Communicative interaction between parents and their hearing impaired children and teens that use oral communication

Interação comunicativa entre pais de crianças e adolescentes deficientes auditivos que utilizam comunicação oral

Interacción comunicativa entre padres de niños y adolescentes deficientes auditivos que utilizan la comunicación oral

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Abstract

Introduction: The family involvement is one of the most important aspects of language intervention with hearing impaired children and adolescents and through the pragmatic situations will become important opportunities in the development of hearing and oral communication. **Objective:** To analyze the communicative interaction between parents and hearing impaired children and adolescents who use oral communication. **Methodology:** The study included four parents with their hearing impaired children. The hearing impaired participants were two children, aged two years, one using a hearing aid (HA) and the other a cochlear implant (CI); and the other two were two teenagers aged 12 and 14 years, one using a hearing aid and the other a CI. The procedure used was a checklist of 22 behaviors analyzing interaction for stimulation of auditory and language, scored by judges, based on a Likert scale and classified as "rarely", "sometimes" and "often". **Results:** The agreement between the judges was 97.8 %. According to

Work presented in panel form the *28º Encontro Internacional de Audiologia*, held on 24 to 27 April 2013 in Salvador (BA), Brazil.
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Conflict of interest: *no*
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Received: *23/05/2014;* **Accepted:** *21/09/2014*

the scoring and ranking established by the judges stands out: in all interactions parents often encouraged hearing and language **Conclusion:** The results demonstrate that parents of hearing impaired children or adolescents inserted into an aurioral program, in which there is great emphasis on family guidance, use appropriate behavior in the stimulation of hearing and language in interacting with their children.

Keywords: hearing loss; family; cochlear implantation; hearing aids

Resumo

Introdução: *A participação familiar é um dos aspectos mais importantes na intervenção fonoaudiológica com as crianças e os adolescentes deficientes auditivos e por meio dela as situações pragmáticas irão se transformar em relevantes oportunidades para o desenvolvimento da audição e da comunicação oral.* ***Objetivo:*** *Analisar a interação comunicativa entre pais de crianças e adolescentes com deficiência auditiva que utilizam comunicação oral.* ***Metodologia:*** *Participaram deste estudo quatro pais com seus respectivos filhos deficientes auditivos. Os participantes deficientes auditivos foram duas crianças, com idade de dois anos, sendo uma usuária de Aparelho de Amplificação Sonora Individual (AASI) e a outra usuária de Implante coclear (IC) e os outros dois eram dois adolescentes com idade de 12 e 14 anos, sendo um usuário de AASI e outro usuário de IC. O material utilizado foi o "checklist", que apresenta 22 comportamentos que analisam a interação quanto à estimulação da audição e linguagem, pontuados por juízes a partir da Escala Lickert e classificados como "raramente", "ocorre" e "frequentemente".* ***Resultados:*** *A concordância entre os juízes foi de 97,8%. De acordo com a pontuação e classificação estabelecida pelos juízes, destaca-se que: em todas as interações, os pais estimularam a audição e a linguagem, frequentemente.* ***Conclusão:*** *Os resultados demonstram que pais de crianças ou adolescentes deficientes auditivos inseridos em um programa aurioral, no qual ocorre grande ênfase nas orientações familiares, utilizaram comportamentos apropriados para a estimulação da audição e da linguagem nas interações com seus filhos.*

Palavras-chave: *perda auditiva; família; implante coclear; auxiliares da audição.*

Resumen

Introducción: *La participación familiar es uno de los aspectos más importantes de la intervención fonoaudiológica con niños y adolescentes deficientes auditivos y por medio de ella las situaciones pragmáticas se van a transformarse en relevantes oportunidades para el desarrollo de la audición y de la comunicación oral.* ***Objetivo:*** *Analizar la interacción comunicativa entre padres de niños y adolescentes con deficiencia auditiva que utilizan comunicación oral.* ***Metodología:*** *El estudio incluyó cuatro padres con sus respectivos hijos deficientes auditivos. Los participantes deficientes auditivos fueron dos niños, con edad de dos años, siendo uno de ellos usuario de Aparato de Amplificación Sonora Individual (AASI) y el otro de Implante Coclear (IC) y los otros fueron dos adolescentes, con edad de 12 y 14 años, siendo uno usuario de AASI y el otro de IC. El procedimiento utilizado fue el "checklist", que presenta 22 comportamientos que analizan la interacción cuanto a la estimulación de la audición y del lenguaje, puntuados, por jueces utilizando la escala Lickert y clasificados como "raramente", "ocurre" y "a menudo".* ***Resultados:*** *La concordancia entre los jueces fue de 97,8%. De acuerdo con la puntuación y clasificación establecida por los jueces se sobresale que: en todas las interacciones, padres estimularon la audición y el lenguaje a menudo.* ***Conclusión:*** *Los resultados demuestran que los padres de niños y adolescentes deficientes auditivos inseridos en un programa auditivo/oral, en que ocurre gran énfasis en orientaciones familiares, utilizaron comportamientos apropiados para la estimulación de la audición y del lenguaje en las interacciones con sus hijos.*

