Education, Training and Motivational Oral Hygiene Model for Hearing and Speech Impaired Children

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Abstract

Aims and Objectives: 1) To impart dental education to hearing and speech impaired children and their teachers.2) To conduct training of hearing and speech impaired children and their teachers in the rules of oral hygiene .3) To motivate hearing and speech impaired children regarding oral hygiene care.Materials and methods: The study was conducted on 30 children aged between 6 to 13 years with congenital deafness .Their education and training was done with specially designed methodology with due consideration to their disability. Results: There was significant improvement in the plaque and gingival scores with use of the education training model. Motivation helped to inculcate a positive attitude towards their oral hygiene. Conclusion: Our specially designed educational training model for hearing and speech impaired children improved their oral hygiene .This can be applied on a larger scale to prevent dental diseases in children with disabilities

Keywords: Dental education, Oral Hygiene, Hearing impairment, Oral Hygiene Index

INTRODUCTION

The word "deaf" usually refers to an individual with very little or no functional hearing and who often uses sign language to communicate. Hard of hearing refers to an individual who has a mild-to-moderate hearing loss who may communicate through sign language, spoken language, or both. Disabling hearing loss refers to hearing loss greater than 40 decibels (dB) in the better hearing ear in adults and a hearing loss greater than 30 dB in the better hearing ear in children. A person who is not able to hear as well as someone with normal hearing – hearing thresholds of 25 dB or better in both ears – is said to have hearing loss. Hearing loss may be mild, moderate, severe, or profound.[1, 2]

Studies have shown that children with hearing and speech impairment (HSI) have poor oral hygiene along with increased prevalence of dental caries and periodontal diseases. This can be due to variable access to dental care, inadequate oral hygiene and disability related factors along with lack of awareness and education regarding oral hygiene. Oral care is not a priority to families of the disabled children. Earlier studies on oral health status of children with impaired hearing and speech reported poor oral hygiene and low utilization of dental services which may be attributed to health care neglect (by care takers or parents) which may be because of ignorance, fear, stigma, misconception and negative attitude, inability to hear and comprehend speech, socioeconomic status etc. [2,3]

Hence this study was carried out the following aim and objective: 1) to impart dental education to hearing and speech impaired children and their teachers.2) to conduct training of hearing and speech impaired children and their teachers in the rules of oral hygiene .3) to motivate hearing and speech impaired children regarding oral hygiene care.

MATERIAL AND METHOD

The study was conducted at Liliyan Residential School for Deaf Girls**,** Aurangabad City, and Maharashtra. The study was approved and authorized by the Institutional Ethical Committee for research at Government Dental College and Hospital, Aurangabad. Permission was taken from the Director of Liliyan Residential School

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for Deaf Girls for conducting the education and motivation training programme. The children between 5-15 years with HSI were included in this study. The teachers training these children were also included in the study. The medically compromised children and those undergoing periodontal or orthodontic treatment were excluded from the study. Children with impaired manual dexterity were also excluded from the study. Thirty children and five teachers became the part of this study. The education, training and motivation model comprised of the following: 1) Educational material: This consisted of enlarged plaster models of dentition and molars. The molars were shown with cavitations depicted with use of brown oil paint. The toothbrush was used on the plaster model to demonstrate the correct brushing technique. 2) Visual Aids: Charts demonstrating correct brushing technique, tips for oral hygiene maintenance and diet for healthy dentition. Videos of proper brushing method taught using sign language were prepared.3) Motivational material: A chart for recording brushing for two times a day, provided by Colgate, was provided to each student. The students and their teachers were provided with the written instructions regarding oral hygiene.A specially designed methodology for the education and training of oral hygiene was prepared. It was in accordance of the physical, psychological and behavioral needs of children with hearing and speech impairment. The teachers proficient in the sign language and day to day contact with these children were the pillars of this study. The methodology consisted of following parts:

1) Teachers Education and Training: The teachers were assembled in their staff room where the researcher introduced herself and explained to the teachers the purpose of the study and obtained their consent to participate .They were educated regarding importance of oral hygiene, tools for maintain oral hygiene and brushing method .They were informed about tooth decay and its causes. They were also educated regarding importance of diet in maintain good oral health. The steps of tooth brushing were demonstrated on the plaster model using toothbrush. They were also informed regarding the dispensing of the correct amount of tooth paste. All their queries were answered before we began with education and training of children.

