

Parents View About Oral Health Status, Oral Hygiene Behaviors, and Dental Services Utilization of Their Children With Hearing Impairment Attending Special Schools

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Research note

Keywords: oral health status, oral hygiene behavior, dental service utilization, hearing impairment, special school, parent view

Posted Date: May 13th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-505933/v1>

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Abstract

Objectives: Parents are the principal decision-makers regarding their child's health. Awareness of parents' views regarding their children's health, particularly with special health care needs, is essential for health care providers. Therefore, the present study aimed to assess the parents' view about oral health status, oral hygiene practices, and dental services utilization of their children with hearing impairment attending special schools.

Results: 57.4% of the parents rated their children's oral health status as very good or good, 27.9% as moderate, and 9.0% as poor. About half of the parents (49.2%) stated that their children used toothbrush once daily, and 15% use dental floss. Also, 54% of the children visited the dentist before this survey's conduct. The twice brush or more a day was significantly associated with the oral health status (OR: 22.16; CI 95%), and other factors did not show a significant association.

Introduction

Normal hearing is the ability to recognize, interoperate, and respond to verbal or noise stimuli by humans or animals capable of producing sounds. The terms "hearing impairment" and "hearing loss" indicate that the audiometric evaluation is below the standard hearing threshold, around 15 decibels (dBs). The term "deaf" is described in cases of severe or complete loss of hearing. This disability can either be inherited or acquired through time or disease process [1]. In March 2020 World Health Organization declared that Over 5% of the world's population (466 million people) has disabling hearing loss, which consisted of 432 million adults and 34 million children. Also, The majority of them live in low and middle-income countries [2]. Individuals with special health care needs (SHCN) have a higher risk of contracting certain oral diseases, such as dental cavities and gingivitis, and limited use of dental services can significantly affect these risks [3]. The lack of communication among the hearing impaired may lead to inequalities in healthcare access compared with the general population. Also, hearing-impaired subjects have poorer oral hygiene and use healthcare services than persons who are not impaired [4]. One essential tool for achieving good oral health is effective and efficient oral hygiene practices. Regular tooth brushing using fluoride-containing toothpaste at least twice a day is recommended to achieve and maintain good oral hygiene and prevent dental caries. The use of dental floss to clean interproximal surfaces is also crucial for effective plaque removal [5].

Dental care is the most common unmet health care need of disabled children. The disabled children's oral health may be neglected because of the disability condition, demanding diseases, or limited access to oral health care. It has been reported that dental treatment is the greatest unattended health need of the disabled [6]. This may be related to the barriers of seeking dental care, such as treatment cost, accessibility of facilities, fear of pain, acceptability of dentistry, and perception of dental need by children and parents [7].

Oral hygiene among children and young adults with hearing impairment was significantly associated with age, economic status, and parents' education, especially maternal education [8]. Low-education and low-income families do not pay enough attention to dental care and regular preventive visits, which could be caused dental caries to progress [9]. The nonattendance at the dentist of children with disabilities could be due to the low priority parents placed on their children with disabilities or the reduced importance of oral health [4]. Utilization studies serve as an important tool for oral health policy decision-making. By understanding these analyses, dentists will be better positioned to provide care and meet the needs of all persons with hearing impairment.

An awareness of parent perceptions regarding their children's oral health status, dental problems, and preventive dental care, especially with special health care needs, is essential for health care providers. Parents are the principal decision-makers regarding their child's health. Their perceptions can significantly influence preventive care and treatment choices and are important to a comprehensive understanding of the issues [10]. Parents are valuable advocates for their children, and they are capable of initiating solutions that can improve the habilitation process. Based on the parent's opinions, the following strategies offer service providers for children with hearing loss in developing countries recommendations to include in their service provisions that may improve parental involvement [11].

The present study was conducted to assess oral health status, oral hygiene practices, and dental services utilization patterns among subjects with hearing impairment attending special schools.

