

Enhancing Dental Care for Hearing and Speech-Impaired Children: The Necessity of Sign Language Proficiency for Dentists

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Abstract

One of the ways of ensuring that hearing/speech-impaired children have equal dental care access is by bridging the gap of communication. This article indeed places importance on the need for dentists to get sign language training to facilitate interaction and improve results. Misunderstandings and communication barriers encountered can lead to poorer oral health, thus exacerbating health disparities.

The communication barrier between practitioners and patients can be decreased through the use of sign language as well as other communication methods like lip reading, visual tools etc. It also includes suggestions on individual patient care, the setting of clinics, and the active role of parents. The article points out the value of learning sign language in dental training setting as a way of enhancing services rendered to all classes of patients.

Keywords - Hearing and speech impairments, special child dentistry, communication barrier, sign language

INTRODUCTION

Healthcare providers, together with the supporting systems, bear an ethical and societal duty to ensure care for every individual within the society. However, significant disparities in oral health remain, especially for patients needing tailored treatment or special care. ^[1] Individuals with physical or mental disabilities are the ones who need "special health care."^[2] Insufficient education has been identified as a key obstacle to the low awareness of the significance of oral health for individuals with disabilities. This, in turn, is one of the factors that affects the delivery of oral healthcare to a considerable portion of the population.^[1]

Helen Keller famously remarked, "Blindness separates us from things, deafness separates us from people."

Hearing loss (HL) restricts a person's ability to engage with others, impacting their participation in social activities and professional environments. The World Health Organization (WHO) has ranked hearing loss as the third most significant reason for losing years of healthy life due to disability.^[3] In India, approximately 63 million people have hearing loss, making it a prevalent cause of disability. There is no organised program designed to offer guidance on how to manage these children.^[4] In healthcare, individuals with hearing impairments encounter significant barriers because the system does not sufficiently address their particular needs for communication. Many individuals with hearing impairments express concerns that they are not fully informed about their diagnosis and medical interventions. They are entitled to the same level of information as any other patient. Insufficient communication can lead to difficulties if the patient does not adhere to medical guidance properly or fails to take adequate precautions due to diminished motivation.^[5]

Oral Health In Hearing And Speech-Impaired Children

Oral health greatly influences speech, chewing, and swallowing, which are essential for adequate diet, meaningful interaction, self-confidence, and general wellness, particularly for individuals with specific challenges. A study conducted in Nigeria found that individuals with hearing loss have a higher rate of dental caries compared to those with visual or physical disabilities. Furthermore, they demonstrate poor periodontal health, as shown in a study conducted by **Avinash Jnaneswar et al (2017)** in India. This pattern may be influenced by factors such as age, the extent of hearing loss, living conditions, and the support provided by family members or other responsible adults in maintaining oral hygiene.

The link between poor oral health and lower oral health-related quality of life underscores the need for a comprehensive analysis of the various contributing factors.^[6]

Communication barriers present a major contributing factor to lower oral health related quality of life in speech and hearing impaired individuals.^[6] Qualitative research reveals that Deaf and hard-of-hearing (DHH) individuals often struggle to communicate effectively with their dentists. It becomes difficult to run a dental visit if there is unclear communication, difficulty following directions, difficulty expressing concerns, or difficulty understanding treatment alternatives. This communication gap can lead to misinterpretations, insufficient care, and heightened discontent, all of which can have a detrimental effect on the child's quality of life.^[7]

The main obstacle to communication with these individuals is often the behaviour of others, which can affect the interaction with the patient:

- Hearing impairment may be mistakenly perceived and linked to a learning difficulty.
- Two common mistakes made while using a friend or relative, or professional sign language translator are to talk about the patient in a third-person perspective and to focus more on the translator than the patient.
- Shouting is a common error. It might alter lip motions, which would make lipreading more challenging.
- Individuals with these impairments may be viewed as pathological cases instead of a societal occurrence.

A variety of factors impact Deaf and hard-of-hearing (DHH) individuals, requiring personalized treatment approaches. Therefore, it is vital for healthcare professionals to communicate directly and effectively with these individuals on a personal level.^[5]

Barriers to Dental Care

Research demonstrates that one of the main causes of dental health disparities is the healthcare team's inadequate interpersonal abilities and lack of use of inclusive language.^[8] This highlights the necessity of having communication resources available, such as translators, when receiving dental care. When receiving dental care, the most frequently reported concerns were about communicating with the dentist (52.4% of parents of DHH children and 76% of adult DHH patients), being summoned from a waiting area (38.1%²² and 68.1%⁷¹), comprehending what will happen during the dental visit (46.4%²² and 57.84%⁷¹), not removing the face mask that enables the DHH individuals to lipread (32.9%²² and 62%⁷¹), and the presence of background sounds (36.5%²² and 55%⁷¹)^[9]. Furthermore, 87% of Deaf and hard-of-hearing individuals, as well as 61.1% of parents of DHH children, indicated experiencing communication challenges or failures or bias during dental care. Additionally, 69.7% of dentists observed that visits with DHH patients required additional time, and 16% of dentists declined to treat DHH patients.^[10] To better support children with hearing impairments, parents suggested that staff members learn basic sign language and become more aware of deafness-related challenges. Additionally, they recommended expanding the availability of translating services and furnishing waiting rooms with suitable devices, like text phones and call systems that are favourable to the deaf.^[11]

