

# Investigating Barriers to Promoting Oral Health in Students with Hearing Impairment from Mothers' Perspective: A Qualitative Content Analysis

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**Objectives** Studies have shown the high prevalence of dental caries, negligence of oral health, and unmet dental care needs among children with hearing impairment compared to their healthy peers. This study was conducted to determine the barriers to oral health of children with hearing impairment from the perspective of their mothers.

**Methods** In this qualitative study, semi-structured interviews were conducted with 19 mothers based on purposive sampling in order to investigate the factors affecting compliance with oral health. Interviews were recorded, handwritten, coded and classified; and for content analysis, Graneheim and Lundman's qualitative approach was used.

**Results** As a result of the data analysis, the three main themes of “the effects of general health status, the effects of instruction and learning, and problems in receiving dental health care services” were identified as barriers to good oral health. Moreover, nine sub-themes of “inadequate education regarding oral health, parental insufficient supervision, shortages in dentistry service delivery systems, obstacles hindering mother from pursuing services, lack of guidelines for offering free periodical dental examinations for children with special needs, the impact of improper nutritional habits on oral health, children's mental problems, unfavorable oral health conditions, and the impact of oral health on the child's general health” were obtained.

**Conclusion** Inadequate education in the field of oral health and difficulties in receiving dental services were identified as the most important factors affecting oral health in children with hearing impairment from their mothers' perspective.

**Keywords** Hearing Impairment, Exceptional child, Oral Health.

## Introduction

Normal hearing is the ability to recognize and respond to verbal or acoustic stimulus by humans or animals capable of producing sounds. When an individual cannot hear sounds at 60 decibels (dB) or more, she/her is considered to have a hearing impairment.<sup>1</sup> In March 2020, the World Health Organization (WHO) declared that more than 5% of the world's population (466 million people), including 432 million adults and 34 million children, suffer from hearing impairment, most of whom residing in low and middle-income countries.<sup>1</sup> Children with hearing impairment usually face difficulties when communicating with their parents and friends.<sup>2</sup> They sometimes encounter conflicts with parents who have normal hearing, disappointing both the parents and the child.<sup>3</sup> Therefore, most parents and caregivers direct their attention to the hearing impairment of this children, especially when it is conveyed by other complications, which may deviate their focus from the importance of oral health.<sup>4</sup> The inadequate attention to oral health can be related to obstacles, such as the high costs of dental services, limited access to facilities, fear and acceptance of dentistry, and parents' perception of oral health needs of their children.<sup>5</sup> Therefore, there is a need to improve the attitudes and practice of caregivers to pay attention to the oral health of their children as part of daily care from early childhood.<sup>4</sup> Oral health care is the most common unmet needs of disabled people, and this

negligence may be related to either the disability status, comorbidities, or limited access to facilities.<sup>6</sup> Studies have shown the high prevalence of dental caries, negligence of oral health, and unmet dental care requirements among children and adolescents with hearing impairment compared to their healthy peers.<sup>7, 8</sup> Since parents are the main decision-makers regarding their children's health, their perceptions can significantly influence the choice of preventive and therapeutic care.<sup>9</sup> The main function of qualitative studies is understanding that a phenomenon exists and investigating a specific issue or event. Awareness of the concerns and perspectives of mothers' of children with hearing impairment about their children's oral health, can be the first step to understand and fulfill the oral health needs of these children. Therefore, this study was conducted to determine influential factors to oral health of exceptional school students with hearing impairment in Tehran from the perspective of their mothers. The data resulting from this study promote oral health in this group of children.

## Methods and Materials

The study population in this qualitative study included mothers of female students from 6-12 years old with hearing impairment, studying in exceptional schools in Tehran. Data were gathered by conducting semi-structured interviews with 19 mothers selected randomly by schools'

principals.

Inclusion criteria included having a child of 6-12 years old with hearing impairment, studying in exceptional schools in Tehran. Exclusion criteria were the presence of other disabilities besides hearing problems. The interview questions included the items in Table 1.

