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Adaptation of the Brazilian Functional Auditory Performance Indicators - Short Version

Adaptação do protocolo Indicadores de Performance Funcional Auditiva Brasileiro - Versão Reduzida

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Keywords

Reproducibility of Tests
Hearing
Auditory Perception
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Rehabilitation

ABSTRACT

Purpose: To adapt the Brazilian Functional Auditory Performance Indicators protocol to a short version including the production of material and an application manual. **Methods**: Methodological, descriptive, cross-sectional study with a quantitative and qualitative approach conducted with seven speech-language therapists who applied the protocol to 34 children with hearing loss and their guardians. The analysis of content validity and the instrument reliability evaluated the semantic equivalence, analysis of satisfaction of speech therapists, and statistical tests of *Cronbach's Alpha* and *Kappa* coefficient. **Results**: The short version, called FAPI-r, was adapted considering coefficients that indicate internal consistency and almost perfect inter-evaluator agreement. Speech-language therapists reported satisfaction with the instrument and stated that the manual facilitates the understanding of the test application. However, there was no agreement between the assessment of speech-language therapists and the answers of families, indicating a need for a greater insertion of families in the therapeutic scenario. **Conclusion:** The adapted FAPI-r has validity and reliability, promising future developments for research and clinical performance in the population of hard of hearing children.

Descritores

Reprodutibilidade dos Testes
Audição
Percepção Auditiva
Perda Auditiva
Reabilitação

RESUMO

Objetivo: Adaptar o protocolo Indicadores de Performance Funcional Auditiva Brasileiro para uma versão reduzida, incluindo a produção de material e de um manual de aplicação. **Método:** Estudo do tipo metodológico, descritivo e transversal, com abordagem quantiqualitativa, realizado com sete fonoaudiólogos que aplicaram o protocolo em 34 crianças com deficiência auditiva e seus responsáveis. Cumpriram-se a análise da validade de conteúdo, bem como da confiabilidade do instrumento por meio da avaliação da equivalência semântica, da análise da satisfação dos fonoaudiólogos e dos testes estatísticos alfa de *Cronbach* e coeficiente de *Kappa*. **Resultados:** Foi adaptada a versão reduzida denominada FAPI-r, com coeficientes que indicaram consistência interna e concordância interavaliadores quase perfeitos. Os fonoaudiólogos referiram satisfação com o instrumento e relataram que o manual de aplicação facilitou o entendimento sobre a aplicação do teste. Observou-se, no entanto, a não concordância entre a avaliação dos fonoaudiólogos e as respostas das famílias, indicando a necessidade de maior inserção destas no cenário terapêutico. **Conclusão:** Realizada a adaptação do FAPI-r, constatando-se sua validade e confiabilidade, com futuros desdobramentos para a pesquisa e atuação clínica na população de crianças com deficiência auditiva.

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INTRODUCTION

The impacts of hearing loss on children are widely documented, as well as the role of hearing skills in child development[1,2].

Considering that the improvement of hearing skills in hard of hearing children has repercussions on their global development, it is essential that the speech therapist uses tools that help to measure the expected hearing progress for each case and conducts an individual analysis of the positive factors or any hindering factors of the progress of children[3-8].

In addition, the use of complete and standardized assessments of auditory progress in this population allows monitoring the therapeutic evolution, comparing between groups, reassessing the hearing (re)habilitation program, performing a multicentric comparison, and signaling to professionals and to families when there is some deviation in their progress, which makes it possible to improve skills that are expected for the child's age and schooling[9-11].

The Functional Auditory Performance Indicators (FAPI) inventory was developed in the United States of America, and the American Speech-Language-Hearing Association (ASHA) recommends its use as an instrument to assess hard of hearing children. In view of the scarcity of protocols translated and adapted to Brazilian Portuguese that assess all auditory skills in a same instrument, the FAPI, in its original version, was translated and adapted, giving rise to the Brazilian Functional Auditory Performance Indicators (Brazilian FAPI)[9], which was shortened and validated, and resulted in the short version presented here (Annex 1).

Other protocols have been translated and adapted to Brazilian Portuguese and used in hearing health services[9,10,12-15]. However, the Brazilian FAPI stands out as the most complete tool recently published in Portuguese, since it evaluates seven categories of hearing skills in different listening conditions, relies on information from the family and/or teachers, in addition to considering clinical observations, which allows the speech therapist to draw a very realistic profile of development of the hearing skills of hard of hearing children[9], which in turn greatly contributes to therapeutic planning and guidance offered to the families of these children.

