

# KNOWLEDGE, ATTITUDE AND PRACTICE AMONG DENTAL PRACTITIONERS ON MANAGEMENT STRATEGIES OF PEDIATRIC FRACTURE - A QUESTIONNAIRE BASED STUDY

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## ABSTRACT:

### BACKGROUND:

Fractures in children are an important public health issue and a frequent cause of emergency room visits. The purpose of this descriptive epidemiological study was to identify the most frequent pediatric fractures. Fractures are extremely common in the pediatric age group, representing a major public health problem. The lifetime risk of sustaining a fracture in childhood is approximately 42%-64% in boys and 27%-40% in girls, with remarkable variation in the estimates worldwide. Even though several genetic, endocrine, or systemic illnesses that affect bone metabolism may cause fractures, the majority of children with fractures are otherwise healthy. Several factors have been analysed for their role in determining fracture risk.

### Aim:

The aim is to analyse about the awareness among dental practitioners on management strategies of paediatric fracture.

### OBJECTIVE:

This survey is done to analyse the awareness among dental practitioners on management strategies of paediatric fracture.

### MATERIALS AND METHOD:

A cross sectional survey was initiated from a randomly chosen population of 100 dental practitioners. A simple random sampling technique was used to identify the samples. Informed consent was obtained from the participants and confidentiality of the records were ensured. The survey was conducted using paper and pen method. The survey instrument used was a pretested questionnaire comprising of 10 questions eliciting responses pertaining to the awareness among dental practitioners on management strategies of paediatric fracture.

### RESULTS:

In this survey, 100% of the dental practitioners are aware about paediatric fracture. 60% of the dental practitioners say that paediatric fracture is rare. 70% of the dental practitioners say incomplete fracture is common among dental practitioners. Only 20% of the dental practitioners are aware of clinical and radiographic feature of paediatric fracture. Only 27% of the dental practitioners are aware of salter-Harris fracture classification. Only 22% of the dental practitioners are aware of management strategies of paediatric fracture. 11% of the dental practitioners says that closed reduction would be the treatment of choice for paediatric fracture management. Only 3% of the dental practitioners are aware of prefabricated acrylic splints in the management of paediatric fractures. Only 3% of the dental practitioners are aware of advantages of prefabricated acrylic splints. Only 11% of the dental practitioners are aware of advantages of closed reduction compared to open reduction in the management of paediatric fracture.

**Conclusion:** In this survey the awareness among dental practitioners on management strategies of paediatric fracture is not sufficient. Hence it can be improved by attending more conferences related to it and reading more articles relevant to paediatric fractures and its management.

**Keywords:** Prefabricated acrylic splints, closed reduction, open reduction, Salter- Harris fracture classification

### INTRODUCTION:

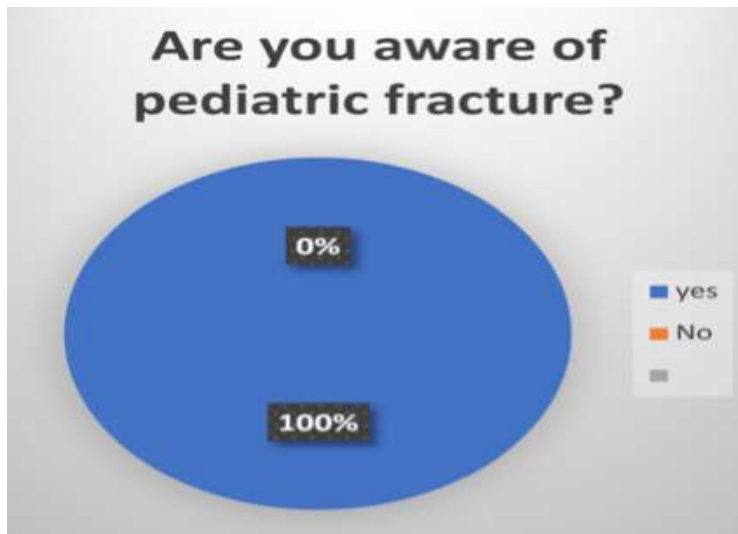
The burden of diseases in children in our environment is dominated by infection and malnutrition. Paediatric trauma does not have sufficient attention. Over the world trauma is recognised as a leading cause of morbidity, disability and mortality in childhood. One of the important component of paediatric trauma is fracture [1]. Incomplete fractures occur most commonly after a fall on an outstretched arm. However, they can also occur due to other types of trauma including motor vehicle collisions, sports injuries, or non-accidental trauma where the child is hit with an object. The classification used commonly for fracture is salter-Harris classification. Salter Harris classification of growth plate injuries aid in estimating both the prognosis and the potential for growth disturbance. The salter-Harris system classifies growth plate fractures into five groups [2]. The diagnosis for fracture is established mainly by the clinical findings and confirmed by plain X-rays [3]. Prefabricated surgical splints used in the conservative treatment of pediatric fractures. Management principles for soft tissue injuries are much the same, except that the treatment should be initiated as early as possible because healing occurs sooner. Immature collagen in the child's soft tissues provides cosmetic results though hypertrophic scars and keloids may form. The use of rigid fixation in children is controversial and may cause growth retardation along cranial suture lines. Inter maxillary fixation for mandibular fractures should be used cautiously as bony ankylosis in the temporomandibular joint (TMJ) and trismus may develop. The high osteogenic potential of the pediatric mandible allows non-surgical management to be successful in younger patients with conservative approaches. Therefore a study was planned using questionnaire to evaluate knowledge and awareness among dental practitioners on management strategies of paediatric fracture[4, 5, 6].