**Table 1-** Interview questions

1. What is your perception regarding your child's oral health?
2. Have you ever used preventive dentistry services and relevant education for your child?
3. Have you ever received any training about oral health care?
4. From your point of view, what are the obstacles for the oral health of your child who has a hearing impairment?
5. What are the factors affecting children's oral health from your perspective?
6. How do you supervise your child's oral hygiene?
7. How many times does your child brush his/her teeth?
8. Does your child use adult toothpaste or children's toothpaste?
9. How do you describe your child's nutritional and dietary habits?

The interviews were conducted in a semi-structured, and based on the responses provided by mothers, additional questions were asked during the interview to clarify and better understand their statements. Sampling continued until reaching data saturation, that is, where no new answers to questions were given as the interview continued.

Depending on each interviewee's circumstances, the duration of each interview was 20 - 40 minutes. After interviews, the voices recorded were transcribed verbatim, and the contents were analyzed using the qualitative approach of Graneheim & Lundman.<sup>10</sup> The transcription was done immediately after any interview, and was scrutinized and coded to obtain a general understanding. It should be noted that words, sentences, and paragraphs were regarded as semantic units. In this step, 483 semantic units were extracted. The extracted units were a set of words that were related to each other in terms of content and were placed next to each other according to the content. These semantic units were named under 37 codes after conceptualization processing based on latent concepts and were organized into nine groups. Finally, based on a comparison between categories and their latent content, data was presented under nine sub-themes and three main themes. The validity of data was achieved by reexamining interviews' content with the help of an expert in the field of qualitative research (peer-debriefing) and researcher's long-term engagement with the topic, and reviewing the interviews over a period of ten months (prolonged engagement). For data transferability, the study's method was described completely and in a detailed step-by-step manner (thick description). For confirming the accuracy of the discoveries, the findings were examined by an expert

outside the research team (inquiry audit).

In order to comply with ethical considerations, the research protocol was presented to and approved by the Ethics Committee of the Faculty of Dentistry, Shahid Beheshti University of Medical Sciences (IR.SBMU.DRC.REC.1400.028). Data confidentiality and anonymity were achieved by coding and commitment to observing confidentiality during recording and transcribing interviews. Recorded voices were omitted after transcription, and the participants were assured of this issue. Participation in the study was voluntary, and the participants were informed that they had the right to withdraw at any time without facing any consequences or costs.

## Results

In this study, 19 mothers were interviewed, 10 of whom had lower than diploma education, three had diplomas, two had a bachelor's degree, and four were illiterate. Primary data analysis revealed 483 semantic units. After reviewing and revising these units, they were classified based on their conceptual similarities, leading to the emergence of 37 sub-categories, nine sub-themes, and three main themes. The main themes included "the effects of general health status, the effects of instruction and learning, and problems in receiving dental health care services". (Table 2)

**Table 2-** The factors affecting oral health according to the perspectives of mothers of children with hearing impairment

Themes	Sub-themes
Education and training	-Inadequate education regarding oral and dental hygiene -Parental insufficient supervision
Oral health services	-Shortages in dental delivery system -Obstacles hindering mother from pursuing services -Lack of guidelines for offering freeperiodical dental examinations for childrenwith special needs
General health status	-The impact of improper nutritional habits on oral health -Unfavorable oral health conditions -Children'smental problems -The impact of oral health on the child's general health

### The effects of instruction and learning

According to the perspectives of the participants, parents have not received adequate training regarding oral health practices. Most of the interviewees attributed the main role in educating children about health, to family members. Some of the participants pointed out the lack of enough education regarding oral health in schools. In this regard, mother No. 2 stated: "They don't allocate time in schools to teach these things because they have to spend much of the time in classes.

### Obstacles and problems of receiving services

In the opinion of parents, insufficient knowledge, lack of access to care facilities, fear of dentistry, lack of guidelines for free periodical dental examinations for children with special needs, restrictions dental clinics due to the time of the Covid-19 epidemic and expensive services are among the important factors that make families drop the treatment process. Of course, they believed that the appropriate attitude of the treatment team can play an important role in encouraging parents to cooperate and pursue health care services needed by their children. In this regard, Mother No. 3 said: "There are no pediatric dentists anymore; you should look for them for a long time. It would be great if they teach us such things about oral health, or at least they can introduce us to a center that specifically provides dentistry services for children." This mother continued: "The costs of dentistry services are very high, so much higher than they should be."