FAPI has standards of normality up to the age of five. Among the categories of auditory skills analyzed are sound awareness and significant sounds, auditory feedback and integration, location of sound source, auditory discrimination and recognition, listening comprehension, short-term memory and linguistic auditory processing in easy listening conditions (auditory stimuli paired with visual signals, silent environment, stimuli produced close to the child and requested responses) and difficult listening conditions (only auditory, distant stimuli, noisy environments, and spontaneous responses). Thus, the protocol aims to identify the strengths and weaknesses of each child to optimize the process of auditory (re)habilitation[9].

Although the FAPI is considered a complete protocol, the number of items evaluated may hinder the clinical applicability of the instrument. This justifies the elaboration of a protocol in a short version, resulting in a greater feasibility of using this measure in the routine of monitoring the auditory (re)habilitation. In addition, there has been a need to clarify which materials should be used to assess each hearing ability and the way to assign tasks to a child, thus minimizing the possible bias of variability in its application.

It is worth noting that, although the application of FAPI is recommended for children up to the age of five, it is possible that older children are still developing their auditory perception. Thus, there is a need for a tool that allows them to trace their progress in the therapeutic process.

The need for short evaluation instruments that aim to measure the same constructs as the more extensive versions stands out[16] because, when adapting an instrument, the researcher can compare data obtained from different samples and according to different contexts, allowing a greater equity in evaluation, since it is the same measure that evaluates the construct from the same theoretical and methodological perspective[16].

This research to adapt the short version of FAPI (FAPI-r) includes the analysis of content validity and reliability (internal consistency or reproducibility) of the FAPI-r protocol[17-19].

Given the need for a tool that is applied briefly and that produces information about the development profile of all hearing skills of children with hearing loss, this research aims to adapt the Brazilian FAPI protocol by relying on the analysis of content validity and reliability of the short version (FAPI-r) and develops an application manual to optimize the use of this instrument in clinical practice, with a view to enhance the monitoring of the development of hearing skills in children with hearing deficiency.

METHODS

This is a methodological, descriptive, cross-sectional study with a quantitative-qualitative approach. Its conduction was approved by the Ethics Committee of the responsible institution under opinion no. 1,144,295.

This study was conducted in a highly complex hearing health service of the Unified Health System, which has a philanthropic nature.

The speech-language pathologists participating in the research and the families of hard of hearing children were informed about the study's objectives and agreed to participate by signing an Informed Consent (IC).

The sample was selected by convenience. It comprised seven speech therapists working in the sector of hearing (re) habilitation and 34 children with moderate to profound hearing loss, without a previously defined age range, and their families.

The inclusion criteria were children with hearing loss who used hearing devices (hearing aids and/or CI) with a minimum frequency of 75% to speech therapy at the hearing (re)habilitation service that participates in this study. Children with other needs associated with hearing loss were not excluded from this study. It is worth mentioning that five children were diagnosed with other needs during data collection. According to the participating speech therapists, this did not prevent the application of the protocol, and therefore their results were considered in the general analysis of this study.

The families had an income profile classified as of a low socioeconomic level and the average education level of the respondent family members was elementary school. The participating speech therapists had a minimum experience of one year in the institution's (re)habilitation sector.

The FAPI[9] instrument, which is the object of study here, consists of 61 items organized in 33 sections and of a form to be completed by the speech therapist at the time of clinical evaluation of the child, in addition to questions asked to the families.

The adapted protocol, the Functional Auditory Performance Indicators - Short Version (FAPI-r), and its manual consisted of two forms, one for the speech therapist consisting of 25 items and another for the family consisting of 15 items, both organized in 15 sections, divided into the same seven categories of hearing skills proposed by the original instrument.

To achieve the objective of this research, data collection by the speech therapists with the children and their families was preceded by the adaptation of the instrument from its complete version translated into Brazilian Portuguese to the short version, and included the following steps:

1) Content Validity Analysis:

Step 1a): a detailed analysis of the instrument was carried out in its original version: the researcher and two specialists analyzed the Brazilian FAPI instrument[9] and identified, among the items of auditory skills assessed, which ones could be the most representative and applied in a shorter time, in addition to analyzing the scoring method proposed in the original protocol;

Step 1b): construction of the instrument in its short version: the short version was prepared, and a new analysis was carried out by the researcher and the two specialists, with the review of semantic equivalence of each item in relation to the original protocol. At this stage, materials (figures, texts, and other materials) were selected and produced that could be used for the application of the protocol in a short version, as well as the recording of items that were presented in situations of recorded messages.