### Material and methods:

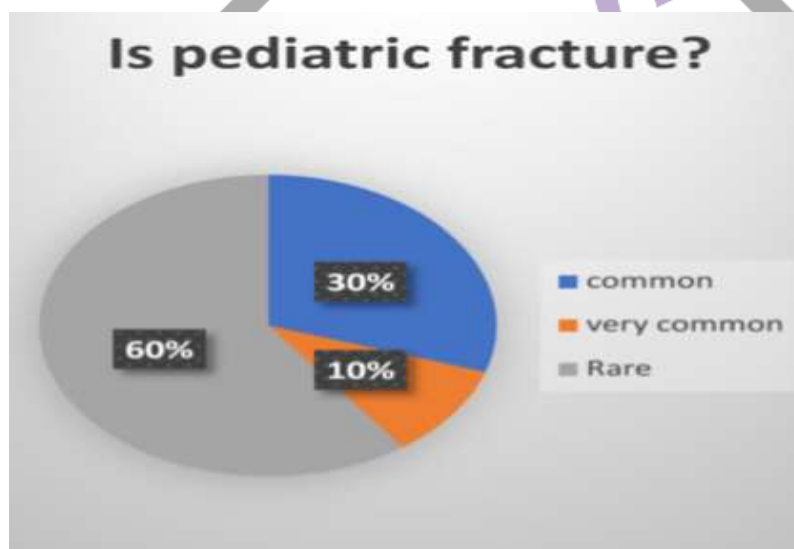
A cross sectional survey was initiated from a randomly chosen population of 100 dental practitioners. A simple random sampling technique was used to identify the samples. Informed consent was obtained from the participants and confidentiality of the records were ensured. The survey was conducted using paper and pen method. The survey instrument used was a pretested questionnaire comprising of 10 questions eliciting responses pertaining to the awareness among dental practitioners on management strategies of paediatric fracture.

The questionnaire consists of following questions:

1. Are you aware of pediatric fracture?
  - a. Yes
  - b. No
2. Is paediatric fracture?
  - a. Very common
  - b. Common
  - c. Rare
3. Which type of fracture is common in paediatric patients?
  - a. Complete fracture
  - b. Incomplete fracture
4. Are you aware of clinical and radiographic features of incomplete fracture?
  - a. Yes
  - b. No
5. Are you aware of salter-Harris fracture classification?
  - a. Yes
  - b. No
6. Are you aware of the management of paediatric fractures?
  - a. Yes
  - b. No
7. Do you think which could be the efficient treatment in managing paediatric fractures?
  - a. Yes
  - b. No
8. Are you aware of prefabricated acrylic splints in the management of paediatric fractures?
  - a. Yes
  - b. No
9. Are you aware of the advantages of prefabricated acrylic splints?
  - a. Yes
  - b. No
10. Are you aware of the advantages of closed reduction compared to that of open reduction?
  - a. Yes
  - b. No

