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Chapter

Dental and Orofacial Trauma Impacts on Oral-Health-Related—Quality of Life in Children: Low- and Middle-Income Countries

Yolanda Malele-Kolisa, Nazia Khan, Mpho P. Molete, Maphefo D. Thekiso and Mzubanzi Mabongo

Abstract

Orofacial trauma including traumatic dental injuries is a public health problem and has the potential to adversely affect the quality of life in children. These injuries include hard and soft tissue. Quality of life is impacted when the health and oral health of the children and their parents and family are affected. Oral health includes the ability to speak, smile, smell, taste, chew, swallow, and convey emotions through facial expressions with confidence. Poor oral health conditions include dental injuries from trauma, result in pain, soreness, discomfort, and embarrassment during routine daily activities. Traumatic dental injuries contribute to the aesthetic, functional, psychological, social, and economic distress lowering self-image and negatively impacting the quality of life among children, and their families in both developed and low- and middle-income countries. It is important to appreciate the impacts of dental trauma on children and their families more so in areas of low income as these areas have a higher propensity of above average oral-related quality of life impacts. Necessary dental management and treatment should be performed as soon as possible consequent to injury to relieve pain and discomfort, restore function, uplift appearance, and self-esteem, and enhance social well-being. This holistic management approach will improve treatment outcomes and ultimately enhance the quality-of-life post-dental injury.

Keywords: dental trauma, pain, health-related quality of life, children, low-middle income countries

1. Introduction

Dental Trauma or Traumatic Dental Injuries (TDI) refer to injury in the oral cavity involving the hard, soft tissues and periodontium such as the gingiva, periodontal

ligament, alveolar bone, and cementum. Although there is some classification to the type of traumatic injuries, the traumas can occur in various combinations and be associated with some facial or bodily injury [1]. A severe form of trauma in children is that of orofacial fractures, these types of fractures cause significant morbidity, and mortality in children, and may have a devastating impact on their quality of life [2]. Dental trauma account for 5% of all bodily injuries in all ages and children are most affected; furthermore, 1 in 5 children have experienced an injury to their anterior teeth before leaving school [1].

1.1 Epidemiology

The global prevalence of dental trauma among children is approximately 17.5%–22.0% and is found to be higher in America as compared to the rest of the world. In South America it is 34.1%, followed by Europe, 26%, then Africa 16.7% and then Asia (8.91%) [1, 3]. Frequent causes of dental trauma is falling at home, followed by school and sports injuries. The greatest incidence of trauma in children occur in the primary teeth at the ages of 2–3 years old when toddlers are developing their motor skills as they learn to walk [4]. The incidence rate of primary teeth traumatic injuries is 2.75 and that of permanent teeth injuries is 2.72, yet often little emphasis is given to the management of primary teeth as it is assumed that the teeth will eventually exfoliate and require no care. However, we need to be mindful of the consequential effects that lead to developmental disturbances of underlying permanent teeth that result from pre-mature loss of primary teeth [1].

In primary teeth the prevalence of TDI has been found to be approximately 24.4% with boys more prone to injuries (30%) than girls (26.8%). Most occurred at home (72%) followed by at school. Children with incompetent lip closures are also found to be most vulnerable (49.4%), followed by those with increased overjet (44.1%) and increased open bite (33.3%) [3]. Globally the prevalence of primary teeth trauma in Southeast Asia is 27%, followed by America 26.5%, Eastern Mediterranean and Africa at 22.7%; then the lowest being Europe at 14.2%. Moreover, prevalence of TDI on permanent teeth of 12-year-olds, globally is 18.1%.

