

# Perspectives of Orthodontic Care in Children with Special Needs: A Literature Review

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## ABSTRACT

Children with special needs have very high prevalence of severe malocclusion. Malocclusion in children with special needs not only interferes with oral function, but also is an obstacle to social acceptance physically and from an aesthetic point of view. Thus, they need health services and related services of types or amounts beyond those needed by children in general. This condition not only requires the role of parents but also involves multidisciplinary care among several professionals. Therefore, the challenges in developing an orthodontic treatment plan center on motivation, expectation, and satisfaction with treatment outcomes. To review how orthodontic treatment in children with special needs in terms of motivation, hope, and satisfaction. Scientific evidence and clinical cases are drawn from various literatures to support this review and information about orthodontic treatment in children with special needs. Between orthodontics, parents / caregivers and children must establish good communication in order to create conditions that allow for care to run properly. Thus, good treatment results can be achieved. In addition, motivation, hope and satisfaction in orthodontic care are very much needed in building the cooperativeness of children with special needs in orthodontic care.

**Keywords:** Children with Special Needs, Hope, Malocclusion, Motivation, Orthodontic Care, Satisfaction

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## INTRODUCTION

Children with special needs are defined as children with disabilities towards their development and growth and need special treatment in their care.<sup>1,2</sup> These children experience limitations in terms of physical, intellectual, mental, and / or senses for a long period of time. Thus, their interaction with the surrounding environment can experience obstacles and difficulties to participate fully and effectively with their age group or others.<sup>3,4,5</sup>

Children with special needs have a very high prevalence of severe malocclusion.<sup>1,6</sup> Malocclusion in children with special needs not only interferes with oral function, but also is an obstacle to social acceptance physically and from an aesthetic point of view. It is estimated that about 75% of pediatric patients with disabilities require orthodontic treatment to achieve and maintain optimal occlusal relationships thus adequate oral and aesthetic function in children is ensured.<sup>7</sup>

Their ability to receive treatment depends on a number of factors such as mood, motivation, self-esteem, ability to think logically, accept and understand treatment plans and the ability to work closely with dental care. However, in children with special needs, they lack the ability to receive care.<sup>8</sup>

On the other hand orthodontic treatment is basically a treatment that is contraindicated in patients with low cooperativeness, because it will be very difficult to obtain a maximal result, besides iatrogenic complications in the case of caries and gingival infections may also occur.<sup>5</sup> Whereas, children with special needs need high orthodontic treatment because of an increase in the prevalence and severity of malocclusion.<sup>7</sup>

Given these conditions, children with special needs certainly need health services and related services of the type or amount beyond what is needed by children in general.<sup>1,2</sup> These conditions often require multidisciplinary treatment between several professionals, requiring not only efforts by dentists, dental hygiene, and dental assistant, but also other health service providers (pedodontists, endodontists, oral surgeons, and coordinated anesthesiologists), members family, and social service agents to facilitate therapy and home care to achieve optimal results.<sup>2,8</sup> Therefore, the challenges in developing an orthodontic treatment plan center on motivation, expectation, and satisfaction with treatment outcomes.<sup>9</sup>

## DISCUSSION

### Types of orthodontic treatment in children with special needs

Orthodontic treatment is a selection procedure for all patients, including those with medical problems. Positive significance from this treatment is influencing integration and social interaction as well as very influential to the increase of social welfare that is significant wholly.<sup>4,10</sup> In children with special needs, orthodontic treatment becomes a challenge for orthodontists. Therefore, an orthodontist must approach these patients with understanding and affection, to gain their trust.<sup>2</sup> Because orthodontic treatment is a multivisit modality of extended duration. So, communication is needed to educate patients with special needs. For patients with communication difficulties and inability to work together, sedation or deep intravenous sedation, or general

anesthesia can be the selected treatment before starting orthodontic treatment procedures.<sup>2,9</sup>

The choice of technique used must be the simplest and safest and according to the needs of each patient.<sup>2,9</sup> Therefore, consideration is needed when planning and providing orthodontic treatment to children with special needs based on the child's condition. The difference in treatment is based on the child's limitations, such as;<sup>10</sup>

1. *Mental Retardation*<sup>10</sup>

Orthodontic treatment plans for patients with mental disorders must be carried out individually and developed so that the child's strengths and weaknesses are seen.<sup>10</sup> A short appointment must be planned, orthodontic treatment performed on children with special needs is different from normal children; especially if the child has systemic disorders and mental problems. Maintenance procedures need to be simplified, thus maintenance is possible.<sup>10,11</sup> Orthodontists must ensure a good level of communication is built in children and all explanations and simple instructions are well understood by patients.<sup>10</sup>

2. *Down's Syndrome*<sup>10</sup>

An orthodontist must carefully assess the potential of each child individually and devise appropriate treatment strategies.<sup>10,11</sup> and orthodontists need to carefully consider the extent to which orthodontic device therapy can be successful with the patient's collaborative abilities. In patients with more severe mental retardation, the initial placement of fixed appliances or bonded / cemented bite planes is done using general anesthesia. Surgical orthodontic treatment is an important consideration in this group of patients.<sup>10</sup> It is important for dentists to communicate directly with patients to build a level of trust to increase their confidence. Patients with Down's Syndrome already want to be treated and trust the operator, they can be cooperative.<sup>11</sup>