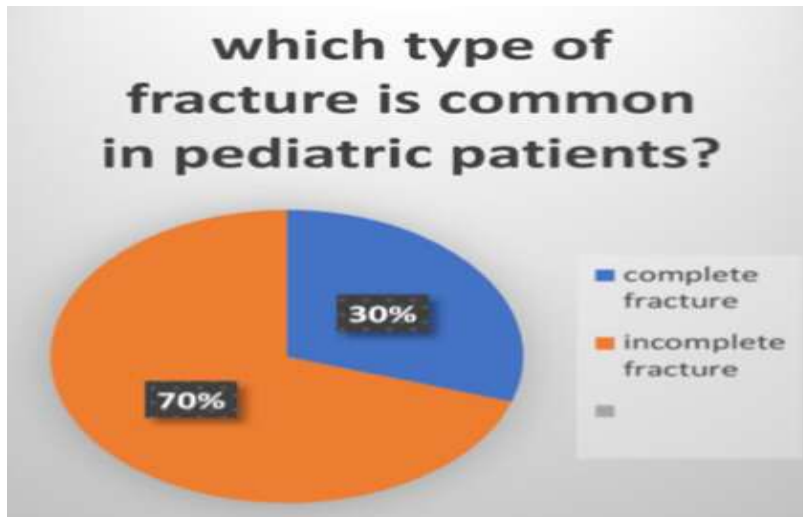
**Results:****Graph 1: Awareness about pediatric fracture.**

**Graph 1** shows that 100% of the dental practitioners aware of paediatric fractures

**Graph 2: Awareness about how common pediatric fracture is seen.**

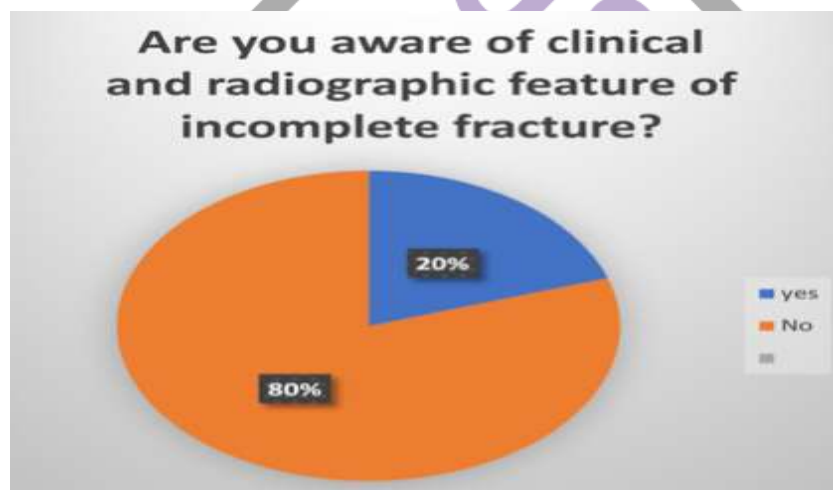
**Graph 2** shows that 60% of the dental practitioners says paediatric fracture is rare, 10% of the dental practitioners says paediatric fracture is very common and 30% of the dental practitioners says paediatric fracture is common.

**Graph 3: Awareness on type of fracture common in pediatric patients.**



**Graph 3** shows that 70% of the dental practitioners says incomplete fracture is common among paediatric fracture and 30% of the dental practitioners says complete fracture is common among paediatric fracture.

**Graph 4: Awareness on clinical and radiographic feature of incomplete fracture.**



**Graph 4** shows that 80% of the dental practitioners are unaware of clinical and radiographic feature of incomplete fracture and only 20% of the dental practitioners are aware of incomplete fracture.

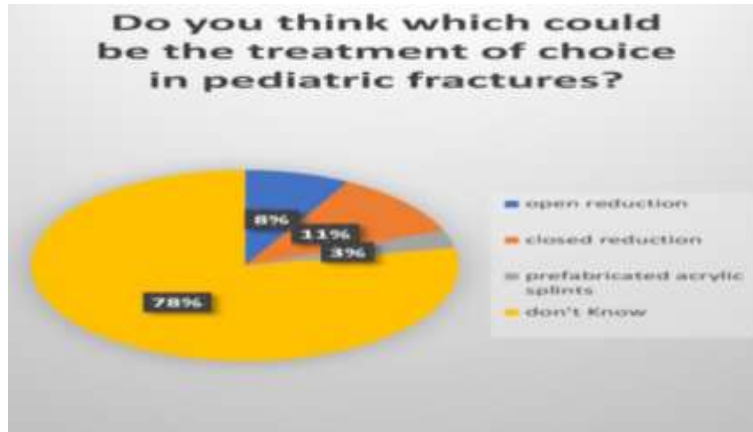
**Graph 5: Awareness on Salter-Harris fracture classification.**

**Graph 5** shows that 73% of the dental practitioners are unaware of salter-Harris fracture classification and only 27% of the dental practitioners are aware of salter-Harris fracture classification.