Education & Communication Approaches

There is no "typical" deaf individual, nor is there a "one-size-fits-all" method of communication. Because every person is different, they all have different communication requirements and inclinations that vary depending on the situation and the goal of the contact.^[12]

Communication methods, referred to as augmentative and alternative communication (AAC), should be accommodated by the dental professionals in order to effectively communicate with patients who may visit the dental clinic. AAC systems come in a wide variety – Unaided (eg. gestures and signing), or aided (e.g. boards with images, symbols, or sketches)

Common AAC approaches, which may present to the dental team, are:

1. Sign language
2. Cued Speech
3. Lip-reading
4. Bimodal System
5. Drawings, symbols, models and photographs

1. Sign language

Sign language is a vision-based communicative speech with distinct and intricate rules of speech.^[13] There's no inclusive system. Every nation has a unique sign language.^[5] Some of the common sign languages include American Sign Language (ASL) in the US, British Sign Language in the UK, and Indian Sign Language (ISL) in India & Korean Sign Language in Korea.^[13]

American Sign Language (ASL) is a distinct language with its own syntax and linguistic framework, and does not follow the same sequence of words as English. British Sign Language (BSL) contrasts sharply with ASL in its signs, though both share a similar manual alphabet and a significant portion of the terminology. Indian Sign Language (ISL) divides signs into three types: one-handed, non-manual, and two-handed. One-handed signs involve the use of one hand, whereas two-handed signs engage both hands, with variations in the level of activity between them. Non-manual signs emphasize facial cues and eyebrow movements, while manual signs focus on body motions.^[14] ISL is a distinctive mode of communication

that conveys information by combining body language, facial expressions, actions and symbols.^[15] These sign languages primarily differ in their origins, structure, and hand gestures.

2. Cued speech

It is a phonemic-based method that makes historically spoken languages accessible by employing only a few types of handshapes (three hand positions relative to the face and eight finger figures)^[5], known as cues (representing consonants), in various areas near the mouth (representing vowels) to express spoken language in a visual manner. It provides extra details about the pronunciation of the word that is not evident on the lips.^[16] This technique is not a sign language & reduces uncertainty in lip reading by being utilized simultaneously while speaking.^[5]

3. Lip reading

Lip reading, commonly referred to as speech reading, is a method used to comprehend a restricted vocabulary of speech by visualizing the motions of the lips, face, and tongue in the absence of voice. Because lip reading depends on context, linguistic understanding, and any residual hearing, estimates of its range vary, with some percentages as low as 30%. It is the most widely used approach for communication.^[17]

4. Bimodal System

A bimodal system integrates both spoken language and sign language. In this approach, signs are used to visually represent the meaning and structure of spoken words. This method helps children communicate more easily from an early age and supports the development of their spoken language skills over time.^[5]

5. Drawing, symbols, models, and photographs

A study by **Navanith Renahan et al 2017** assessed the use of sign language and visual aids in dental care for children with hearing impairment. Sign language offered comfort but had limitations due to comprehension issues, while visual aids like models and pictures effectively engaged the child, though sometimes distracted them from treatment. Both methods fostered a positive attitude towards dental care, leading to the development of a structured protocol to improve treatment outcomes for children with hearing impairment. (**FIG 1 - Novel strategy formulated for children with hearing impairment by Navanith Renahan et al**)^[4]

Each child with hearing and speech impairment may require different educational approaches and may have varying communication abilities.^[5]

DISCUSSION

INDIVIDUALIZED COMMUNICATION APPROACHES IN DENTAL SETTINGS

So, it is advisable for all healthcare professionals to be proficient in at least some communication methods to facilitate treatment of these children. This will enable the professional to communicate directly with the children, ensuring they understand instructions and can express concerns. This direct communication enhances the child's comfort and cooperation during dental treatment.

An environment that is easy to operate in is necessary for effective visual communication. Numerous factors, including lighting, facial hair, background disturbances, conversation velocity, number of speakers, and pronunciations, all affect the way a person chooses to converse.^[12]

Here are some recommendations particularly suitable for children with impairments:

- In the dental clinic, a child with impairment should be approached as an individual. Customised treatment should be guided by the child's medical history, which includes information on the extent

and onset of the impairment, current rehabilitation efforts, educational and communication methods, family support, and any additional challenges.^[5]