Materials And Methods

This observational cross-sectional study was conducted from May to September 2020 among 6 to 20 years old subjects with hearing impairment. Samples were selected from two special schools in Gorgan city of Golestan province, the north-eastern part of Iran. The list of special schools, the total number of students in each school, and written permission to perform investigation procedures were obtained from the local Education and Training Office. Here, the hierarchy of gatekeepers, such as the local authority responsible for special schools, managers, and teachers of schools, supported the researcher's access to the fieldwork site and legitimized the study. Besides, written consent was obtained from parents via an electronic signature in the virtual setting (WhatsApp).

A total of 76 children attended these special schools; 61 were in the appropriate age group. All participants were informed about the study aim by the special schools' assistant director before the survey. On the other hand, before the interview, it was established that each participant understood the purpose of the interview and was happy to proceed.

The present study was approved by the Research Ethics Committee of Golestan University of Medical Sciences (IR.GOUMS.REC.1398.343) and performed entirely following Helsinki's Declaration. All participants' rights were protected. Moreover, the data were handled anonymously and confidentially in all stages of the research. Consequently, all documents were de-identified using a participant code, and the names of individuals were removed.

Data on demographic characteristics, medical history, and hearing impairment severity were collected from archives in the schools. Moreover, each parent take part in a 15–20 minutes' telephone interview. All interviews were accomplished by a single researcher using topic guide questions utilized in Jin & Daly's study [12].

Subsequently, students' oral health status was rated (good/ very good, moderate, poor) according to parental response to “How would you describe the health of your child's mouth, teeth, and gums?”. The second section asked parents about oral hygiene practices, e.g., tooth brushing frequency per day and dental floss usage by their children. Besides, previous dental visits and reasons for those visits were asked to obtain their dental care utilization pattern. Finally, a researcher asked about parents' experienced problems related to the utilization of dental services for their children.

The frequencies of variables were obtained by descriptive statistical analysis. Comparisons of the variables were conducted using Fisher's exact test or chi-square test, as appropriate. Univariate logistic regression was used to determine which factors significantly associated with oral health status, as defined by odds ratios (ORs) with 95% confidence intervals. P-values less than 0.05 were considered to be statistically significant. All analyses were performed using the statistical software STATA version 16 (Stata Corp, College Station, TX).

Results

A total of 61 students with hearing impairment, 38 males and 23 females, aged between 6 to 20 years (mean age \pm SD: 15.70 \pm 3.60), participated in the study. The study population's demographic characteristics such as age, gender, race, and school level were illustrated in Table 1.

Table 1
Demographic characteristics of students with hearing impairment attending special schools from parents' views (n = 61)

variables	Number (%)
Gender	
Male	38 (62.3)
Female	23 (37.7)
Age (in years)	
6–15	23 (37.7)
> 15	38 (62.3)
Race	
Fars	27 (44.3)
Turkmen	18 (29.5)
Sistani	16 (26.2)
Mother Education level	
Illiterate	4 (6.6)
Elementary	34 (55.7)
High school and more	23 (37.7)
Father Education level	
Illiterate	8 (13.1)
Elementary	21 (34.4)
High school and more	32 (52.5)
Maternal occupation	
Housekeeper	56 (91.8)
Voluntary worker	3 (4.9)
Employee	2 (3.3)
Paternal occupation	
Does not work	1 (1.6)
Voluntary worker	16 (26.2)
Employee	4 (6.6)

variables	Number (%)
Self-employed	40 (65.6)
Student's education level	
Elementary	18 (29.5)
Secondary	26 (42.6)
High	17 (27.9)

About half of the parents (49.2%) stated that their children used toothbrush once a day, and 15% use dental floss. Moreover, 57.4% of the parents rated their children's oral health status as very good or good, 27.9% as moderate, and 9.0% as poor (Table 2).

Table 2
Distribution of oral health behaviors and oral health status among students with hearing impairment attending special schools from parents' views

Variables	Number (%)
Tooth brushing	
Twice or more a day	22 (36.1)
Once a day	30 (49.2)
Some times	9 (14.8)
Dental flossing	
Yes	15 (24.6)
No	46 (75.4)
Sweet meal intake	
never	10 (16.4)
Some times	21 (34.4)
One time or more a day	30 (49.2)
Oral health status	
Good/ very good	35 (57.4)
Moderate	17 (27.9)
Poor	9 (14.8)

The results also showed that only 54% of the participants visited the dentist before this survey. More than half of these visits (66.7%) were due to dental problems (Table 3).