**Graph 6: Awareness on management strategies of pediatric fracture.**

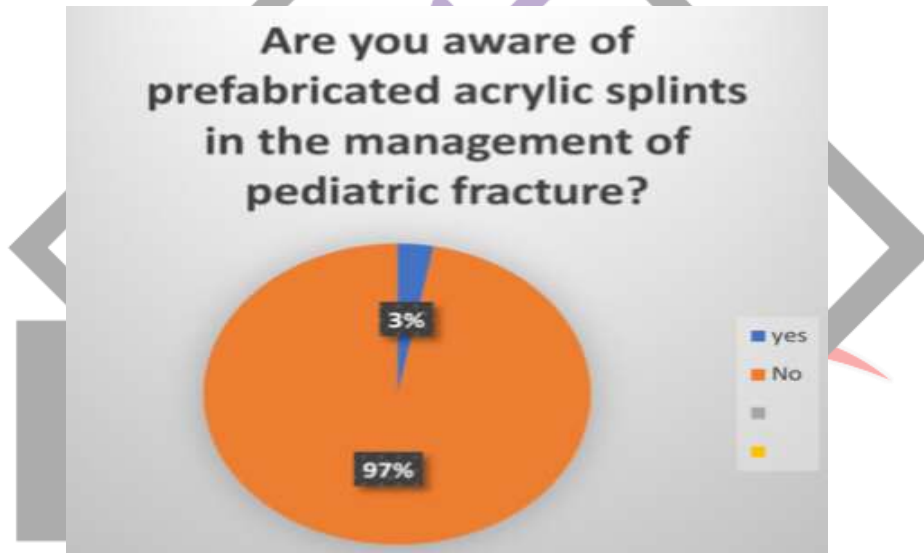
**Graph 6** shows that 78% of the dental practitioners are unaware of management strategies of paediatric fracture and only 22% of the dental practitioners are aware of management strategies of paediatric fracture.

**Graph 7: Awareness on treatment of choice in pediatric fracture**



**Graph 7** shows that 11% of the dental practitioners think closed reduction would be the treatment of choice in paediatric fracture, 8% of the dental practitioners think open reduction would be the treatment of choice in paediatric fracture, 3% of the dental practitioners think prefabricated acrylic splints would be the treatment of choice in paediatric fracture and 78% of the dental practitioners are not aware of the treatment of choice in paediatric fracture.

**Graph 8: Awareness of prefabricated acrylic splints in the management of pediatric fracture.**



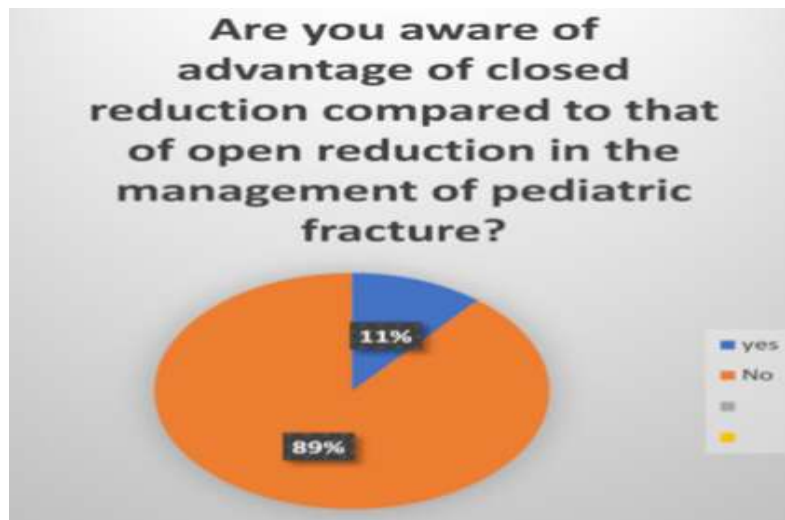
**Graph 8** shows 97% of the dental practitioners are unaware of prefabricated acrylic splints in the management of paediatric fracture and only 3% of the dental practitioners are aware of prefabricated acrylic splints in the management of paediatric fracture.

**Graph 9: Awareness about Advantages of prefabricated acrylic splints.**



**Graph 9** shows that 97% of the dental practitioners are not aware of the advantages of prefabricated acrylic splints in the management of paediatric fracture and only 3% of the dental practitioners are aware of the advantages of prefabricated acrylic splints in the management of paediatric fracture.

