

Research Article



INTERNATIONAL RESEARCH JOURNAL OF PHARMACY

www.irjponline.com

ISSN 2230-8407 [LINKING]

OBSERVATIONAL STUDY ABOUT WOUNDS OF ABUSE AND NEGLECT IN CHILDREN

Dr. Tapan Kanti Roy

Associate Professor, Department of Forensic Medicine & Toxicology, Jagannath Gupta Institute of Medical Sciences & Hospital, Kolkata, West Bengal

Email id: dr.tapankantiroy27@gmail.com

How to cite: Roy TK. Observational study about wounds of abuse and neglect in children. International Research Journal of Pharmacy. 2021; 12:4:50-54.

DOI: 10.7897/2230-8407.1204134

ABSTRACT

Background: Because of its function in communication and nourishment, the mouth cavity is considered a crucial and focus area in situations of abuse or physical assault. When it comes to the dental and oral components of child abuse and neglect, dentists who have received the proper training in child abuse curriculum may support and aid doctors.

Aim: The purpose of this study was to evaluate the orofacial characteristics of children aged 5 to 16 who had been abused or neglected.

Methods: Five hundred children between the ages of five and sixteen were evaluated for this study. Every participant was suspected of having been the victim of child abuse or neglect. A dentist with extensive curricular training evaluated orofacial characteristics extensively in each subject.

Results: Thirty percent (n=144) of the 500 participants in the research had lacerations in different locations, such as the floor of the mouth in 3.6% (n=18), palate in 6.4% (n=32), buccal mucosa in 10.4% (n=52), frenum in 3.2% (n=16), and lip in 5.2% (n=26). Avulsion characteristics were seen in 11.6% (n=58) of the participants. 100% (n=500), 7.6% (n=38), 41.6% (n=208), and 7.2% (n=36) of the individuals had deposits, missing teeth, dental caries, and dentoalveolar fractures, respectively.

Conclusion: a thorough perioral and intraoral evaluation is essential for subjects who have experienced child abuse or neglect because the oral cavity is a critical site for evaluating physical abuse, which can be linked to its critical function in communication and nutrition. Dentists and physicians should work in collaboration for better detection, prevention, and treatment of such conditions.

Keywords: Avulsion, child abuse, fracture, neglect, sexual abuse.

INTRODUCTION

Dental caries, malocclusion, and child abuse are considered as most prevalent concerns affecting children Worldwide including in India. Child abuse is a condition that signifies any act of commission that impairs or imperils the development, emotional health, sexual health, or physical health of a child. Violence is considered an omission or act by society, guardians, relatives, or parents that leads to emotional, sexual, or physical damage to the victims.¹

According to the World Health Organization (WHO), maltreatment of a child includes any kind of physical or mental abuse, exploitation, neglect, or sexual abuse that might endanger the child's growth, dignity, or health. There are four categories of child abuse: neglect, physical abuse, psychological abuse, and sexual abuse. One of the most important risk factors for children's delayed development, morbidity, and concurrent psychopathology is child abuse.²

With the greatest number of children exposed to physical or sexual abuse, India is the country with the greatest number of working children worldwide. According to reports, between 2% and 10% of child subjects who have experienced abuse are hospitalized. However, because it affects both victims and offenders, the prevalence of child abuse or neglect may differ. A child who dies suddenly with a history of trauma and varying degrees of injury is said to have battered child syndrome, a clinical condition that frequently results in death or permanent disability. It is characterized by soft-tissue swellings, bruises on the skin, failure to thrive, subdural hematomas, or fractures of any bone. Dr. Henry Kempe coined the term "battered child syndrome" in 1962.³

Earlier studies have shown that orofacial abuse signs, including burns, avulsions, jaw fractures, tattoo injuries, and bruises or abrasions on the frenum, alveolar mucosa, lips, tongue, gingiva, hard palate, and soft palate, are present in nearly half of children who are physically abused. Neglected children may also exhibit indicators of poor oral hygiene, including halitosis, calculus and plaque deposits, odontogenic infections, untreated dental caries with progression, and aphthous ulcers brought on by dietary deficiencies. The natural development, growth, communication, and learning of these topics may be negatively impacted by these harmful impacts.⁴