Step 1c): pilot study I: previous application of the instrument to two hearing children, a three-year-old boy, and a five-year-old girl, to assess the children's understanding of the tasks requested, to measure the application time of the test, and to analyze whether the target auditory skills evaluated could be measured in the short version. After applying the instrument to hearing children, the items to be rewritten were studied so that children could better understand the instructions, and the figures used and the number of stimuli were adjusted to optimize the understanding of the protocol, resulting in a better applicability.

Step 1d): the scores were revised; the total scores for the short version are 0-35% (not present - NP), 36-79% (in process-IP), and 80-100% (acquired - A). It is worth noting that up to 35%, and not up to 10%, was called "not present," as proposed in the original and Brazilian versions, considering the reduction in the number of items evaluated and the possibility of observing random hits, sensitizing the cutoff point of the instrument to the skills that are not clearly evidenced by the child during evaluation, which alerts the evaluator to a more detailed analysis of these items during the monitoring or therapeutic process. In addition, the protocol was separated into two forms, that of the family and that of the evaluator, to facilitate application. To make the instrument clearer, the category of "emergent" scoring was excluded, as there was a certain difficulty in interpreting in an evaluation session whether the auditory skill was emerging or whether it was already in a process of development.

Step 1e): pilot application of the test to one hearing impaired child to verify the adaptations made in the short version, especially regarding the child's understanding of the test[16].

Step 1f): final review of the test protocol and preparation of the application, scoring, and interpretation manual handed over to the speech therapists of the participating hearing (re)habilitation service.

2) Reliability Analysis:

Step 2a): the speech therapists of the hearing (re)habilitation service received a kit containing the FAPI-r manual and application and scoring forms, in addition to the audiovisual materials for the application of the test (figures and recorded stimuli). They were instructed on the objectives of the test and its application. Each therapist applied the protocol to the children seen in therapy aged between one year and three months and 13 years and seven months, with a mean age of eight years and eight months. In addition, they filled out an instrument of analysis on the applicability of FAPI-r in the clinical routine and on the satisfaction of speech therapists with the FAPI-r. Such data were analyzed statistically using the *Kappa* coefficient to establish inter-evaluator agreement.

Step 2b): statistical analysis of the instrument's internal consistency by calculating the *Cronbach*'s *Alpha* both for the clinical form and the questionnaire applied to the family. In addition, inter-evaluator agreement was measured between the results of speech therapists' assessment and the families' answers regarding the development of the auditory skills of the assessed children using the *Kappa* coefficient.

RESULTS

The results are presented here following the protocol adaptation sequence.

As for the analysis of content validity, there was a reduction from 61 items to 25 items and from 33 to 15 sections, considering the most representative hearing skills within each category of hearing skill. The seven domains of auditory skills of the original instrument were maintained.

The application manual, the instructions to the children in a recorded message, and the figures were elaborated, and the

semantic equivalence analysis was carried out with the indication of good applicability from data of the pilot studies carried out with hearing children and the hard of hearing child.

The preparation of the application manual, scoring, and interpretation of results followed the guidelines of the original protocol and were expanded to include the method of instruction to the child, the use of application materials, and the method of carrying out the scoring and interpretation of results.

As for the reliability analysis (internal consistency) of the instrument, the *Cronbach*'s *Alpha* value obtained was 0.9355 for the protocol applied by speech therapists and 0.8065 for the questionnaire answered by families. Thus, the criterion of an *Alpha* ≥ 0.80 was reached, indicating an almost perfect internal consistency of the short version.

Regarding the analysis of the agreement between the speech therapists' evaluations of the instrument, the *Kappa* coefficient was 1, which corresponds to an almost perfect agreement (*Kappa* between 0.81 and 1).

Figure 1 shows the results of the satisfaction questionnaire filled out by the speech therapists.

When asked whether FAPI-r could evaluate the proposed skills, all professionals (100%) replied "yes," in addition to agreeing that the instrument is viable for use in clinical practice.