- Understanding the child's communication method before the first visit is crucial. This information should be gathered in advance through a meeting with the parents, who can be briefed on clinic procedures and how to prepare their child. Parents should receive guidance on behavioural management and visual aids like brochures and photographs to familiarize the child with the clinic.^[5]
- Appointments should be arranged to minimize the child's waiting time in the waiting room, thereby reducing stress and apprehension.^[18]
- As the child sits in the dental chair, the doctor, attendant, and guardian should continuously remain within the child's field of vision. Parents might opt to be present during initial visits to ensure the child feels secure.^[5]
- Secure the attention of the child before initiating communication. If they don't answer, give a light touch on the shoulder or use a different visual prompt.^[12]
- The dental team should skilfully use gestures and expressions to create a comfortable environment, helping to put the child at ease and foster confidence.^[5]
- Communicate clearly and at a regular speed without raising your voice or exaggerating pronunciation. Keep direct eye contact with the individual while speaking.^[12]
- Parents, as the child's primary interpreters, influence their response to new situations. Supportive family attitudes that acknowledge and accept the child's impairment encourage independence.^[19] In contrast, overly protective attitudes can result in excessive dependence, restricting the child's participation in new situations like dental visits and leading to increased reliance on parental involvement rather than engaging with the dentist.^[5]
- The dentist should not cover their mouth or look away while speaking to child, and should avoid standing in front of a light source that might obstruct visibility of the dentist's face. If the child needs further clarification, the dentist should rephrase the information rather than merely repeating it.^[12]
- When there is mutual trust between the parents and the child, the child can gradually become more independent as the presence of the parents becomes less essential. This method encourages the child's ability to become self-reliant.^[18]
- The tell-show-do method can be adjusted for these patients to a show-do method. However, this adaptation should consider the patient's age, level of impairment, communication abilities, and other relevant factors.^[5]
- The dentist should employ visual aids, gestures, and non-verbal cues when engaging with the child. Additionally, the use of writing tools or text messaging can be beneficial.^[12]
- Furthermore, learning sign language is crucial, as it empowers these children to feel more confident with the dentist, significantly reducing the communication barrier.
- To enhance our research in this area, our Department of Pediatric and Preventive Dentistry has learned basic sign language from a qualified interpreter. This training has enabled us to communicate more effectively with children who are hearing or speech impaired during their treatment. This approach not only enhanced the quality of care and improved communication but also significantly reduced the treatment time, making the entire process more effective and comforting for these children.

(FIG – 2 Demonstrating brushing technique using sign language)

(FIG - 3 Show – Do technique using sign language)

- We have also created a video that demonstrates brushing techniques and treatment procedures in sign language for deaf children. The video not only educates deaf children about essential oral healthcare but also aims to foster a broader societal shift towards more accessible and inclusive educational resources. The reference link for the video is provided below:

<https://youtu.be/wCm90bB2CUk>

- Powerful medication can affect remaining communication abilities, leading to confusion and impaired reasoning. General anaesthesia should be considered only when other behaviour management strategies have been ineffective.^[18]

Conclusion

In conclusion, achieving proficiency in sign language is paramount for dentists to ensure equitable care for children with speech and hearing impairments. It is the fundamental responsibility of healthcare professionals to provide equal treatment and comfort to every patient, regardless of their abilities. Proficiency of sign language enhances communication and significantly improves the quality of care by bridging gaps between the dentist and the child. These children, like all others, deserve the same level of attention and ease during dental visits. Therefore, integrating sign language into the dental curriculum is crucial to guarantee that these children receive the comprehensive care they are entitled to. Embracing a more inclusive approach underscores the commitment to delivering fair and compassionate dental care for all patients, reaffirming the principle that every individual deserves respectful and effective treatment.

Legends:

FIG 1 - FIG: Novel strategy formulated for children with hearing impairment by Navanith Renahan et al(4)

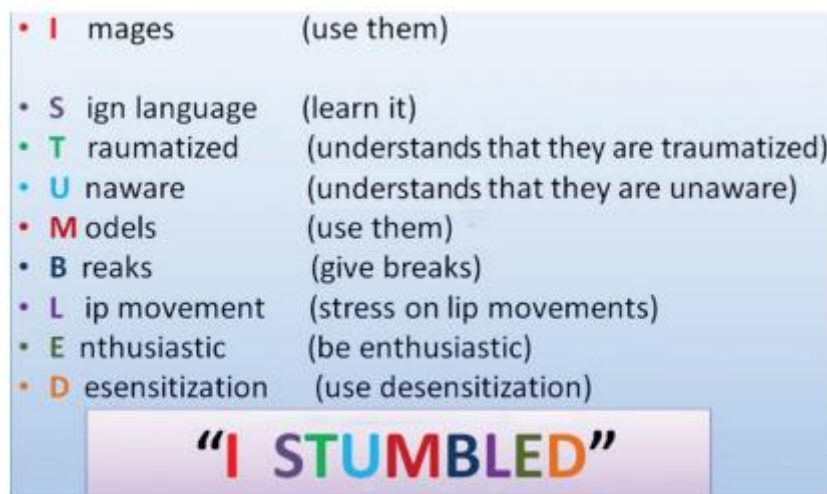


FIG – 2 Demonstrating brushing technique using sign language



FIG - 3 Show – Do technique using sign language



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