Because of its function in communication and nourishment, the mouth cavity is considered a crucial and focus area in situations of abuse or physical assault. Lips may exhibit ecchymosis, hematoma, lacerations, or burns from hot food and cigarettes. Teeth may exhibit pulpal necrosis, fractures, avulsions, dislocations, or movement. Burning utensils or hot food can cause secondary lacerations or abrasions in the floor of the mouth, palate, tongue, gingiva, or frenum. Fractures of the orbit, zygomatico-maxillary complex, nasal bone, mandibular symphysis, ascending ramus of the mandible, and condyle are examples of jaw fractures. Dentists who have received the proper training in child abuse can aid doctors in obtaining important information and support on the oral and dental elements of child abuse and neglect.⁵ Therefore, the current study sought to evaluate orofacial fractures in children aged 5 to 16 who had experienced abuse and neglect.

MATERIALS AND METHODS

The research participants were from the Institute's pediatric dentistry department. Prior to the study subjects' involvement, their parents or guardians gave their verbal and written informed consent.

Five hundred children from the Institute's outpatient pediatric department participated in the study. Participants in the research ranged in age from 5 to 16 years old and were of both sexes. Every topic that was included had a history of alleged child abuse and neglect. The study's exclusion criteria included patients who were not mentally sound, had a history of lip bites or self-inflicting injuries, or whose parents refused to provide them assent.

Following final inclusion, a thorough orofacial clinical evaluation and a full history were taken for each participant. A skilled and knowledgeable dentist with extensive training evaluated each participant. Orofacial characteristics were meticulously evaluated and recorded for each individual. Calculus and plaque deposits, missing teeth, dental caries and decaying teeth, dento-alveolar fractures, avulsion, and/or lacerations were among the orofacial characteristics evaluated in the research participants.

The chi-square test and SPSS software version 21.0 (IBM Corp., Armonk, NY, USA) were used to statistically evaluate the collected data. The data were presented as frequency, percentage, mean, and standard deviation. A p-value of less than 0.05 was considered statistically significant.

RESULTS

The goal of the current clinical investigation was to evaluate orofacial fractures in children aged 5 to 16 who had experienced abuse and neglect. 500 participants, both male and female, between the ages of 5 and 16, were enrolled in the study. The study included 47.6% (n=238) female participants and 52.4% (n=262) male individuals. Thirty percent of the research participants (n=144) had lacerations in different locations, such as the floor of the mouth in 3.6% (n=18), palate in 6.4% (n=32), buccal mucosa in 10.4% (n=52), frenum in 3.2% (n=16), and lip in 5.2% (n=26). Avulsion characteristics were seen in 11.6% (n=58) of the participants. In participants aged 5–10 years, the mean and median laceration scores were 2.24 ± 0.88 and 16, respectively, while in patients aged 11–16 years, the mean and median were 2.3 ± 0.778 and 16.3 respectively.

The study's findings revealed that 11.6% (n=58) of the participants had avulsion-like symptoms. Among study participants aged 5–10 years, the mean and median avulsion scores were 1.004 ± 0.72 and 16, respectively. According to Tables 1 and 2, the study's kid participants' mean and median avulsion rates were 0.98 ± 0.636 and 16.6, respectively. Dento-alveolar fractures were observed in 7.2% (n=36) of research participants who were 5–16 years old. Among research participants aged 5–10

years, the mean and median for dentoalveolar fractures were 0.870 ± 0.57 and 16.6, respectively. The study's kid participants had a mean of 0.334 ± 0.372 and a median of 16.4 dentoalveolar fractures.

The intraoral examination revealed dental caries in 41.6% (n=208) of research participants. Among study participants aged 5–10 years, the mean and median dental caries scores were 3.22 ± 1.33 and 16.2, respectively. According to Tables 1 and 2, the mean and median levels of dental caries among the study's kid participants were 3.78 ± 1.66 and 16.13, respectively.

Regarding the evaluation of missing teeth, the study's findings revealed that 7.6% (n=38) of the participants had missing teeth. Among research participants aged 5–10 years, the mean and median for missing teeth were 0.544 ± 1.03 and 14.4, respectively. According to Tables 1 and 2, the study's kid participants' mean and median number of missing teeth were 0.86 ± 0.132 and 14.4, respectively.