Palabras clave: *pérdida auditiva; familia; implantacón coclear; audífonos.*

Introduction

The cochlear implant and hearing aid are technological resources that enable access to speech sounds to profound sensorineural hearing impaired children. The development of hearing is one of the important aspects that favor the oral communication of children with hearing loss. However, the family members are the ones responsible for integrating the hearing and spoken language in everyday opportunities.

It is in childhood that the quality of communication experiences between parents and children exerts influences on the development of the child's communication skills.

The development of spoken language occurs during interaction by means of pragmatic situations. Auditory sensory deprivation in the early years of a child's life can alter the development of language, the association between the representation of the word and its meaning, and the understanding and expression of thoughts. However, losses in language acquisition and development are not caused only by auditory sensory deprivation, but also by the limited opportunities for interaction.

Family involvement is an extremely important aspect in speech therapy with hearing impaired children and adolescents. The pragmatic situations guided by family may become important opportunities in the development of hearing and oral communication skills[1,2,3].

The success of speech therapy work will depend on the permeability and credibility of the family in the therapeutic proposal, allowing the hearing impaired child to develop hearing and spoken language skills during daily activities.

Families who understand the therapeutic process and perform this work in the family environment with meaningful context are those whose hearing impaired children have better results[4]. Speech therapy guidance to parents and families is central to the development of children with hearing impairment and improvement of family interaction, as these are the first examples of language for children[5].

Parental involvement in the therapeutic process favors the learning on how to mediate the relationship of hearing impaired children with the world. For this reason, the parents' understanding about speech therapy guidelines becomes extremely important for the overall development of their children. The family can extend the work that would be restricted to meeting with the therapist, since communication occurs between parents and children at all moments of family life[6,7,8].

The development of spoken language in children with hearing impairment is codependent on feelings and interactional situations of parents, parental stress and emotional availability of the family[9].

The incompatibility of communication between hearing impaired children and their parents can cause an impact in interactional events since the beginning of the child's development[10,11]. The communicative behavior of parents during the interaction may decrease receiving auditory and linguistic information, limiting the development of hearing, language and social aspects of the child that are acquired through an effective interaction.

In the therapeutic process, the aurioral approach will prioritize the development of hearing to promote understanding and expression of oral communication[12]. Communication strategies used by parents will be extremely important in this approach.

Communication strategies should be carried out in everyday events, in varied and meaningful experiences. These strategies are related to voice, articulation, as well as verbal and behavioral expressions. Another important aspect is the recognition of the child's communication attempts, allowing dialogue and expanding the semantic and grammatical productions, repeating the message whenever necessary and emphasizing key words[12].

Authors reported the importance of understanding the communication strategies by parents and how these strategies can be included in the development process of the hearing impaired child[10,12,13,14].

This study aimed to analyze the communicative interaction between parents of children and adolescents with hearing loss that use oral communication.

Material and method

A cross-sectional descriptive study was performed. This project was submitted to the Ethics Research Committee of the School of Philosophy and Sciences, Universidade Estadual Paulista – SPS/UNESP/ Marília – SP and was initiated only upon its approval (Protocol 730/2013), according to Resolution 196/96 of the National Health Council.

Parents of each hearing impaired research participant were invited to participate in the study and sign a consent form.

Participants

In this study there were four parents with their children who presented profound prelingual sensorineural hearing loss. Two of these participants were children aged two years where one used a bilateral hearing aid and presented introductory speech recognition, while the other used a unilateral cochlear implant (CI), presenting auditory comprehension skills. In the analysis of the interactions, these children along with their parents were known respectively as P1 and P2.

Also, two teenagers with hearing disabilities, aged 12 and 14 years, participated in this study. One of these adolescents used a bilateral hearing aid and the other used a unilateral cochlear implant (CI). Both have hearing comprehension skills. In the analysis of the interactions, these adolescents and their parents were called P3 and P4, respectively.