### General Health Status

Most of the mothers introduced the consumption of sweets and snacks as important factors in the field of oral and dental hygiene. On the other hand, in this group, parents' attention was mainly focused on problems such as speech and hearing impairment, and for this reason, they may pay less attention to issues such as oral health. Finally, they all believed that oral health plays an important role in maintaining public health.

In this regard, Mother No. 16 stated: "My child eats a lot of chocolate and sweets, and I cannot stop him because he really likes them." Mother No.12 stated: "From the beginning, I took her for mental rehabilitation sessions because of her poor listening memory, where they said to me that it was inevitable since she could not hear, he needed things to be repeated and practiced."

### Discussion

Due to speech and hearing problems, most of the students with hearing impairment have disproportionate age and educational levels. Therefore, parents should emphasize and monitor their children's oral health along with their efforts for their mental and physical development.<sup>11</sup> The results of this study revealed that education and supervisory models, obstacles to receiving oral health services, and general health status were the most important determinants of adherence to oral health among the other subjects. Therefore, parental supervision has a key role in children's oral health, especially during the first years of their lives. This study, we demonstrated that insufficient knowledge and lack of awareness of the importance of regular visits to the dentist for receiving preventive services and correcting superficial tooth decay were among the important factors affecting oral health. In a 2004 study by Oredugba et al.<sup>5</sup> in Lagos, Nigeria, assessing awareness regarding oral

health care among hearing-impaired adolescents, it was noted that school officials' inadequate knowledge about good oral health, lack of motivation, giving minimal priority to oral hygiene in the community, and parents' or guardians' poor socioeconomic status predicted a poor oral health status among disabled children. Another finding of the mentioned study was limited access to dentistry services such as endodontic treatments.

The lack of specific guidelines for offering periodical dentistry examinations, parents' insufficient knowledge about the importance of this issue, the high cost of dentistry services, and the lack of giving priority to the dental health of these children were identified as the factors contributing to the refusal of people from visiting dentists despite having dental problems. In one study, Rajabloo et al.<sup>12</sup> assessed oral health status and the pattern of seeking dentistry services among students with hearing impairment. The results of Rajabloo's study revealed that half of the students had never visited a dentist, and more than half of the visits were due to dental problems. Also, some parents declared their lack of need for dental services as an obstacle to receiving such services. In a study by Suma<sup>13</sup> in Karnataka, India, investigating the oral health status and practices among children with hearing and speech impairment revealed that most of these children had never visited a dentist.

We found that eating sweet substances and snacks was another barrier, significantly associated with the level of oral health and dental caries, which was in line with the report of Vichayanrat et al. in 2014 in Thailand, who stated that the level of oral hygiene was significantly associated with dental caries.<sup>14</sup> Most of our participants believed that children received much oral health information from their parents, which was contradictory to the report of Vichayanrat et al., stating that students with hearing impairment were less likely to receive oral health information from their parents.

In a study on barriers to promoting oral and dental health of the students with Down syndrome<sup>15</sup>, the following main concepts were reported: "impacts of general health status", "impacts of education and training", and "obstacles to receiving dentistry services". These concepts matched those identified in our study. It is noteworthy that children with Down syndrome, because of mental problems, experience more difficulties in learning and maintaining oral health and receiving dentistry services compared to children with hearing impairment.

### Limitations

Because this study was conducted amid the Covid-19 crisis, when schools were partially closed, it was difficult to arrange face-to-face interviews with mothers who needed to come to schools for this purpose. Despite coordination with participants, some school principals did not cooperate in conducting the interviews. Considering

that this study was conducted on girls only, the generalizability of our results to all children of both genders may be limited.