In both age categories, all participants (100%) had calculus and plaque deposits. In research participants aged 5–10 years, the mean and standard deviation for calculus and plaque deposits were 16 and 7.925 ± 0.7809 , respectively. The mean and median levels of calculus and plaque deposits in the study's kid participants were 14.8 and 8.04 ± 0.294 , respectively. Five hundred participants of both sexes, ages five to sixteen, were engaged in the discussion study. The study included 47.6% (n=238) female participants and 52.4% (n=262) male individuals. 30% of the research participants (n=144) had lacerations in different locations, such as the floor of the mouth in 3.6% (n=18), palate in 6.4% (n=32), buccal mucosa in 10.4% (n=52), frenum in 3.2% (n=16), and lip in 5.2% (n=26).

Avulsion characteristics were seen in 11.6% (n=58) of the participants. The mean and median laceration scores for individuals aged 5–10 years were 2.24 ± 0.88 and 16, respectively, while the mean and median scores for patients aged 11–16 years were 2.3 ± 0.778 and 16.3 years, respectively. These findings were comparable to those of studies conducted by Harris JC et al. in 2009 and Ramazani N7 in 2014, in which the authors observed a comparable incidence of different types of oral injuries.

Avulsion characteristics were seen in 11.6% (n=58) of the research participants. Among study participants aged 5–10 years, the mean and median avulsion scores were 1.004 ± 0.72 and 16, respectively. The study's kid participants had an avulsion mean of 0.98 ± 0.636 and a median of 16.6.

The present research's findings were in line with those of Montecchi PP et al. (2009) and Melo M et al. (2019), who observed similar outcomes for avulsion as opposed to oral damage in their study participants. According to the study's findings, 7.2% (n=36) of the children aged 5 to 16 had a dento-alveolar fracture. Among research participants aged 5–10 years, the mean and median for dentoalveolar fractures were 0.870 ± 0.57 and 16.6, respectively. The study's kid participants had a mean of 0.334 ± 0.372 and a median of 16.4 dentoalveolar fractures. These results were consistent with those of Dua R et al. (2012) and Andersson L et al. (2010) where In their individual research, the authors reported the frequency of dentoalveolar fractures in an oral injury comparable to the one under investigation.

Out of 500 patients, dental caries was found in 41.6% (n=208) of research participants based on intraoral evaluation. Among study participants aged 5–10 years, the mean and median dental caries scores were 3.22 ± 1.33 and 16.2, respectively. The study's kid participants had a mean of 3.78 ± 1.66 and a median of 16.13 dental caries. These findings were consistent with those of Naidoo S12 in 2000 and Nagrajan SK13 in 2018, where the prevalence of dental caries in children ages 5 to 18 was similar to that of the current research participants. Regarding the evaluation of missing teeth, the study's findings revealed that 7.6% (n=38) of the participants had missing teeth.

Among research participants aged 5–10 years, the mean and median for missing teeth were 0.544 ± 1.03 and 14.4, respectively. The study's kid participants had a mean of 0.86 ± 0.132 and a median of 14.4 missing teeth. These results were in line with those of Vitiello K14 (2012) and Costacurta M et al. (2015), who found that the missing teeth of the age group they studied were similar to the results of previous studies.

Regarding the research participants' calculus and plaque deposits, all subjects in both age groups had them. Among research participants aged 5–10 years, the mean and standard deviation for calculus and plaque deposits were 16 and 7.925 ± 0.7809 , respectively.

The mean and median levels of calculus and plaque deposits in the kid participants were similar to those found in the research by Duda JG et al.16 and Gonzalez D et al.17, which revealed that all child subjects between the ages of 5 and 16 had these deposits.

CONCLUSIONS

Within its bounds, a thorough perioral and intraoral evaluation is essential for victims of child abuse or neglect because the oral cavity is a critical site for evaluating physical abuse that can be linked to its critical function in communication and nourishment. For improved identification, prevention, and treatment of such disorders, dentists and doctors should collaborate. To draw a firm conclusion, more research in a multi-institutional setting is necessary.