Table 1 shows the results of the application of the *Kappa* coefficient for the comparison between the assessment of speech therapists and the families' responses.

Table 1. Determination of inter-evaluator agreement by applying the Kappa coefficient to the results of the assessment of speech therapists and the responses of families.

Hearing skill categories	Comparative *Kappa*
Sound awareness and significant sounds/location	0.6
Auditory feedback and integration	0.28
Auditory discrimination and recognition	0.44
Listening understanding	0.2
Short-term auditory memory	0.2
Linguistic auditory processing	-0.28

Note: *Kappa* lower than 0 - insignificant, *Kappa* between 0 and 0.2 - weak, *Kappa* between 0.21 and 0.40 - average, *Kappa* between 0.41 and 0.60 - moderate, *Kappa* between 0.61 and 0.80 - strong, *Kappa* between 0.81 and 1 - almost perfect.

DISCUSSION

Monitoring the development of hearing skills in children with hearing loss is essential and the literature indicates it for a better therapeutic management[3-8].

Instruments that can measure such evolution globally and in a wide age range are necessary, especially in the Brazilian reality[9]. This is proposal of this research, which obtained promising results considering the content validity and reliability regarding the applicability of the now adapted instrument, called FAPI-r.

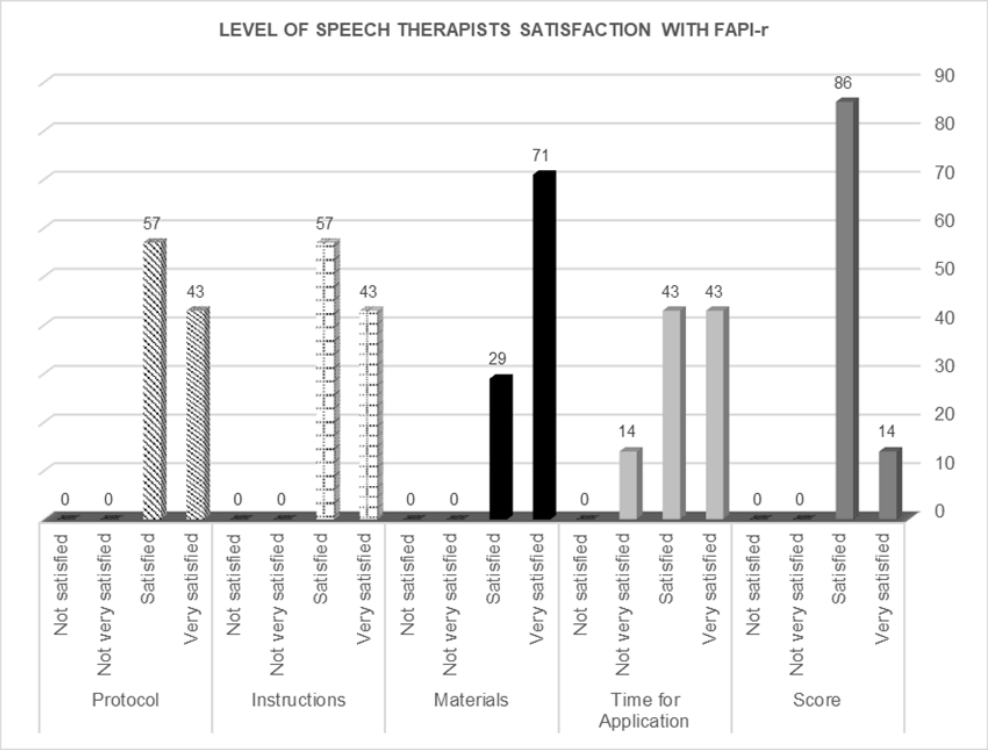

Figure 1. Level of satisfaction of speech therapists with the FAPI-r

Along the instrument adaptation steps followed in this study, there was agreement with the specific literature on the adaptation of protocols or clinical tests, which highlights the need for several steps so that an instrument can be used by different professionals and in different contexts and produce valid and reliable results. For protocols to achieve these objectives, it is necessary that they have adequate psychometric properties, among which validity and reliability stand out[17-20].

The parameters analyzed regarding content validity and reliability attested to the clinical applicability of FAPI-r and its high internal consistency[16].