2) Education of HSI Children: The children were divided into six small group, each group having five children. One teacher was allotted to each group. They were educated about the same topics as their teachers. Their teachers translated our information in sign language so that the children could understand. If the students had any query they were asked to write it down on the black board. The researcher provided with answer which was translated in the sign language by their teacher. Following the education the children were shown charts and videos demonstrating correct brushing technique. The brushing technique was then demonstrated on the plaster model of human dentition using toothbrush.

3) Training of HSI Children- The method of visual pedagogy and step-by-step training was used.Modelling techniques like Tell, Show, Do and "Do as I Do", Hand over hand, was used for demonstration of brushing method. Disclosing agent was applied on the teeth to show the children the presence of plaque. The brushing was demonstrated by the researcher on one the child amongst the group. Again the disclosing agent was applied on the teeth .This way the children could appreciate the effectiveness of brushing in removal of plaque. This also helped in their motivation.

4) Motivation HSI Children: All the children were instructed to record each brushing in the morning and evening in the chart provided to them.

Simplified Oral Hygiene Index (OHI-S) for assigning scores to the tooth surfaces based on *Greene and Vermillion, 1964.* The training program was started immediately after the first oral hygiene examination.The training program was divided into four sessions lasting 20-35 minutes each. The total duration of this phase of the study was six weeks.

RESULTS

The Statistical Package for Social Sciences (SPSS) (Version 16.0, SPSS Inc, Chicago) was used for data analysis Paired *t*-test was used to compare the scores before and after the

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instructions. For all the tests, a *P* value of 0.05 or less was set for statistical significance and a value of 0.001 or less represents a highly significant relation. The results from the training in oral hygiene of children with hearing loss, for a period of six weeks, are presented in Table 1.

Table 1: Oral hygiene index of deaf children during training

OHI	Mean	SD	t	p
Baseline	2.21	0.54		
After 1 week	2.13	0.45	0.13	>0.05
After 2week	2.11	0.39	0.12	>0.05
After 3 week	2.14	0.38	0.71	>0.05
After 4week	2.03	0.33	3.02	<0.001
After 5 week	1.83	0.47	5.42	<0.001
After 6 week	1.73	0.51	6.38	<0.001

SD- Standard Deviation, t- Paired *t*-test

A reduction in the oral hygiene index is being detected in the very first week after the initial motivation and training. This trend continued until the third week of training. This shows the difficulty in influencing children with hearing loss and the need of persistent and continuous motivation. After this period, the improvement of oral hygiene was with high statistical significance as compared with the output value of the index. This improvement and reliability was maintained until the end of the training program.

DISCUSSION

The disability in children with hearing loss is a serious reason for poor implementation of the instructions and insufficient motivation for conducting oral hygiene. These children have poor dental health. The reasons for this are the barriers for accessing dental care and the difficulties for communication with others. There are serious difficulties in the acquisition of knowledge and skills. In order to overcome the barriers in communication efforts special teachers are needed, as well as the efforts of parents and medical staff to assist the dentist. Training is essential to change the behavior of children with disabilities. In the literature, there is not enough data on the state of oral hygiene in children with hearing loss. Many studies show worse oral hygiene in children with disabilities than in healthy children.[4, 5]

Hearing loss puts the child at risk of communication and language deficits and reduced cognitive skills. It has been discovered that if the defect is acquired in the early life stages, there is a devastating effect on the maturation of the brain and the overall development of the child.[6] all these factors contribute to the poor oral health of children with hearing loss. Poor oral hygiene in children with hearing loss, established by the study, that we conducted, has been confirmed by other studies. [7,] Training of oral hygiene in this special group requires more time or replacement of explanations with visual display. The childhood is the best stage for the formation of health habits in these children who can change their health profile at a later stage of their life. Education in oral health is the key to prevention of oral diseases. Different types of educational protocols have been reported - (direct / indirect) and personal instruction, self-study guide and audio-visual aids. [8]The results show that the written instructions are less effective than visual instructions, which are very easy to learn and carry information that is clear and easy to remember.

CONCLUSION

The created education, training and motivation program in oral hygiene in children with hearing disabilities, supported by specially crafted picture training system provide a real opportunity to improve the oral environment and reduce the risk of caries.

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