Severe extensive trauma as orofacial fractures not only affect the oral cavity but also the facial and head and neck regions as well. Such fractures commonly affect adults with less than 15% affecting children [5]. These traumas are a substantial public health problem as they cause significant morbidity, mortality in children, and may have a devastating impact emotionally, physically and functionally on children [2]. These trauma's result from motor vehicle accidents, falls, violence, and sports injuries. When they do affect children, they can also cause possible concussion and brain injury [6]. These consequences can have long lasting impact on the social and cognitive functioning of a child. Type of fractures that were associated with concussion reported by a USA study, included orbital fracture (54.8%); nasal fracture (28.8%); skull fracture (25.6%); maxillary fracture (23.7%).

A systematic review assessing 27 studies consisting of 403,339 patients around the world found that in terms of the pattern of aetiology in maxillofacial fractures globally, Road Traffic accidents (RTA) accounted for the highest cause (34%). This is followed by falls (31%); violence (11%) and sports injuries (4%). RTA are found to be highest (over 40%) in Africa and Asia. Falls are more prevalent in Europe especially among school children and violence is more prevalent in North America [7]. One would expect the traumatic dental impact on oral related quality of life literature to be readily available.

In South Africa, study reviewing 87 children under the age of 13 with facial fractures admitted at the Red Cross trauma unit in Cape Town between 2006 and 2014 found

that over half of the children (n = 49) had injuries that were caused by motor vehicle accidents particularly when children were unrestrained in the car. Of the motor-vehicle collision (n = 25 were passengers and (n = 24) were pedestrians. Other injuries were caused by falls (n = 20); assaults (n = 8); and (n = 7) reported as others [8]. In Johannesburg a study undertaken at the Chris Hani Baragwanath paediatric trauma unit indicated the prevalence of head injuries to be as high as 45.7%, this was followed by mouth injuries (26.6%) [7]. The dental injury experienced involved largely maxillary and mandibular incisors and canines. In addition, teeth displacement, intrusion, mobility, fracture avulsion and pulp injury were prevalent [9]. In a separate study aimed at describing the nature of injuries sustained by patients attending the trauma unit at Chris Hani Baragwanath Academic Hospital, over three months in 2017; the injuries sustained by the children less than five years were found to be 12.35% [10]. The prevalence of orofacial and dental trauma is significant in the LMIC. Moreover, the severity of trauma seems to me more than the primary anterior dentition but more severe head injuries where one study it was as high as 45,7% [7] and mouth approximately 27% [7]. The impact of these traumas on health-related quality of life warrants a more attention.

1.1.1 Factors related to the occurrence of TDI and Oro-facial injuries in low- and middle-income counties

The prevalence of orofacial trauma has increased over the years in many LMIC because of interpersonal violence, motor vehicle accidents and wars. Particularly among the adult population [11]. Having said that, most dental injuries studies in LMIC are focused on the adult population and very little studies have been undertaken on the child population.

The few studies that have been looked at show that there are similarities between LMIC and high income countries in terms of demographic characteristics of male children being more affected and the most common places of injury being the home environment [12].

A study conducted in India in 2015 looking at association between TDI, Obesity and socio-economic status among 6- and 13-year-old, found that the injuries were more prevalent among overweight and obese children. Furthermore, children from low socio-economic status had a higher likelihood of experiencing dental trauma than children from medium and upper socio-economic status [13].

Of concern is the studies of child orofacial trauma in LMIC being linked to physical child abuse and fatalities [14]. Physical Child abuse is defined by the WHO as an experience that results in actual or potential physical harm of a child from a parent or person in a position of responsibility, power and trust [15]. In South Africa two of the most recent studies on physical child abuse among children in a Cape Town children's hospital found the following; injuries to the face occurred in 59% of child abuse cases and that most of the times, the lips were traumatised (54%) [16]. The second study assessed autopsy reports of 1809 children under the age of 9 years old between (1998–2004). They found that 2.62% of the fatalities were attributed to physical child abuse among children aged 1 month and 11 years old. The main cause of the children's death being head injuries [17].

