



## Oral health education for children and adolescents with hearing impairment: experience report


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### Oral health education for children and adolescents with hearing impairment: experience report

**Abstract** The authors report the experience of an oral health education action directed at children and adolescents with hearing impairment enrolled in a reference school for the hearing impaired in a large city in the state of Paraíba in Northeast Brazil. University students participating in an extension project conducted the action with the assistance of three interpreters of Brazilian sign language. The action involved two interventions, the first with children in the first to fifth year of primary school, who received information on the importance of a healthy diet and orientations on toothbrushing and the use of dental floss. The second involved adolescents from the sixth to ninth year, who received clarifications on myths and truths about oral health to address the main questions of the students. Both interventions were successful and ensured the effective participation of the students, who engaged in the activities and shared knowledge with the children and adolescents. University extension programs constitute an important aspect of academic education and the humanist formation of future dentists, enabling them to share with the community knowledge acquired during their university education and providing rich health education opportunities.

**Descriptors:** Health Education. Hearing Loss. Oral Health. Students, Dental.

### Educación en salud bucal para niños y adolescentes con discapacidad auditiva: relato de experiencia

**Resumen** Los autores relatan la experiencia de una acción de educación en salud bucal dirigida a niños y adolescentes con discapacidad auditiva, matriculados en una escuela de referencia para la enseñanza de la comunidad sorda en una ciudad con gran población ubicada en el estado de Paraíba, Nordeste brasileño. Los estudiantes que participan de un proyecto de Extensión Universitaria realizaron la acción con la ayuda de tres intérpretes de Lengua de Señas Brasileña (Libras), proporcionados por la institución. Se destaca la división de la acción en dos momentos: el primero, inicialmente dirigido a niños de primero a quinto año de educación primaria, a través de dinámicas que tuvieron como objetivo trabajar la importancia de una alimentación saludable, así como orientaciones sobre el cepillado y el uso de hilo dental; y un segundo momento, realizado con adolescentes de sexto a noveno año de educación primaria, a través de una dinámica de mitos y verdades sobre la salud bucal, con el fin de aclarar las principales dudas de los estudiantes. Ambos momentos fueron exitosos y garantizaron la participación efectiva de los estudiantes que involucraron y compartieron muchos conocimientos con los extensionistas. De esta manera, se evidencia cuánto la Extensión Universitaria es una actividad importante en la formación académica y humana de los futuros cirujanos dentistas y, principalmente, en devolver a la comunidad el conocimiento generado en la academia, brindando oportunidades para momentos ricos de educación en salud.

**Descriptores:** Educación en Salud. Pérdida Auditiva. Salud Bucal. Estudiantes de Odontología.

### Educação em saúde bucal para crianças e adolescentes com deficiência auditiva: relato de experiência

**Resumo** Os autores relutam a experiência de uma ação de educação em saúde bucal voltada a crianças e adolescentes com deficiência auditiva, matriculados em uma escola referência para o ensino à comunidade surda de uma cidade de grande porte

populacional localizada no estado da Paraíba, Nordeste brasileiro. Os alunos participantes de um projeto de Extensão Universitária conduziram a ação com o auxílio de três intérpretes da Língua Brasileira de Sinais (Libras), disponibilizados pela instituição. Destaca-se a divisão da ação em dois momentos: o primeiro, inicialmente destinado às crianças do primeiro ao quinto ano do Ensino Fundamental, por meio de dinâmicas que objetivaram trabalhar a importância da alimentação saudável, bem como orientações sobre a escovação e o uso do fio dental; e um segundo momento, realizado com os adolescentes do sexto ao nono ano do Ensino Fundamental, por meio de uma dinâmica de mitos e verdades sobre a saúde bucal, a fim de esclarecer sobre as principais dúvidas dos alunos. Ambos os momentos foram exitosos e garantiram a participação efetiva dos estudantes que se engajaram e compartilharam muito conhecimento com os extensionistas. Desta forma, é notório o quanto a Extensão Universitária é uma atividade importante na formação acadêmica e humana dos futuros cirurgiões-dentistas e, principalmente, na devolutiva à comunidade de conhecimentos gerados na academia, oportunizando momentos ricos de educação em saúde.

**Descritores:** Educação em Saúde. Perda Auditiva. Saúde Bucal. Estudantes de Odontologia.

## INTRODUCTION

Hearing impairment is the partial or complete loss of auditory processing. The degree of hearing loss is classified as mild (21-40 decibels), moderate (41-70 decibels), severe (71-89 decibels) or profound (>90 decibels)<sup>1</sup>. In Brazil, more than 9.7 million people have hearing impairment, 230,140 of whom live in the state of Paraíba<sup>2</sup> and constitute a portion of the population that needs its place in society assured.