Table 3
Frequency distribution of dental care utilization pattern among students with hearing impairment attending special schools from parents' views

Variables	Number (%)
Last dental visit	
Less than 6 months ago	13 (21.2)
6–12 months ago	6 (9.8)
1year and more	14 (23.0)
No visit	28 (46.0)
Cause of last dental visit	
Dental pain/ oral & gingival problems	22 (36.0)
Routine check-up	9 (14.8)
Do not know / forgotten	2 (3.2)
No visit	28 (46.0)

Related to barriers of dental services utilization, 34.4% of parents reported "no need for the use of dental services", 27.9% "no problem in dental visits", 26.2% had "cost difficulties", 9.8% "insurances do not cover dental costs" and 1.6% "dentists` unwillingness". Moreover, dental services utilization was not significantly associated with study variables. However, twice brush or more a day than sometimes brush significantly associated with the oral health status (OR: 22.16; CI 95%: 161.83–3.03), and other factors did not show a significant association.

Discussion

Oral health is essential to all persons' health and well-being, especially those with disabilities, because they have more significant oral health needs. In the present study, oral health status, oral hygiene practices, and dental services utilization patterns were assessed among pupils with hearing impairment attending special schools. Our results revealed that a good proportion (57.4%) of the parents rated their children's oral health status as very good or good, and approximately half of the students (46%) don't have dental services utilization. Also, about half of the students (49%) brush their teeth once daily, have sweet meal intake one time or more a day, and most participants do not use dental floss. Our study's findings among hearing-impaired students are unexpected and may not represent hearing-impaired young adults in general. The participants in our investigation were studying in special schools with a

perfect organization. There may be specific characteristics that influenced this group's oral health behaviors compared to other hearing-impaired students. Likewise, the Vichayanrat study showed hearing impairment did not appear to affect the prevalence of oral health conditions and behaviors than those with normal hearing [8]. The Oredugba study results showed that only 12% of a group of deaf adolescents had received dental care in Nigeria. Ninety-four percent brushed their teeth once daily, and the majority of pupils (60%) preferred biscuits and soft drinks as snacks [13]. Controversy, the other study in a special senior high school of East China illustrated a relatively lower proportion of dental health knowledge and lower proper dental health behavior among deaf students than the control group [14].

The use of dental services has been the attention of several studies between different ages and populations [15–19]. In the present study, we found that 45.9% of students had never visited the dentist yet, but in a study in India, 80.26% of the participants had never visited the dentist for a check-up or treatment [20]. Too, in our study, 66.7% of dental visits were because of dental pain or other mouth and gingiva problem rather than a routine checkup. In other words, dental services utilization was almost limited to urgent practices instead of preventive care. It was maybe due to low priority of oral health compared to hearing impairment, lack of knowledge, the problem in costs, etc. Similarly, in the Kumar et al. study, most subjects had no dental visit for a check-up or treatment [4]. In this way, some studies showed that children with developmental disabilities face even more perceived barriers to care based on family income and socioeconomic status [21–23].

Limitations

The first limitation of this study was the possibility of recall bias since parents may inaccurately respond to the questions. The second limitation was the socially desirable response bias, which was the interviewee's tendency to give overly positive responses.

Abbreviations

SHCN: Special Health Care Needs

Declarations

Acknowledgments:

The authors thank all parents for joining the study and their support in answering the telephone interview.

Authors' contributions:

SR and MP conceived the study idea and designed the work, SR led data collection, SR, MP, and AN led the writing, MP and ZG interpreted the data and revised manuscript, and AR led statistical analysis. All authors read, edited, and approved the final manuscript.

Disclosure of interest:

The authors report no conflict of interest.

Ethics approval and consent to participate:

The Research Ethics Committee of Golestan University of Medical Sciences (IR.GOUMS.REC.1398.343) approved the present study. Accordingly, written permission was obtained from a hierarchy of gatekeepers, such as the local authority responsible for special schools in the area. Besides, written consent was obtained from parents via an electronic signature in the virtual setting (WhatsApp).

Consent for publication:

Not applicable.

Availability of data and materials:

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests:

The authors declare no conflicts of interest.

Funding:

Not applicable.

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