REFERENCES

1. Crouse CD, Faust RA. Child abuse and the otolaryngologist: part II. *Otolaryngol Head Neck Surg* 2003;128:311-7.
2. Cairns AM, Mok JY, Welbury RR. Injuries to the head, face, mouth, and neck in physically abused children in a community setting. *Int J Paediatr Dent* 2005;15:310-8.
3. Sheets LK, Leach ME, Koszewski IJ, Lessmeier AM, Nugent M, Simpson P. Sentinel injuries in infants evaluated for child physical abuse. *Pediatrics* 2013;131:701-7.
4. . Cavalcanti, AL. Prevalence and characteristics of injuries to the head and orofacial region in physically abused children and adolescents - a retrospective study in a city of the Northeast of Brazil. *Dent Traumatol* 2010;26:149-53.
5. . Thompson LA, Tavares M, Ferguson-Young D, Ogle O, Halpern LR. Violence and abuse: core competencies for identification and access to care. *Dent Clin North Am* 2013;57:281-99.
6. Harris JC, Elcock C, Sidebotham PD, Welbury RR. Safeguarding children in dentistry: 2.Do paediatric dentists neglect child dental neglect? *Br Dent J.* 2009;206:465–70.
7. Ramazani N. Child dental neglect: A short review. *Int J High-Risk Behav Addict.* 2014;3:e21861.
8. Montecchi PP, Di Trani M, Sarzi Amadè D, Bufacchi C, Montecchi F, Polimeni A. The dentist's role in recognizing childhood abuses: Study on the dental health of children victims of abuse and witnesses to violence. *Eur J Paediatr Dent.* 2009;10:185–7.
9. Melo M, Ata-Ali F, Cobo T, Diago J, Chofré-Lorente MT, Bagán L, Sanchez-Recio C, et al. Role of a dentist in the diagnosis of child abuse and neglect: A literature and narrative review. *Open Dent J.* 2019;13:301–7.
10. Andersson L, Andreasen JO, Day P, Heithersay G, Trope M, Diangelis AJ, et al. International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: 2. Avulsion of permanent teeth. *Dent Traumatol.* 2012;28:88–96.
11. Dua R, Sharma S. Prevalence, causes, and correlates of traumatic dental injuries among seven-to-twelve-year-old school children in Dera Bassi. *Contemp Clin Dent.* 2012;3:38–41.
12. Naidoo S. A profile of the oro-facial injuries in child physical abuse at a children's hospital. *Child Abuse Negl.* 2000;24:521–34.
13. Nagarajan SK. Craniofacial and oral manifestation of child abuse: A dental surgeon's guide. *J Forensic Dent Sci.* 2018;10:5–7.
14. Vitiello K. Detecting abuse and neglect in infants. *J Mass Dent Soc.* 2012;61:44–5.
15. Costacurta M, Benavoli D, Arcudi G, Docimo R. Oral and dental signs of child abuse and neglect. *Oral Implantol (Rome)* 2015;8:68–73.
16. Duda JG, Biss SP, Bertoli FM, Bruzamolín CD, Pizzatto E, Souza JF, et al. Oral health status in victims of child abuse: A case-control study. *Int J Paediatr Dent.* 2017;27:210–6.
17. Gonzalez D, Bethencourt Mirabal A, McCall JD. *StatPearls*. Treasure Island (FL): StatPearls Publishing; 2020.

S. No	Parameter	Deposits	Missing teeth	Decayed teeth	Dento-alveolar fractures	Avulsion	Laceration
1.	Mean ± S. D	7.925±0.7809	0.544±1.03	3.22±1.33	0.870±0.57	1.004±0.72	2.24±0.88
2.	Median	16	14.4	16.2	16.6	16	16
3.	Variance	0.6104	1.1076	1.18235	0.3586	0.5582	0.8271
4.	t-value	-0.3447	0.4123	1.1643	0.5084	-0.332	0.0741

5.	p-value	0.64
-----------	----------------	------

Table 1: Pathological conditions in study participants aged 5-10 years

S. No	Parameter	Deposits	Missing teeth	Decayed teeth	Dento-alveolar fractures	Avulsion	Laceration
1.	Mean $\pm$ S. D	8.04 $\pm$ 0.294	0.86 $\pm$ 0.132	3.78 $\pm$ 1.66	0.334 $\pm$ 0.372	0.98 $\pm$ 0.636	2.3 $\pm$ 0.778
2.	Median	14.8	14.4	16.13	16.4	16.6	16.3
3.	Variance	1.6643	0.1289	0.4723	0.1397	0.4073	0.6097
4.	t-value	-1.5935	-0.3855	0.3245	-1.1950	-0.8373	-0.1843
5.	p-value	0.54					

Table 2: Pathological conditions in study participants aged 11-16 years