The right to health of the hearing impaired is stated in Decree nº 5626 of December 22<sup>nd</sup>, 2005, which ensures equitable, integral care<sup>3</sup>. However, the resolution of health concerns within the health care system can be hindered by the linguistic barrier, impeding access to prevention programs and the treatment of health problems<sup>4</sup>. Thus, reflections should be made on the inadequacies of medical and dental education in terms of the use of Brazilian sign language, which is the legal means of communication in the deaf community<sup>5</sup>. As a result, interaction with these individuals generally occurs through alternative methods, such as family intermediation, lip reading and gesturing, which do not ensure effective interaction and interfere with active listening. This situation can result in the accumulation of health needs, which has direct implications for quality of life<sup>6</sup>.

Oral health problems are more prevalent in the hearing impaired compared to individuals with normal hearing<sup>7</sup>, which may be related to the lack of access to information on oral hygiene in this portion of the population. Thus, the hearing impaired may have greater difficulties in identifying problems that affect their oral health, which may explain the higher prevalence of dental caries, periodontal disease and tooth loss in these individuals compared to the general population<sup>8,9</sup>.

In this scenario, oral health education actions directed at the hearing impairment are important to stimulating self-care related to oral hygiene and raising awareness on the importance of the maintenance of oral health and the prevention of diseases, with the understanding of the need to promote health in an individualized manner in this population to ensure social inclusion and equitability<sup>4,10</sup>.

University extension activities offer the opportunity to go beyond the walls of the university and work directly with the community through interventions that are fundamental to the democratization of knowledge. Such activities benefit students and professors as well as the community, which has the opportunity to have access to what is discussed and taught at the university<sup>11</sup>. Extension activities at schools are particularly valuable, as children and adolescents are in the process of developing health-related behaviors, which facilitates the acceptance of new habits and the dissemination of this new information among families<sup>12</sup>.

The presence of Brazilian sign language as a component of the curriculum at dental schools in the country seems not to be effective, resulting in the unsatisfactory performance of dentists with regards to meeting the needs of patients with hearing impairment<sup>13-15</sup>.

This paper reports the experience of an oral health education action directed at children and adolescents with hearing impairment enrolled in a reference school for the hearing impaired in a large city and neighboring municipalities in Northeast Brazil.

## EXPERIENCE REPORT

The university extension project entitled “Sweet Waiting: the welcoming reception that precedes dental care” is promoted by the Department of Dentistry of Campus I of *Universidade Estadual da Paraíba* (Campus I/UEPB), the aim of which is to produce resources and strategies directed at health promotion and disease prevention for the pediatric population at the UEPB Teaching Dental Clinic and their guardians and reduce the fear and anxiety the precede dental appointments through playful activities in the waiting room. The project has the participation of dental students, who are responsible for the planning and creation of the materials used in the actions under the supervision of their advisor, and operates weekly prior to care offered to pediatric patients, targeting patients six to 12 years of age.

The project also promotes “delivery” actions, which take the strategies and resources to settings outside the university, as described in the present experience report. The activity in question took place at the Demóstenes Cunha Lima State Primary and High School of Audio Communication Teaching located in the city of Campina Grande, state of Paraíba, Brazil. This bilingual school is considered a reference center for the hearing-impaired community in the city and surrounding municipalities, with approximately 70 students distributed between child education and youth/adult education.

The decision to implement the project in this setting was based on the perception of the difficulties that the deaf community has in gaining access to health education activities, as these individuals face daily obstacles when seeking health services and care<sup>16</sup>. Thus, the activities were directed at oral hygiene practices and the importance of a healthy diet for the maintenance of oral health as well as regular visits to the dentist. The aim was to raise awareness of the importance of oral health and alter the predisposition of this portion of the population to higher occurrences of oral problems<sup>17</sup>.

The team was composed of five students – three from the eighth and two from the fourth period of the dental course – as well as four interpreters (employees of the school), who intermediated communication, as none of the dental students knew Brazilian sign language. The aim of this decision was to enable better interactions with the children and adolescents and improve their understanding of what was being discussed<sup>14</sup> based on the supposition that lip reading, writing and alternative methods of communication are insufficient to ensure the understanding of individuals with hearing impairment<sup>18</sup>.

The action was divided into two interventions based on the age group of the students. The first involved children in the first to fifth year of primary school and the second involved adolescents from the sixth to ninth year of primary school, as shown in the flowchart displayed in Figure 1. The two groups began with a total of 56 students. On the day of the intervention, however, only 34 students were present – eight children participating in the first intervention and 26 adolescents in the second intervention. The students had different degrees of hearing loss, with a prevalence of profound hearing loss.