3. *Cerebral Palsy*<sup>10</sup>

Depending on the severity of neuromuscular dysfunction.<sup>10</sup> Specifically, muscle hypertonicity or spasticity. These three factors are the main determinants of relapse, and orthodontic treatment in patients with CP should not be started without first evaluating muscle tone and resting positions.<sup>12</sup> Oriented orthodontic treatment is often accompanied by orthognathic surgery to correct large overjet and open bite. Treatment must be taken to stabilize the patient's head and to avoid the supine position completely in the dental unit during treatment.<sup>10,12</sup> In general, for patients with a history of seizures, orthodontic treatment can be carried out safely when the disease is under good medical control and there is no active seizure activity. Gingival surgery to reduce hyperplasia may be needed to facilitate orthodontic treatment.<sup>10</sup>

4. *Juvenile Rheumatoid Arthritis*<sup>10</sup>

Children with juvenile rheumatoid arthritis must undergo an annual orthodontic examination, which must include a functional evaluation of the masticatory system, and radiographic studies of the face and temporomandibular joints. Orthodontic treatment in patients with juvenile rheumatoid arthritis can be done only when the disease is controlled. It must be remembered that pressure on the joints during orthodontic treatment can cause

further condyle degeneration.<sup>10</sup> Functional equipment with large mandibular propulsion, heavy intermaxillary elastics and orthognathic surgery involving large mandibular advancements can cause increased joint pressure. Therefore, in more severe retrognathic patients, orthodontic surgical treatment options that involve maxillary surgery and genioplasty should be considered whenever possible.<sup>10</sup>

### Motivation, Hope and Satisfaction in Orthodontic Care in Children with Special Needs

Orthodontic care performed on children with special needs is different from normal children, therefore parents and caregivers must fully support orthodontic care and understand the level of commitment needed for successful care.<sup>9,12</sup> Willingness to cooperate must be demonstrated from the beginning of the evaluation. Sufficient time must be taken to discuss the child's tolerance thus the doctor and parents / caregivers are fully informed.<sup>9</sup>

#### Motivation

In children with special needs, orthodontic treatment is needed. However, in carrying out orthodontic care the level of motivation, ability, willingness, and availability of parents especially to carry out new responsibilities in orthodontic care of children becomes an important factor in the orthodontic treatment of children with special needs.<sup>13,14</sup>

The desire of parents regarding care for children is the single most powerful factor in determining patient motivation. In addition, it has been concluded that parents can actually help dentists predict patient compliance.<sup>15</sup> According to Birkeland, et al and Tung and Kiyak in Wedrychowska, et al<sup>13</sup> the number of parents / guardians who are dissatisfied with the appearance of their children's teeth is 75%, with 54% wanting their children 'to look beautiful'.<sup>13</sup>

Research conducted by Becker et al<sup>13</sup> shows that the high motivation of people is indicated by the fact that 20 out of 44 parents have requested orthodontic treatment on their own initiative (internal motivation), and are not referred by professionals or influenced by their close colleagues. This is different from the research of Kiyak and Beach in Becker et al<sup>13</sup> in orthognathic patients, who suggest that the influence of 'significant others' is a very important driving factor for seeking this treatment (external).<sup>13</sup>

#### Hope

An alternative hypothesis states that the desire to do orthodontic treatment in children with special needs is none other than for reasons of abnormal function in the oral cavity. This makes parents have the perception that there are more compelling reasons to care for their child than just based on facial appearance. Finally, this is what makes parents have high hopes for orthodontic treatment.<sup>4</sup>

Parents' expectations of orthodontic treatment in children with special needs are none other than those related to oral health needs, their satisfaction in the results of care, which in turn greatly affects the quality of life and the overall health system.<sup>16</sup> The results of the study of Becker, et al in Abeilera, et al<sup>7</sup> stated that 63% of parents with disabled children had positive changes in

the oral function of their children after orthodontic treatment.<sup>7</sup>

Research conducted by Albeilera, et al<sup>7</sup> stated that the perception of a high increase in changes in daily activities and social life is significantly higher in disabled children compared to healthy children. Therefore, parents' expectations for orthodontic treatment lead to increased self-confidence and greater satisfaction with treatment outcomes. Thus, parents with disabled children will allow their children to undergo the same treatment in the future in hopes of obtaining satisfactory results on the results of orthodontic treatment.<sup>7</sup>

### Satisfaction

Orthodontic treatment is a procedure that is more than just improving the quality of life and can also bring physical, social and psychological progress in a person's life.<sup>17</sup> In children with special needs, the incidence of dental abnormalities in the oral cavity is higher, thus they need more orthodontic treatment and care compared to healthy pediatric patients.<sup>18</sup>

Support given to children with special needs and their families is very important for the fulfillment of orthodontic treatment. Positive reinforcement and praise from close friends, during and after treatment, contribute to developing their satisfaction with therapy. The family showed an important part in the acceptance of orthodontic considerations. They were the only ones that influence the motivation for treatment. This motivation will later influence the success of treatment.<sup>4,19</sup>

The severity of malocclusion at the start of orthodontic treatment accompanied by good results will increase the patient's satisfaction with their care.<sup>19</sup> Research conducted by Becker et al<sup>4</sup> 17 children noted positive changes in their facial appearance and 20 parents reported positive reactions among close friends (including relatives or neighbors). Satisfaction with treatment results was found in 25 of 27 parents - not only with facial / tooth changes, but also with positive changes in oral function, improvement in swallowing patterns, in associated saliva, speech, and even mastication. They also reported that, in children aware of improved appearance, this results in a related increase in aesthetic self-satisfaction and self-confidence.<sup>4</sup>

### CONCLUSION

The high prevalence and severity of malocclusion in children with special needs shows the high need for orthodontic treatment in these pediatric patients. The orthodontics, parents and children must establish good communication in order to create conditions that allow the treatment to work well so that good treatment results can be achieved. Patient's motivation and expectations are very much needed in building children's cooperativeness in orthodontic treatment.

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