## Conclusion

It is suggested that due to the high costs of hearing aids and relevant treatments, including speech therapy, children with hearing impairments are offered free intermittent dentistry examinations and dental services at lower costs to reduce the burden imposed on families by this disability. Also, creating healthcare centers specifically designed for this group or other special needs, upgrading the knowledge of dentists and assistants regarding how to deal with these children, expediting and prioritizing the timely provision of health care to this group, and establishing a suitable environment for appropriate communication between the

child and the dentist, and creating motivation for subsequent visits will greatly help maintain good oral health for these children.

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## Conflict of Interest

No Conflict of Interest Declared ■

## References

1. Alkahtani FH, Baseer MA, Ingle NA, Assery MK, Al Sanea JA, AlSaffan AD, et al. Oral health status, treatment needs and oral health related quality of life among hearing impaired adults in Riyadh City, Saudi Arabia. *J Contemp Dent Pract.* 2019; 20(6):744.
2. Gupta DP, Chowdhury R, Sarkar S. Prevalence of dental caries in handicapped children of Calcutta. *J Indian Soc Pedod Prev Dent.* 1993; 11(1):23-7.
3. Barker DH, Quittner AL, Fink NE, Eisenberg LS, Tobey EA, Niparko JK, et al. Predicting behavior problems in deaf and hearing children: The influences of language, attention, and parent-child communication. *Development and psychopathology.* 2009; 21(2):373-92.
4. Jnaneswar A, Subramaniya GB, Pathi J, Jha K, Suresan V, Kumar G, et al. Assessment of dental caries and periodontal status in institutionalized hearing impaired children in Khordha District of Odisha. *J Indian Soc Pedod Prev Dent.* 2017; 35(3):203-8.
5. Oredugba, F.A. Oral health care knowledge and practices of a group of deaf adolescents in Lagos, igeria. *J Public Health Dent.* 2004; 64(2):118-20.
6. Bhardwaj VK, Fotedar S, Sharma KR, Luthra RP, Jhingta P, Sharma D. Dentition status and treatment needs among institutionalized hearing and speech impaired children in Himachal Pradesh in India: a cross-sectional study. *SRM J Res Dent Sci.* 2014; 5(2):78.
7. Miranda MS, Mourão AM, Lamenha-Lins RM, Nogueira RF, Carcavalli L, Lisboa SO, Ferreira FM, Serra-Negra JM. Pediatric Oral Health Self-reported by Caregivers of NormalHearing and Hearing-Impaired Children. *Pesquisa Brasileira em Odontopediatria e Clínica Integrada.* 2022 Jul
8. Swallow JN. The dental problems of handicapped children. *R Soc Health J.* 1965; 85(3):152-7.
9. Kenney MK, Kogan MD, Crall JJ. Parental perceptions of dental/oral health among children with and without special health care needs. *Ambul Pediatr.* 2008; 8(5):312-20.
10. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Educ Today.* 2004; 24(2): 105-12.
11. Kumar S, Dagli RJ, Mathur A, Jain M, Duraiswamy P, Kulkarni S. Oral hygiene status in relation to socio demographic factors of children and adults who are hearing impaired, attending a special school. *Spec Care Dentist.* 2008; 28(6): 258- 64.
12. Rajabloo S, Pakkhesal M, Naghavi Alhosseini A, Ghorbani Z, Rajabi A. Mothers view about oral health status, oral hygiene behaviors, and dental services utilization of their children with hearing impairment attending special schools. *Spec CareDentist.* 2022; 42(2):149-54.
13. Suma G, Das UM, Akshatha BS. Dentition status and oral health practice among hearing and speech-impaired children: a cross-sectional study. *Int J Clin Pediatr Dent.* 2011; 4(2):105-8.
14. Vichayanrat T, Kositpumivate W. Oral health conditions and behaviors among hearing impaired and normal hearing college students at ratchasuda college, nakhon pathom, thailand. *Southeast Asian J Trop Med Public Health.* 2014; 45(5):1228- 35.
15. Ghorbani Z, Vahdati A , Pakkhesal M, Ghasemi H, Attaran N. Investigating barriers to promoting oral health in students with down syndrome from a mothers' perspective: a qualitative content analysis. *Res Dent Sci.* 2021; 18(1):46-56.

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