2. Rationale

The pattern of trauma in children described depict that the condition is a dental public health problem as reflected by the prevalence, the rising incidence and the

economic burden that Low-Middle Income (LMIC) countries have to bear in managing and treating such cases. These conditions have a severe impact on individual children, families, and society generally especially due to its long-term consequences. Therefore, acknowledging the public health impacts of dental trauma and, understanding the health-related quality of life impacts is necessary for holistic management of the problem. Oral-health-related quality of life is context reliant, and it is used increasingly as a person-reported outcome measure in oral health research. More so that environment, economic, society, culture and age, may influence health, illness and quality of life [18].

3. Objectives

The objectives of this chapter are to:

- Outline the epidemiology of traumatic injuries among children affecting orofacial area in LMIC's.
- Describe the concept of oral-health-related quality of life.
- Discuss the effects of dental trauma on oral-health-related quality of life in children and families in LMIC's.
- Give a brief report on the management of the traumas

4. Methods

An extensive literature search was conducted on the health research databases, PubMed, CINAHL, EBSCOhost, and Google Scholar and this generated current literature for comprehensive information on the epidemiology of dental trauma, management and the oral-health-related quality of life impacts.

5. Health-related quality of life and Oral-health-related quality of life

Health related quality of life (HRQoL) evolves from the general concept of quality of life [19], which the latter implies general satisfaction with life. Gururatana and colleagues [20] have labelled HRQoL as a multi-dimensional construct comprising the physical, emotional and social aspects relating to illness and its treatment [20]. Thus HRQoL can be summarised as a functional effect of sickness, illness and the related treatment as perceived by the patient [19]. A goal for overall oral health should include measure of oral health-related-quality-of-life as oral health is a predictor of health and wellbeing [21]. Oral-health-related quality of life (OHRQoL) is thus, explained simply and loosely as the 'impact of oral conditions on daily functioning' [22].

The dental profession has for many years used clinical indices to measure oral health and disease outcomes which only provide one facet of child oral health [23, 24]. As much as clinical indices have measured oral conditions well, they do not take into account the children's and family's subjective perspective and the impact of oral problems on their day-to-day life [25]. Thus, OHRQoL is a patient reported outcome used to assess the outcome of oral diseases on patients' overall wellbeing.