Although instruments for the clinical assessment of auditory skills in the child population already exist, most protocols available in Portuguese are cross-cultural adaptations[9,10,12-15], and there is no continuity of studies in the literature seeking to analyze its psychometric properties. Thus, there is a need to develop and/or adapt protocols that comply with the recommended methodological rigor.

In addition to adapting the application protocol, there was a need to adapt the Brazilian FAPI manual based on the considerations of the two specialists and the researcher at the stage of content validity analysis. This adaptation referred to detailed explanations on how to make requests to children, as well as which materials should be used in each section of the FAPI-r instrument. The preparation of application manuals aims to facilitate the understanding of evaluators, systematize procedures, and reduce the probability of errors in the clinical evaluation and in the interpretation of results[9], a fact observed from the answers of the participating speech therapists, who mentioned the usefulness of the elaborated manual.

Estimating the application time of assessment instruments is important since the results of (re)habilitation of hearing impairment can be used as indicators of quality of hearing health services. Thus, it is essential to use instruments that are quick and that can be applied in the outpatient system. The Brazilian FAPI required more than one session to be applied[9], while the average time measured by speech therapists for the clinical evaluation and application of the questionnaire with families using the FAPI-r was a maximum of 40 minutes. This time of application can still be reduced considering the greater experience of the evaluator, the child age, and its progress in hearing skills. It is noteworthy that the speech therapists reported that, after some sessions during which they became familiar with the protocol, the application time decreased.

Regarding the questionnaire applied to the families of hard of hearing children, they generally believed that the children had a progression in hearing skills lower than that clinically evaluated, as demonstrated by the little agreement observed in the analysis of *Kappa* for the skills analyzed in FAPI-r.

Family members had difficulty identifying their children's progress in advanced listening skills, a fact that explains the lower agreement expressed by the *Kappa* index for listening comprehension, short-term memory, and linguistic auditory processing. The auditory skill that presented the highest agreement coefficient (0.60), classified as moderate, was sound awareness of significant sounds/location, which is the first skill to be acquired in the gradual sequence of development of auditory skills. The lowest agreement, classified as insignificant, was attributed to linguistic auditory processing (-0.28).

Therefore, for family members, elementary listening skills are more easily observed in their routine contact with children, in contrast to more advanced skills, since guardians indicated a lower score for their children than that obtained in a test situation with the speech therapist. It is important to highlight that, if the home environment does not create dialogue situations in which listening skills and linguistic auditory processing are required, families will certainly have difficulty observing children displaying such skills, a hypothesis for the explanation of the results observed in the present study.

It is essential, therefore, that families be advised about what hearing skills are, as well as how to make the home environment conducive to their development. Thus, the effective participation of the family in speech therapy, providing conditions for family members to evaluate the development, even if subtle, of these skills in their children, allows guardians to act naturally towards the progress of the hearing development of children with hearing loss[21].

It is noteworthy that the children whose parents reported a worse auditory performance were those who had longer sensory deprivation and lower hearing age, which demonstrates that their family members have also been involved in the therapeutic process for less time and are still familiar with the development of hearing skills. It is expected that, as they are guided about the stages of auditory progress, they will develop a better perception of their children's potential and difficulties, acting as stimulating agents of the children's needs[5,21,22].

CONCLUSION

The adapted short version, called FAPI-r, has clinical applicability, and provides a brief but comprehensive profile of the hearing skills of hard of hearing children inserted attended at a hearing (re)habilitation service. Statistical analysis confirmed content validity and reliability.

The limitations of this study are its local characteristic and the need to test the FAPI-r with a more representative sample, with the possibility of complementary statistical analyses to establish the construct and criterion validity of the instrument in its short version aiming to strengthen the adaptations.

Multicentric studies with the application of this instrument can generate important data for future research in the area and the improvement in the monitoring of children with hearing loss in specialized services.

It is concluded, therefore, that FAPI-r is an important tool for clinical monitoring and speech therapy management that optimizes the benefits of technology for the development of hard of hearing children.

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Authors contributions

MEBA participated in literature review, writing the research project, collecting and analyzing data, and writing the manuscript; MCOL contributed to the collection and analysis of data and the writing of the original manuscript; WLOC performed the statistical analyses of the data and contributed to the review of the manuscript; JSB participated, as a supervisor, in the study design, supervision of the data collection process, data analysis, preparation and review of the original manuscript.