The hearing impaired children attend an aurioral approach speech therapy intervention program. The teenagers attended the same program.

The selection criteria for the participation of hearing impaired children or adolescents were: a) present profound bilateral hearing loss with no associated cognitive alterations; b) effectively use the cochlear implant or hearing aid c) participate or have participated in the speech therapy process with emphasis on the development of hearing and oral communication.

Data collection instrument

To collect data on the interaction between parents and their hearing impaired children, an instrument consisting of a checklist of 22 items on communicative behavior was used[10,11]. This instrument was proposed to be applied for interaction with deaf children, in order to provide guidance for improving interaction through the video analysis method.

The method of analysis of communicative behaviors of parents by video recording the interaction enables verification of the importance of the interlocutor's attitudes in the auditory and linguistic behavior of children with hearing impairment[11].
This instrument contains a Likert scale, whose score of 1-3 represents the behavior that was "rarely seen"; the score of 4 represents the behavior that was observed "intermediately", i.e. it is not frequently observed, but does however "occur"; and finally the score of 5 to 7 represents the behavior that was "commonly observed".

The communicative behavior was analyzed after recording the interaction and was organized into four topics: a) behavior related to the sensitivity of the adult in relation to the child; b) behavior related to the responses to the child c) shared attention d) general behavior.

The dyads formed by parents and their hearing impaired children were filmed for twenty minutes, where the first five minutes recorded were eliminated from the analysis because these minutes were needed for the adaptation of the child or adolescent and parents to the presence of the camera.

These recordings were made in the treatment rooms of the Center for Education and Health Studies (CEHS) - UNESP, Marilia. The recordings were made with a Sony camera, Mod. DCR-SR 47, and parents of hearing impaired children or adolescents and their respective children were asked to perform spontaneous interaction.

During filming, materials of interest to the participants were made available. In the filming of children with their parents, materials such as, dolls, kitchen toys, fruit, games and animals were made available. All material was arranged so as to allow parents and children to freely play.

During the filming with teenagers, magazines, games according to the chronological age of the participant and materials for conducting experiments, such as, plastic bottles, containers with hot water and containers with ice water were made available.

Analysis of the results

The filming of each dyad - parent and hearing impaired child or adolescent was sent to three judges with experience in educational audiology for consideration. The judges reviewed the footage and scored each of the 22 behaviors that comprise the checklist[10]. The specific behavior was considered present when at least two judges scored within the same category, regardless of the assigned value.

The results were presented in tables containing the evaluations of each of the judges.

Results

There were a total of four recordings, one from each dyad, of the interaction between parents and their deaf children. It was possible to establish a correlation of 97.8% among the judges in their observation and analysis.

Regarding the sensitivity of parents to their hearing impaired children and adolescents a score of 5-7 was constant, showing that this behavior occurred frequently. In this topic the behavior that "encourages and facilitates the child's play with objects and materials" did not show agreement in the assessments made by the judges. This disagreement occurred in the evaluation of the dyad with the teen using the cochlear implant, P4 (Table 1).

Table 1. Scores attributed by judges in relation to the sensibility of parents with hearing impaired children/adolescents

Sensibility	Participant 1			Participant 2			Participant 3			Participant 4		
	J1	J2	J3	J1	J2	J3	J1	J2	J3	J1	J2	J3
1. Conduct the child in a positive manner	5	5	7	7	5	5	5	4	5	6	6	5
2. Regulate the play time and speak according to the time of the child	7	5	7	5	6	5	5	5	1	6	5	5
3. Follow the interests of the child for most of the time	5	7	7	5	4	5	6	6	5	6	7	5
4. Offer appropriate stimulation, activities and games according to the age and stage of the child	7	7	7	7	7	5	7	5	5	7	7	6
5. Encourage and facilitate the child's play time with objects and materials	7	5	5	6	6	5	4	6	5	3	7	1

Legend: J1 - Judge 1; J2 - Judge 2; J3 - Judge 3

Regarding the behavior during the conversation, these are presented in topics related to the response to the child, shared attention, and general behavior. The results showed that the most constant score for these behaviors was 5 to 7, i.e. it is behavior that occurs frequently (Table 2). In this topic the behavior that "responds with an answer that includes a question or comment and requires a child's response", in the evaluation of the judges, had scores that indicate it was rarely seen in the dyad with the teenager with the cochlear implant (P4).