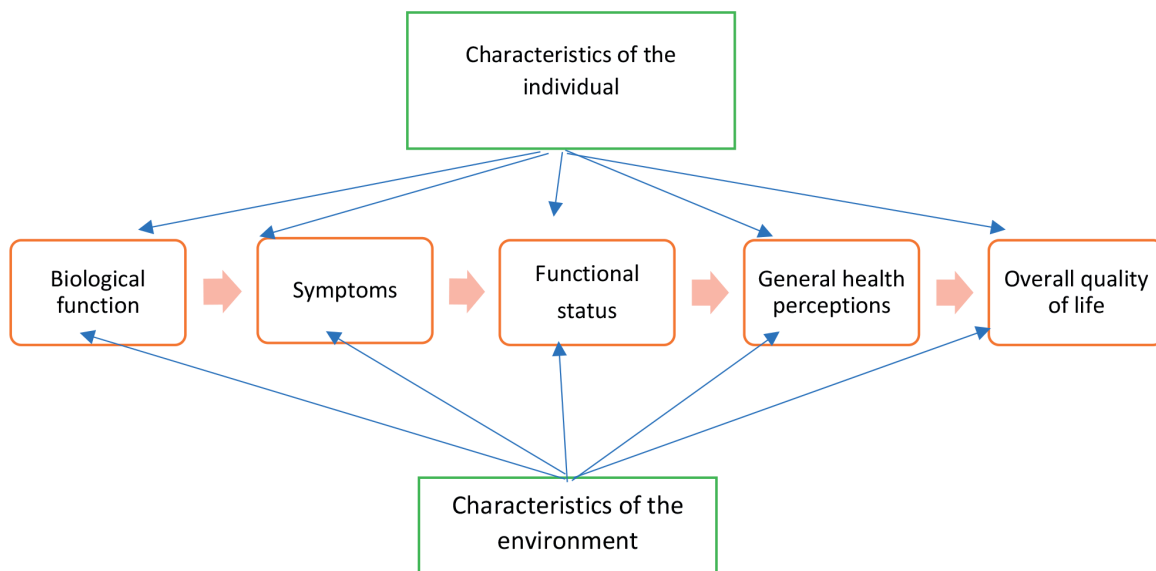


Figure 1.
 A conceptual framework of health-related quality of life and its determinants. Source: Ferrans et al., 2005 (Ferrans CE, Zerwic JJ, Wilbur JE, Larson JL. Conceptual model of health-related quality of life. *Journal of Nursing Scholarship*. 2005;37(4):336–42.) [26].

5.1 Conceptual framework

The health-related quality of life relationships model by Ferrans et al. [26] in **Figure 1**; shows the relationships between the individual and environmental characteristics and an oral disease/condition (dental trauma) and how all the elements namely *biological functions, symptoms, functional status, general health perceptions* influence overall health-related quality of life [26].

Children OHRQoL Tool	Year published	Validated
Family Impact Scale (FIS) [27]; PART OF Child Oral Health Quality of Life Questionnaire (COHQOL)	2002	Yes
Parental/Caregiver Perceptions Questionnaire (P-CPQ) [28];PART OF Child Oral Health Quality of Life Questionnaire (COHQOL)	2003	Yes
Child Perceptions Questionnaire (CPQ ₆₋₇); (CPQ ₈₋₁₀), and (CPQ ₁₁₋₁₄) ([29, 30]; PART OF Child Oral Health Quality of Life Questionnaire (COHQOL)	2004–2006	Yes
Child-Oral Impacts On Daily Performances (COIDP) [23];	2004	Yes
Early Childhood Oral Health Impact Scale (ECOHIS) [31];	2007	Yes
Child Oral Health Impact Profile(COHIP) [32].	2007	Yes
Infant Toddler Quality of Life Questionnaire (ITQOL,) [33].	2008	Yes
PedsQL–Oral Health Scale [34].	2009	Yes
Paediatric Oral-Health-Related Quality Of Life (POQL) [35].	2011	Yes
Scale of Oral Health Outcomes (SOHO) [36].	2012	Yes
Child Health Utility 9D Index [37].	2014	Yes

Table 1.
 Synopsis of Children’s Oral health related quality life tools.

5.2 Measurement of oral health-related quality of life

Dental trauma invariably has the result of extreme pain and hampers daily activities, and it negatively affects normal growth; a crooked bite causing reduced self-esteem and cognitive development, may impair speech, school performance, and is costly to manage. Objective measures of disease are important, they might give insight into the impact of oral diseases on quality of life. It is for this reason that we summarise the patient-based tools available to measure subjectively, the impacts of oral diseases on children and adolescents using objective measures in **Table 1**. The environment and the culture are aspects of the society that determines how health is perceived, experienced and conceptualised by communities according to Traebert and colleagues [38]. Thus, the conceptualisation of health-related quality of life is a social construct, additionally health related quality of life is measured objectively using the tools seeking subject inputs from subjects. These measures can be applied daily in facilities or practices to assess and report these impacts of oral diseases to evaluate dental management of oral trauma. These validated tools are often used to assess the effect or impact of any oral condition or oral disease.

6. Impact of dental trauma on oral health related quality of life

6.1 Physical impact of dental trauma

Traumatic injuries do not only affect facial aesthetics, but also normal masticatory function, making it difficult for the child to chew. Dental problems that cause chewing to be painful affect the intake of dietary fibre and some nutrient-rich foods; significantly lowering serum levels of beta carotene, folate, and vitamin C [39]. Furthermore, trauma to anterior teeth can result in difficulties experienced in the pronunciation of words or phrases. For example, if upper incisor teeth are missing, the pronunciation of the v and f becomes indistinct [40]. Further literature indicates that if the lower incisors are missing, which may be trauma related, the sounds such as 'z', 'sh', and 'ch', will become defective [40] and 's' sound more complicated. Such situations lead to serious speech problems resulting in the child becoming annoyed or feeling reluctant to verbally interact with his/her classmates. The above highlights the strong correlation between teeth and speech.