Annex 1. Adaptation of the Brazilian Functional Auditory Performance Indicators - Short Version

Functional Auditory Performance Indicators - Short Version - FAPI-r					
Adapted from Ferreira et al.[9].					
Child's name: _____Date of birth:___/___/___ Age: ____y ____m Hearing age: ____y ____m Electronic devices: OD = _____ OE = _____ Adaptation hearing aid: / / __ IC Activation: / / ___ Effective use ( ) Non-effective use ( ) Time of use (sic family) = _ __ h/d Last *datalogging* ___ / / ____ = ____ h/d					
Guardian Education Level: _____ Examiner: _____ Date of evaluation: ___ / ____ / ____					
SOUND AWARENESS AND SIGNIFICANT SOUNDS			**NEVER (X0)**	**SOMETIMES (X2)**	**ALWAYS (X3)**
***1. 1 Responds to speech when the speaker makes a speech (reacts)**					
Evaluator: talk to the child in the corridor (far) and in the room and see how the child behaves. In the room, use background noise and observe the child's response.					
__ close (90 cm) __ far (3 m) __ in silence __ with noise __ requested __ spontaneous					
*** 1.2 Finds the sound source when the speaker makes a speech**					
Evaluator: talk to the child in the corridor (far) and in the room and see how the child behaves. In the room, use background noise and observe the child's response.					
__ close (90 cm) __ far (3 m) __ in silence __ with noise __ requested __ spontaneous					
*** 2.1 Responds to music**					
Evaluator: play the recorded music and observe the child's reaction. Evaluator can sing a song and see how the child reacts.					
__ close (90 cm) __ far (3 m) __ in silence __ with noise __ requested __ spontaneous					
*** 2.2 Finds the sound source of the music**					
Evaluator: play the recorded music and observe if the child finds the sound source. Evaluator can sing a song and see if the child can find the source.					
__ close (90 cm) __ far (3 m) __ in silence __ with noise __ requested __ spontaneous					
NP = (0-35%)	**IP = (36-79%)**	**A = (80-100%)**	Total Score **(reaction)**/36 =		
NP = (0-35%)	**IP = (36-79%)**	**A = (80-100%)**	Score Total **(location)**/36 =		
AUDITORY FEEDBACK AND INTEGRATION					
3. Vocalizations change when the hearing device is off or on					
Evaluator: ask the child/family member to disconnect their Cochlear Implant or Individual Hearing Aid and, after one minute, turn it back on.					
__ in silence __ with noise					
NP = (0-35%)	**IP = (36-79%)**	**A = (80-100%)**	Total Score/ 6 =		
AUDITORY DISCRIMINATION AND RECOGNITION					
(G) 4. Discrimination of the communicative intention of statements (e.g., affirmation, exclamation, questioning)					
Evaluator: speak phrases in their affirmative, interrogative or exclamative forms, alternating the communicative intention of statements and verifying whether the child can repeat them, responding coherently. If necessary, use the figures to assess the child, asking it to point out the corresponding figure showing the intention of the sentence.					
Phrases:					
( ) as the photograph there? ( ) e is not alone. ( ) id you break the vase? ( ) he suitcase is open. ( ) he sun is shining today!					
__ recorded material __ in silence __ with noise __ closed set __ open set					
(G) 5. Discrimination of oral statements - true words					
Evaluator: first ask the child to repeat the onomatopoeia. If the child is not able to do the task of discrimination, emit two equal sounds and a different one, observing if the child reacts by changing attention (young children) when the different word is said. It can also be done with the help of pictures using the same procedure, asking the child to take or point to the picture of the different sound.					
Onomatopoeia - open set recognition:					
( ) ock-a-doodle-doo ( ) uack ( ) ri cri cri ( ) eow ( ) ink oink					
Onomatopoeia - discrimination:					
( ) ock-a-doodle-doo x cock-a-doodle-doo x boom ( ) ri cri x cri cri cri x toc toc					
( ) eow x meow x chu chu					
__ recorded material __ in silence __ with noise __ closed set __ open set					

Note 1: NP - not present, IP - in process, A - acquired. **Note 2:** *Items that must be applied in the corridor (distance situation) and in the room (noise situation) in a controlled manner. **Note 3: (G)** Items that should initially be tested along with recorded material. If the evaluator notices the child's difficulty in listening to the recorded message, proceed with the application of the item using vocal commands.

Annex 1. Continued...