**Graph 10: Awareness of advantages of closed reduction compared to open reduction.**



**Graph 10** shows that 89% of the dental practitioners are unaware of advantage of closed reduction compared to open reduction in the management of paediatric fracture and only 11% of the dental practitioners are aware of advantages of closed reduction compared to open reduction in the management of paediatric fracture.

#### Results and Discussion:

The survey on "knowledge, attitude and practice among dental students and practitioners on management strategies of paediatric fracture" was conducted. A questionnaire was prepared and were asked to mark. According to the questionnaire 100% of the dental practitioners are aware of paediatric fracture (**Graph 1**). 60% of the dental practitioners said paediatric fracture is seen rare. 30% of the dental practitioners said it is common and 10% of the dental practitioners said it is very common (**Graph 2**).

70% of the dental practitioners said incomplete fracture is common among paediatric fracture. This is because the bones of a child are more likely to bend than to break completely because they are softer and the periosteum is stronger and thicker. The fractures that are most common in children are the incomplete fracture. These fractures are the green stick and torus or buckle fractures (**Graph 3**) [7, 8,9].

80% of the dental practitioners are unaware of clinical and radiographic feature of incomplete fracture and only 20% of the dental practitioners are aware of clinical and radiographic feature of incomplete fracture. Some of the clinical examination include lacerated wound with gaping borders, hemostasis, tender on palpation. On radiographic examination, single cortical plate would be fractured and other cortex will be bent. (Eg: green stick fracture) (**Graph 4**) [3,10,11].

73% of the dental practitioners are unaware of salter-Harris fracture classification and only 27% of the dental practitioners are aware of salter-Harris fracture classification. The Salter-Harris system classifies growth plate fractures into five groups. Type I, fracture through the growth plate; type II, fracture through the growth plate and metaphysis; type III, fracture through the growth plate and epiphysis; type IV, fracture through the growth plate, epiphysis and metaphysis, and type V, crush or compression injury of the growth plate (**Graph 5**). [2,12,13].

78% of the dental practitioners are unaware of the management strategies of paediatric fracture and only 22% of the dental practitioners are aware of the management strategies of paediatric fracture (**Graph 6**).

11% of the dental practitioners said closed reduction would be the treatment of choice, 8% of the dental practitioners said open reduction would be the treatment of choice and 3% of the dental practitioners said prefabricated acrylic splint would be the treatment of choice and 78% of the dental practitioners are unaware of the treatment choice for paediatric fracture. Open reduction and osteosynthesis of the paediatric fracture with titanium plates and screws are thought to have a negative effect on skeletal growth and unerupted teeth and involve two-stage surgery because of the need for plate removal after complete healing. The use of absorbable plates and screws is less likely to disturb facial skeletal growth but is still associated with the risk of damaging unerupted teeth even when using screws. Because of these obvious risks, closed reduction is advocated in some cases (**Graph 7**) [14,15,16].

97% of the dental practitioners are unaware about the advantages of prefabricated acrylic splints and only 3% of the dental practitioners are aware about the advantages of prefabricated acrylic splints. Some of the advantages are cost effectiveness, ease of

application and removal, reduced operation time, maximum stability during healing period, minimal trauma for adjacent anatomic structure and comfort for young patients

**(Graph 8)**[4,17,18].

89% of the dental practitioners are unaware about the advantages of closed reduction compared to open reduction in the management of paediatric fracture (**Graph 9**) and only 11% of the dental practitioners are aware about the advantages of closed reduction compared to open reduction in the management of paediatric fracture. Closed reduction with functional therapy is a relatively safe treatment. No injury of nerves and blood vessels occur during the treatment and no post operative complications such as infection or scar occurs. In particular complications such as fracture, loss, and eruption delay of the growing teeth can be avoided in pediatric patients as no tooth germ injury occurs because of no establishment of the crown of the permanent teeth. Open reduction is an invasive treatment, which may cause injury of nerves or blood vessels during operation, and postoperative complications including infection. In addition, it has permanent scar though the surgery is conducted after designing the incision line considering aesthetics (**Graph 10**) [19,20].

#### **Conclusion:**

In this survey the awareness among dental practitioners on management strategies of paediatric fracture is not sufficient. Hence it can be improved by attending more conferences related to it and reading more articles relevant to paediatric fractures and its management.

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