6.2 Psychological impact of dental trauma

The psychological and social sequelae of dental trauma are a common finding causing the impairment of the child's social functioning, emotional balance, and well-being [41]. The unexpected nature of the traumatic dental injury, accompanied by emotional distress, physical impairment, and accompanying pain often contribute to a lasting memory of the traumatic experience. The memory issue is significant for a paediatric patient, who will have to endure the additional stress of transportation, emergency diagnostic procedures, and treatment [41] and even be triggered by such memories.

Emotionally the child may become an introvert and he/she may be reluctant to smile and find it difficult to adapt to everyday life [40]. This hurts their self-esteem and confidence. The self-esteem associated with oral health decreases as the teeth appear less attractive [42].

Overall, dental injuries are the most serious dental condition experienced by children [40]. Therefore, it is of utmost importance that treatment is sought as soon as possible after the onset of injury, allowing for favourable treatment outcomes [43] and enhanced quality of life, to be as close to normal/pre-trauma as possible.

6.3 Social impact of dental trauma: Effects on family

Families and households in Low Middle-Income Countries (LMIC's) are subjected to poverty with published literature demonstrating that family income and deprivation level are a potential risk factor to TDI's [33]. Dental traumas impact the quality of life of not just the child, but the whole family [34]. The assessment of OHRQoL in younger children may be challenging due to children's limited understanding of what is being evaluated [35]. Thus, more often the parental or family perception is important in providing evidence of the impact of TDI's on children and family OHRQoL.

In LMIC's parents of low-income households are often required to work long hours resulting in decreased family time, thus TDI's on the teeth and mouth can result in considerable psychological stress and social costs on the OHRQoL of parents due to pain experienced by children and high absenteeism from work [36]. Furthermore, illiteracy levels among adults are high in LMIC's resulting in parents with low education lacking specific TDI's prevention skills to transfer to their children [37].

Severe dental trauma is associated with a higher impact on the OHRQoL family function, as parents expand greater attention on the injured child due to the severity of the lesion. Family daily activities can be negatively affected in severe trauma cases as the children experience more physical and psychological discomfort, limited functionality and more financial resources are required for rehabilitation of the child [44]. The severity of caries on teeth with TDI's have a higher impact on family OHRQoL more so that complicated trauma cases may involve fractured dentine or dentine/pulp [45] resulting in parents feeling more distressed immediately after the injury and after the TDI treatment [41]. TDI's on older children in LIC's has a significant lower impact on the parents/family OHRQoL because older children are more independent needing less parental intervention and supervision than younger children [42].

7. Factors related to oral health-related quality of life outcomes on the child with dental trauma

Treatment of traumatic dental injuries reduces the OHRQoL of the children and adolescents [46]. Management of dental trauma involve multiple dental specialties including pedodontics, endodontics, orthodontics, oral medicine and periodontology, and oral surgery. This integration is necessary to ensure the correct rehabilitation of the patient [40]. Dental trauma requires special comprehensive examinations and detailed history of the incident to determine the correct diagnosis and to rapidly manage the injuries [40].

As shown in the Fig 1, some factors influence the outcome and a better or worse OHRQoL on the individual and environmental level in LMIC's. At *individual level*, a Brazilian study reported that factors such as parental dental anxiety has a significant correlation with children's OHRQoL because parental dental anxiety is an indicator of the children's oral health, children's dental service utilisation and a major barrier to access dental care [47]. Children who present with dental trauma are generally trauma

prone. Nearly half of the children with multiple dental traumas will re-traumatise the same tooth [41]. Also, in LMIC's individual family dynamics such as compliance and cooperation by the patient and the family, starting from the moment of injury is critical [41]. In a Brazilian study, an effective management of dental trauma was shown to require a swift multidisciplinary management with long-term follow-up care [48].