Table 2. Scores attributed by judges in relation to the behaviors during the conversation with hearing impaired children/adolescents

Observed Behavior in response to the child	Participant 1			Participant 2			Participant 3			Participant 4		
	J1	J2	J3	J1	J2	J3	J1	J2	J3	J1	J2	J3
1. Recognize the child's communication attempts	6	7	7	6	5	5	7	7	5	7	7	5
2. Respond to the child's communication attemps	6	7	7	6	7	5	7	7	5	5	7	5
3. Respond with an answer that includes a question or comment and requires a response from the child	5	7	7	5	7	5	7	4	5	1	3	5
4. Imitate the productions of the child	2	2	1	3	6	5	2	1	1	1	1	1
5. Offer the appropriate words to the child so she may express what she may	6	7	7	4	5	5	5	5	5	6	4	5
6. Expand the child's semantic or grammatical production	7	6	7	6	5	6	6	6	1	1	5	6
Behaviors observed in establishing shared attention	Participant 1			Participant 2			Participant 3			Participant 4		
	J1	J2	J3	J1	J2	J3	J1	J2	J3	J1	J2	J3
1. Attempt to engage the child	6	5	7	6	5	5	6	5	5	5	6	5
2. Speak about what the child is living, looking at, and doing	7	7	7	6	4	4	7	6	6	5	7	5
3. Using the voice (in the first plan) so as to use it to attract the child's attention to the objects, events and even to himself.	7	5	7	5	6	3	7	6	7	6	6	5
4. Use body moviments, gestures and appropriate touches to attract the child's attention to objects and materials	1	2	1	6	4	5	1	2	1	1	6	1
General Behavior	Participant 1			Participant 2			Participant 3			Participant 4		
	J1	J2	J3	J1	J2	J3	J1	J2	J3	J1	J2	J3
1. Use appropriate size and complexity phrases and sentences	6	6	7	5	6	5	7	6	6	6	7	5
2. Use pauses after speaking to encourage the child to respond	6	6	7	5	7	5	5	7	7	6	6	5
3. Speak to the child with appropriate rhythm, intensity and pitch	7	5	7	5	6	5	5	7	7	5	7	5
4. Use an interesting and exciting voice	7	4	7	6	6	5	3	3	3	6	6	5
5. Use normal, not exagerated mouth moviments	7	4	7	6	6	5	7	6	7	5	7	5
6. Use techniques to maximize audition	7	5	7	5	6	5	5	4	5	5	6	1
7. Use appropriate gesture	1	2	1	5	6	5	1	2	1	5	6	5

Legend: J1 - Judge 1; J2 - Judge 2; J3 - Judge 3

The behavior that "mimics the child's productions" was seen "rarely", both in the interaction with the child with the cochlear implant (P1), as well as with the teens using a hearing aid and a CI (P3 and P4). In relation to the behavior that demonstrates the shared attention, the behavior that "uses body movements, gestures and appropriate touch to attract the child's attention to objects, events and to himself" was scored as "rarely" by the judges, both in the interaction with the child using a cochlear implant (P1), and in interactions with the teenagers using a hearing aid and a CI (P3 and P4). It is noteworthy that both the child with a cochlear implant as well as the teenagers presented comprehensive listening skills.

With the general behavior, the "use of appropriate gestures" was not observed in the dyads with the child using a CI (P1) nor with the teen using a HA (P3).

Discussion

According to the set of behaviors analyzed in the filming, it was possible to observe the occurrence of the behavior that led to the use of hearing and language in the four dyads. These data showed that the participants of this study, in a controlled situation, had appropriate behavior for interacting with their children, allowing auditory function and oral communication.

Regarding the results of the sensitivity to the hearing impaired child or adolescent, it was shown that the parents often led the child positively, regulating the playing time and spoke according to the child's time, followed the child's interests most of the time, offered appropriate stimulation and performed activities and games suitable to the age and stage of the child. It was found that there was no agreement among the judges in the evaluations related to the interaction with the adolescent using a cochlear implant in regard to the encouragement and facilitation of playing with objects and materials. This divergence in scores can be attributed to the characteristics of the dialog within the interaction, with no need for facilitation of activity with objects or materials.

It is important to note that since it was a controlled situation, where the materials had been previously selected and made available, as well as the behavior of offering appropriate stimulation with activities and games appropriate to the age and stage of the child, it may not depict the daily family life.