### *First intervention: Oral health education for children*

The first intervention involved eight participants seven to 11 years of age. Considering the age group, play activities were used to facilitate the understanding and maintain the attention and interest of the participants throughout the action. Thus, a dynamic exercise entitled “Good Foods for the Teeth x Bad Foods for the Teeth” was performed, for which posters were made in the shape of teeth and simulated foods had been made in ethylene-vinyl acetate (EVA). The activity involved the participation of two characters, who held up the posters: the “tooth fairy” and “cavity critter”. During

the intervention, the children were asked which foods presented were good for the teeth and which were bad, stimulating interactions with the characters and active participation in a playful, visual way.

The main objective of this activity was to sensitize the children about the action of foods with organoleptic properties that become potentially cariogenic<sup>19,20</sup>, while also emphasizing the protective effects of fruits and fibrous foods, such as apples, vegetables and seeds, that stimulate salivation, which is a protective agent in the oral cavity against the development of caries<sup>21</sup>.

After the activity, which used adapted language, toothbrushing techniques were presented with the aid of a model of the mouth, which was part of the strategic visual material for the sensitization of the child-juvenile group, as all children need a greater quantity of stimuli for the efficient understanding of information<sup>22</sup>. The children were then asked to demonstrate how they routinely performed brushing and then learned the adequate technique with an emphasis on the importance of the mechanical action of the brush, the use of dental floss, the use of a fluoride toothpaste and tongue cleaning.

Enabling the children to participate actively in the activity and feel the texture of the materials was fundamental to obtaining a positive response to what the dental students were presenting, as other senses are more developed in individuals with hearing impairment, particularly touch<sup>4</sup>. Lastly, toothbrushes were distributed to the children to encourage their use. The sign language interpreter was present throughout the entire activity, favoring the interaction between the dental students and children.

It should be stressed that there is a need to develop similar interventions for parents and guardians, enabling them to be instructed correctly and actively contribute to health promotion and disease prevention in the family environment through proper oral hygiene in the home.

#### *Second intervention: Oral health education for adolescents*

The aim of the second intervention was to address myths related to oral health that exert a direct impact on the perception and self-care of adolescents. Twenty-six students 12 to 18 years of age participated in the event. The activity entitled "Myths and truths about oral hygiene" provided an opportunity to answer the participants' questions. This was very important, as adolescence is a phase of discoveries and an emphasis on physical appearance, with the smile serving as a fundamental component in the establishment of the self-esteem of these young people<sup>23</sup>. The activity consisted of a set of statements (displayed in Figure 2) that the adolescents were to judge as true or false by raising a sign that represented their opinions with regards to what was being stated (Figure 3). The dental students then explained the statements and dispelled the adolescents' doubts. This part of the action involved the ample participation of the adolescents, who interacted with the dental students with the aid of the interpreter, demonstrating surprise with the information that was being emphasized.

After the activity, the adolescents were asked to demonstrate their toothbrushing techniques on the same model used by the children and how they used dental floss. This was followed by the demonstration of the dental students on the correct way to perform these procedures. Lastly, the adolescents were instructed on the importance of the mechanical action of the toothbrush, the use of dental floss, the use of fluoride toothpaste and tongue cleaning. This was a moment of fun for the adolescents, who demonstrated joy upon seeing their classmates attempting to perform the brushing techniques.

The interventions involving the children and adolescents at the Demóstenes Cunha Lima State Primary and High School of Audio Communication Teaching constituted a challenge for the dental students, who certainly changed their views about the inclusion of the hearing impaired and deaf communication in health education actions, demonstrating the need to develop further actions directed at this population. The event also underscored the importance of university extension to the training of future dentists considering the maturity acquired through experiences outside the academic environment.