On the *environmental level*, the following health systems aspects such as the availability of the facility and increased waiting time in hospital emergency departments may be responsible for the late presentation of dental trauma patients thus contributing to unfavourable outcomes and a poor OHRQoL scores in a Turkish study [43]. Also related to *health systems* is the issue of collaboration between paediatricians in hospital emergency departments and paediatric dentists will enable urgent and best-possible care for the injured patients ultimately improving prognosis [43]. The mode of treatment such as comprehensive dental treatment on the dental chair or full mouth rehabilitation under general anaesthesia has been associated with considerable improvement in OHRQoL [49] and thus highlights the importance of multidisciplinary care, however this is a great challenge in LMIC's. The factors mentioned above are not exhaustive however is a considerable gap in the paucity of studies conducted in Africa.

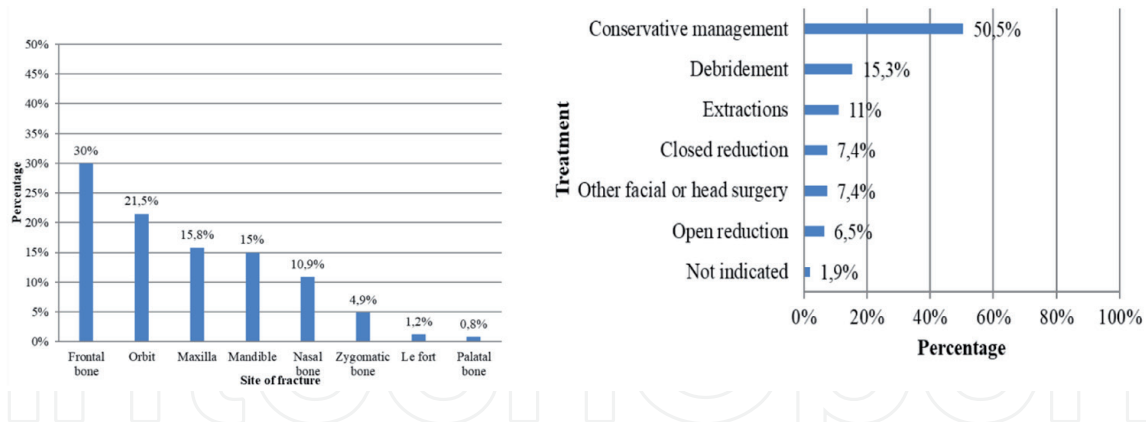
In many of the developing countries, majority of households are subjected to poverty. It is thus plausible that a review by Das et al. [50] highlights that the families with a lower socioeconomic status, when the facilities are not sufficient, living conditions with unsafe environments may lead to children to be prone to traumatic injuries. The poor living surroundings, the quality of health care is questionable, therefore the children and families suffer severe impacts on their care and experience a lower OHRQoL.

The success of the dental treatment is not only based on the clinical outcome, but also the psychological impact of treatment [51]. The ability of a treatment to enable a person to improve function (eat, speak,) and socialise without pain, discomfort, or active disease have been indicators of success.

Most literature of the factors on TDIs and OHRQoL are conducted in the developed countries. In LMIC such as Brazil, the impact of restorative treatment only improved the OHRQoL impact of adolescents than the families. This may be due to economic and financial cost passed on to families [50]. Another Brazilian study reported concomitant presence of other conditions such as dental caries, pain, orofacial dysfunction, in addition to dental trauma, impact twofold to the OHRQoL [50]. There is skewness of literature in that majority of studies are conducted in Brazil and few conducted in other LMIC such as Africa when it comes to traumas and OHRQoL. This chapter highlights that more work needs to be conducted in developing countries seeing that countries' economy, environment, and societal aspects have a potential to influence the impact of traumas on the oral health quality of life in societies.