In this study the results have shown that parents know the attitudes that favor communication with their children, something that may have been brought about by participation in the guidelines and monitoring of children in the therapeutic process.

A study was conducted to analyze the playing time in six dyads of hearing mothers and their deaf children at three different moments with intervals of six months between those designated times. During these intervals, guidelines were provided to the mothers about the interaction with their children. The results of this study showed that in the course of a year, five of the six analyzed mothers improved their style of playing, favoring the stimulation of language in their hearing impaired children[15].

Regarding the behavior during the conversation, they are presented in topics related to the response to the child, shared attention, and general behavior. The results showed positive actions of parents during the conversation.

In the evaluation of the dyad with the teenager using a cochlear implant (P4), the judges determined that the behavior which consisted in answering with the inclusion of a question or comment and request a response was "rarely" observed. The importance of maintaining a dialogue situation in which teens are encouraged to take active participation in communication may be something to be highlighted in the accompanying guidance to families

The behavior of imitating the child's productions was rarely observed both in the interaction with the child using a cochlear implant (P1), as well as the teens using a hearing aid and a CI (P3 and P4). This child and the adolescents demonstrated listening comprehension and this result may be related to hearing skills and the fluent dialogue of the participants, which minimizes the need for such a strategy.

The development of hearing and language function may also explain the scores that indicate the absence of behavior which demonstrate attention, such as the situation of using body moviment, gestures and appropriate touches to attract the attention of the child to the objects, events and to himself, both in the interactions with the child using a colchear implant (P1), as well as with the teenagers using a hearing aid and a colchear implant (P3 and P4). Likewise, the absence of the

use of gestures in the interactions is related to the development of the auditory function (P1 and P3).

However, in the dyad in which the child uses a hearing aid and presents introductory hearing recognition (P2), the behaviors mentioned above were frequently observed. These behaviors are considered appropriate to encourage the devolopment of language within a meaningful context[16].

For parents to know and perform communication strategies that foster development in their hearing impaired children, they must be guided and accompanied in the therapeutic process[1,2,3,4,5].

One study used three filmings of seventeen parents of hearing impaired children who had recently undergone cochlear implant surgery. In the footage, the parents were to interact with their children in order to verify the effects of a training course for parental interaction in the communication skills of their children with recent implants. This study showed that the parental training brings benefits in interacting with hearing impaired children, improving communication in the family environment[17].

The orientation for parents on communication situations with their hearing impaired children favors progress in their communicative behavior, helping the parents to be less controlling and more responsive during the communicative processes with their children, allowing the parents and other family members greater adherence to the rehabilitation process[14].

The results obtained in the filming can serve as indicators of the degree of appropriate parental behavior when interacting with their hearing impaired children. Thus, these data may contribute to parental understanding of their attitudes towards the communication situation with their children, facilitating the use of dialogic situations with the enrichment of auditory experiences that should be meaningful and varied to help develop oral communication skills.

Although the results found in this study have shown behaviors that promote communication, it cannot be confirmed that the parents or family are daily using the attitudes that enable better communication conditions with the hearing impaired child, however, considering the behaviors analyzed it can be noted that the parents demonstrated familiarity with these strategies.

The analysis method through the filmed footage of the hearing impaired child's interaction with his family enables a thorough analysis of the communication strategies used.

The observation of the interaction of each dyad offers subsidies to the audiologist on the communication characteristics of each parent with their hearing impaired child and contributes to the rehabilitation process in order to show any changes in the perception that parents have of their children as interlocutors[3].

It is extremely important to emphasize that the analysis of the interactions showed that the behaviors of the parents are decisive for the auditory and linguistic behavior of hearing impaired children, as well as to maintain the dialogue.

Conclusion

In this study, it was possible to observe the communicative interaction between the parents and their hearing impaired children. With the analysis of the filmed footage, it can be observed that the parents use strategies to promote the use of language and listening skills in a controlled situation.

The results demonstrate that parents of hearing impaired children and adolescents, inserted into a aurioral program, in which there is great emphasis on family guidance, understood the guidelines during the therapeutic process.

There was no difference in the occurence of observed behaviors when comparing the use of hearing aids or CI. The idiosyncratic issues can be analyzed through the prism of the development of listening and oral communications skills.

The analysis of the interaction between hearing impaired children and adolescents and their parents, using filming and observation protocol, may allow to know the particularities of the interaction between the dyads and show the possible adjustments in speech therapy guidelines in order to adapt the use of the communication strategies used by the parents and promote a healthy development of oral communication.

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