<td>24</td>
<td>1378</td>
</tr>
<tr>
<td><strong>With Trauma</strong></td>
<td>0</td>
<td>0</td>
<td>339</td>
<td>133</td>
<td>41.9</td>
<td></td>
<td>10</td>
<td>66.7</td>
<td></td>
<td>60</td>
<td>542</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1</td>
<td>0</td>
<td>1503</td>
<td>317</td>
<td>0</td>
<td></td>
<td>15</td>
<td>0</td>
<td>84</td>
<td>1920</td>
<td></td>
</tr>
</tbody>
</table>
Upper lip position showed a statically highly significant relation to trauma to the anterior teeth.

Prevalence of T. D. I.

<table>
<thead>
<tr>
<th>Lip Position</th>
<th>With Trauma (%)</th>
<th>Without Trauma (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>33.3</td>
<td>66.7</td>
</tr>
<tr>
<td>1</td>
<td>62.6</td>
<td>37.4</td>
</tr>
<tr>
<td>2</td>
<td>71.2</td>
<td>28.8</td>
</tr>
<tr>
<td>3</td>
<td>76.5</td>
<td>23.5</td>
</tr>
</tbody>
</table>

$\text{P} = 0.000$
Prevalence of Traumatic Dental Injuries

Following trauma 32 cases only out of 542 traumatized cases consulted the dentist.

Figure (10): Consultation of dentist following trauma
Prevalence of Traumatic Dental Injuries

Figure (11): Distribution of Trauma Type in Children who did not Consult the Dentist

- Enamel fracture: 90.6%
- Pulp exposure: 1.4%
- Avulsion: 0.4%
- Enamel and Dentine: 7.6%
The prevalence of traumatic dental injuries

In conclusion:

The prevalence of traumatic dental injuries among school children in Khartoum State is 28%
Recommendation

Although it is difficult to prevent trauma occurrence:
- Health educational programs to the parents, school children, and school staff.
- Training doctors on dealing with emergency cases might help reducing the number of missing teeth due to trauma.
Acknowledgement

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Thank you