8. Management of traumatic dental injures and orofacial trauma in paediatric patients

Although the incidence of facial trauma in the paediatric population is higher than in the adult population, the incidence of facial fracture is lower in children [52]. The frontal bone is commonly involved, and the type of management is mostly conservative treatment [7] (**Box 1**).



Box 1.

Source: Fouche and Mabongo 2019. *permission to reproduce image was obtained from both the authors and SADJ.

8.1 Traumatic dental injuries

8.1.1 Management and treatment

8.1.1.1 Crown fracture: Uncomplicated

The clinical and radiographic findings show a break in enamel or dentin. In this case one would need to restore normal aesthetics and function by restoring and smoothing the tooth margins [53, 54].

8.1.1.2 Crown fracture: complicated

The clinical and radiologic findings reveal a loss of tooth structure and pulp exposure. In primary teeth, management decisions are based on the vitality of the pulp and the life expectancy of the tooth, alternatives could therefore be, pulpotomy, pulpectomy, or extraction. For permanent teeth, the treatment would be, direct pulp capping, pulpotomy, or a complete root canal treatment.

8.1.1.3 Crown and root fracture (uncomplicated or complicated)

Clinical findings usually reveal a mobile coronal fragment attached to the gingiva with or without pulp exposure. In primary teeth, an extraction would be indicated. In permanent teeth, stabilisation of the coronal fragment would be necessary. If you cannot remove the fragment, complete root canal treatment with post-core and crown. If the root component is irreparable, then an extraction would be indicated.

8.1.1.4 Concussion

In this case, clinical findings would reveal a tooth that is tender to pressure and percussion without mobility. There may also be some sulcular bleeding. Management would involve optimising the healing of the periodontal ligament and maintaining the vitality of the pulp.

8.1.1.5 Subluxation

This involves injury to the tooth structures with loosening, however there is no tooth displacement. There may be sulcular bleeding. In primary teeth, the tooth should be observed over 2 weeks, if no healing occurs and the pulp is affected, then an extraction would be indicated. In permanent teeth, the tooth needs to be splinted for 2 weeks and the vitality of the pulp should be closely monitored.

8.1.1.6 Lateral luxation

The periodontal ligament is torn and there may be a fracture of the supporting alveolar bone. The tooth could be displaced palatally or lingually. Often it is locked in that position and not mobile. In primary teeth try to gently reposition the tooth. If it is not possible and the displacement is causing discomfort in the oral cavity, then an extraction would be indicated. In permanent teeth, reposition as soon as you can, and stabilise the tooth for approximately 2–4 weeks. In addition, monitor the vitality of the pulp closely.

8.1.1.7 Intrusive luxation

In this type of luxation, the tooth is driven into the socket compressing the periodontal ligament and crushing the alveolar socket, therefore it appears shortened. In addition, the tooth is not mobile or tender to touch. In primary teeth, the tooth may re-erupt spontaneously, however, if it is found to cause disruption to eruption of a permanent tooth, extraction is indicated. In permanent teeth, the tooth can be repositioned passively or surgically and then stabilised with a splint for up to 4 weeks. During treatment, monitor the vitality of the pulp closely.

8.1.1.8 Extrusive luxation

The tooth is partially displaced axially, and the tooth appears elongated and mobile. In addition, the periodontal ligament is usually torn. For primary teeth, time should be given to allow them to reposition spontaneously. Should the extrusion be severe or there is mobility, an extraction should be indicated. In permanent teeth, repositioning should occur as soon as possible, then it should be stabilised and splinted for 2 weeks.