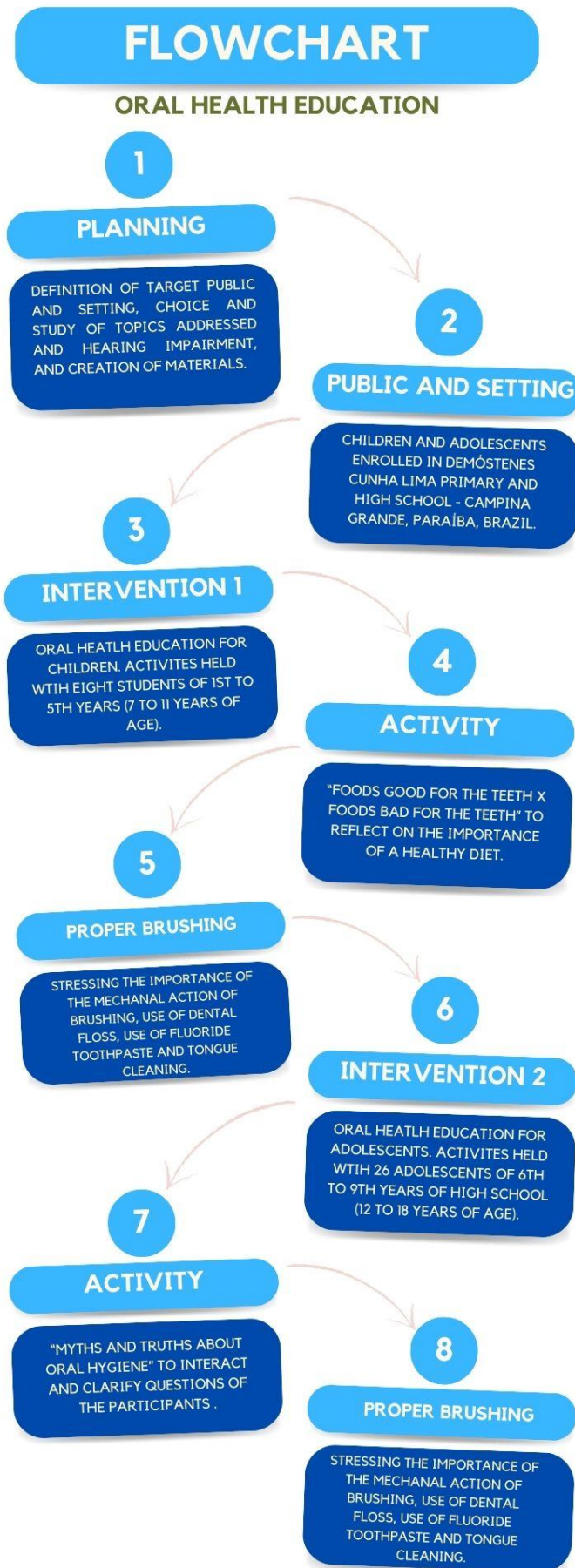


Figure 1. Flowchart of oral health education action.



**Statements used in activity**

1. Brushing before sleeping is the most important.
2. Using dental floss makes my gums bleed, so I should stop using it.
3. I need to use dental floss every day.
4. I must use a lot of toothpaste to clean my teeth properly.
5. The more force I use when brushing my teeth, the cleaner they become.
6. I do not need to go to the dentist every year.
7. I should exchange my toothbrush often.
8. Sugar is a food that participates in the formation of cavities.

**Figure 2.** Statements used in activity created by the dental students.



**Figure 3.** Signs used by the adolescents to agree or disagree with the statements made by the dental students.

The activities also demonstrated the importance of Brazilian sign language for communication with the hearing impaired. Without the assistance of the interpreters, the dental students would not have been able to conduct the activities. The students also perceived that they would have been able to conduct the activities more productively if they had this skill. Such reflections demonstrate the need for greater contact with sign language in the curriculum of dental courses, which is something that remains overlooked and is considered an optative component of the curriculum in many courses<sup>13</sup>.

The difficulties and limitations of the experience included (a) the inability to use sign language on the part of the dental students, which would have favored the execution of the activities, improved interactions and created bonds with the participants and (b) the absence of an awareness/instruction activity for guardians and caregivers, which assists in reducing the occurrence of oral health problems in children and adolescents, especially those with a disability.

## FINAL CONSIDERATIONS

The experience reported here constituted a rich, challenging opportunity for the dental students who participated and demonstrated the importance of sign language when interacting with the hearing impaired. The experience also stressed the individuality of each person and the need to employ complementary means of communication, such as visual contact,

lip reading and facial expressions. The assistance of the interpreters was fundamental to achieving the objective, making the activity an opportunity for the sharing of knowledge in a fun, adapted manner.

Health education activities are essential to knowledge building for the community, encouraging the adoption of good health practices. Moreover, university extension projects enable students to have direct contact with the situation of individuals, enabling knowledge building and practical experiences that would not be possible within the walls of the university. The specific activity reported here enabled reflections on the importance of individualizing dental care, the information imparted and adjusting this information to the particularities of each social group and each individual pertaining to the group. Health education can and should be accessible to each and every individual and constitutes an essential practice in the routine of health care providers.

Contact with this population also drew the attention of the dental students to the need to learn sign language, which is offered as an optative discipline in the dental course of Campus I/UEPB. This need was made evident by the fact that communication was the main barrier to the development of the activities, revealing the need for improvement in the education process and the dissemination of such knowledge to dental students and professional dentists. There is also a need for similar actions at the school addressing other aspects of oral health for children and adolescents to ensure the dissemination of oral health knowledge in the community. Another need made evident by this study was the instruction of guardians and caregivers on the importance of proper toothbrushing.

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