8.1.1.9 Avulsion

When the tooth is completely displaced out of the socket, primary teeth should not be replanted. In permanent teeth, replanting should occur as soon as possible, and the tooth be splinted for 2 weeks.

8.2 Orofacial trauma

General considerations in the young trauma patient include maintenance of the airway, balance of fluid and electrolyte levels and adequate nutritional intake during treatment. As in adults, the pre-injury skeletal and dentoalveolar anatomy and function are re-established by anatomic reduction of fractures based on the occlusion [55].

Like in adults, paediatric fractures are managed by conservative, closed reduction and open reduction and internal fixation. Children have greater osteogenic potential and faster healing rates than adults. Therefore, immobilisation times should be shorter. Surgical interventions usually require two operations under general anaesthesia. For open reduction and internal fixation, care should be taken not to traumatise both root of teeth and dental follicles [46].

i. Conservative Management

In this mode of treatment, there is no active surgical intervention, close observation of the patient, control of pain, and minimal movement of the fractured bone is maintained, this is by restricting the patient to a soft diet in the case of fractured jaws. Un-displaced and minimally displaced fractures of the jaws are best treated by this option in children. Most facial fractures in children are managed by this modality [47].

ii. Closed reduction

This mode of treatment may be compromised by fewer available teeth, lack of stability of primary teeth due to root resorption, and anatomy of the crowns of the teeth available primary teeth and partially erupted permanent teeth making arch stabilisation with Erich arch bars impossible. All these factors make intermaxillary fixation (IMF) more difficult than in adults. Secondly, IMF is not easily tolerated by children, as it restricts mandibular movements causing discomfort and increased anxiety; furthermore, it is detrimental to the child's quality of life, as a liquid diet adversely affects nutritional intake. Lastly, IMF may result in ankylosis of the temporomandibular joint in patients with condylar fractures [46].

iii. Open reduction and Internal fixation

In older children with displaced fractures closed or open reduction and internal fixation (ORIF) may be indicated. ORIF of mandible fractures in children is generally avoided due to the potential damage to developing tooth germs and disruption of the periosteum. The other challenges in children include the small size of the facial bones and the relatively soft bone showing good elasticity. A reduction of the mandibular immobilisation period also contributes to the recovery of joint function and early return to function [46].

The goals for management are to restore function, form, aesthetics, and most importantly in children, to preserve growth and development. Managing paediatric facial fractures is complex because of the continued growth and development of the facial skeleton, [46]. Therefore, management strategies must provide proper stabilisation of fractures to restore facial anatomy, without hindering future bone and soft tissue growth. Many paediatric facial fractures can be managed conservatively owing to the high osteogenic potential of the paediatric skeleton; however, surgical intervention may be necessary for patients with severe facial injuries [56].

9. Conclusions and future directions

Management of dental trauma in both developed and developing countries requires a life-long commitment on behalf of the patient and dentist, especially in a

growing patient with a developing facial musculature, oral structures, and dentition. The traumatic injuries affect all communities regardless of countries economy status; however, literature has shown that the severity of traumas such as those leading to head injuries was reported more in the developing countries. Oral trauma among children, their experiences and the impact of the trauma must be, understood by all the multi-disciplinary team of practitioners. There was minimal literature on the impacts of traumatic injuries on OHRQoL in the LMIC areas such as Africa though plenty of Brazilian and some Indian studies were evident. The socio-dental indicators or the tools measuring the patient-based impact of dental and oral trauma, despite being developed in non-African settings, are vital in providing important feedback on how to evaluate the management of trauma and thus should be part of the general protocols for management. Dental practitioners must be cognizant of the non-clinical impacts of orofacial and dental trauma and be familiar with the socio-dental indices to measure patient-based outcomes. It is recommended that more studies are conducted in the LMIC, specifically African countries to highlight the importance of patient-based inputs and evaluation of care related to traumatic dental injuries.

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Conflict of interest

The authors declare no conflict of interest.

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