***6. Recognition of the child's first name**					
Evaluator can, still in the corridor, call the child by name and observe how it reacts. Do it also near the child in a noisy situation.					
__ far (3 m) __ in silence __ with noise					
(G) 7. Familiar words based on different consonants (e.g., pea/bee, dare/bare, sign/mine, ramp/lamp, shine/fine, pie/tie).					
Evaluator: ask the child to repeat similar monosyllabic words with different consonants. If not, ask the child to identify them together.					
List of words:					
( ) ea ( ) ee ( ) amp ( ) amp ( ) ign ( ) ine					
__ recorded material __ in silence __ with noise __ closed set __ open set					
NP = (0-35%)	**IP = (36-79%)**	**A = (80-100%)**	Total Score/54=		
HEARING RECOGNITION AND UNDERSTANDING					
(G) 8. Identifies a figure or object with a critical element (example: point the car)					
Evaluator: speak the sentences asking the child to point to the corresponding figure.					
( ) oint the motorcycle ( ) oint the ship ( ) oint the car ( ) oint the arm ( ) oint the leg					
( ) oint the nose					
__ recorded material __ in silence __ with noise __					
(G) 9. Identifies figures or objects with two critical elements					
Evaluator: speak the sentences asking the child to point to the corresponding figure.					
( ) oint the green car ( ) oint the red plane ( ) oint the blue truck					
( ) oint the brown dog ( ) oint the yellow cat ( ) oint the big duck					
__ recorded material __ in silence __ with noise					
(G) 10. Identifies figures or objects with three critical elements					
Evaluator: speak the sentences asking the child to point to the corresponding figure.					
( ) oint the green car on the table					
( ) oint the green car under the table					
( ) oint the eyes of the girl wearing red clothes					
( ) oint the wheel of the big blue car					
( ) oint the foot of the girl who has black hair					
( ) oint the belly of the girl who wears blue clothes					
__ recorded material __ in silence __ with noise __					
(G) 11. 1 Identifies critical elements in short stories					
Evaluator: play the recorded material of a children's story, or read it to the child, and ask questions about the story without allowing Orofacial Reading.					
Simple questions:					
( ) ho are the characters in the story? ( ) hat was the house of the first pig made of? ( ) hat did the wolf do to bring down the straw house?					
__ recorded material __ in silence __ with noise					
(G) 11. 2 Identifies critical elements in short stories					
Evaluator: play the recorded material of a children's story, or read it to the child, and ask questions about the story without allowing Orofacial Reading.					
Complex questions:					
( ) hy did the wolf fail to bring down the house of the third pig? ( ) hat did the wolf do to try to enter the brick house?					
( ) hy did the piggies end the story happily?					
__ recorded material __ in silence __ with noise					
NP = (0-35%)	**IP = (36-79%)**	**A = (80-100%)**	Total Score/54 =		
SHORT TERM AUDITORY MEMORY					
(G) 12.1 Memory: recalls numbers that were heard or shown right after the stimulus (OLDER CHILDREN)					
Evaluator: ask the child to repeat two-digit combinations.					
( ) - 1 ( ) - 9 ( ) - 5					
__ recorded material __ in silence __ with noise __ with visual cues __ only auditory					

Note 1: NP - not present, IP - in process, A - acquired. **Note 2:** *Items that must be applied in the corridor (distance situation) and in the room (noise situation) in a controlled manner. **Note 3: (G)** Items that should initially be tested along with recorded material. If the evaluator notices the child's difficulty in listening to the recorded message, proceed with the application of the item using vocal commands.

Annex 1. Continued...

(G) 12.2 Memory: recalls numbers that were heard or shown right after the stimulus (OLDER CHILDREN)					
Evaluator: ask the child to repeat three-to-four-digit combinations.					
( ) - 4 - 9 ( ) - 3 - 5 - 1 ( ) - 2 - 9 - 3					
__ recorded material __ in silence __ with noise __ with visual cues __ only auditory					
(G) 12.3 Memory: recalls numbers that were heard or shown right after the stimulus (OLDER CHILDREN)					
Evaluator: ask the child to repeat five-to-six-digit combinations.					
( ) - 7 - 3 - 9 - 9 ( ) - 9 - 6 - 1 - 8 - 3 ( ) - 9 - 5 - 7 - 2 - 8					
__ recorded material __ in silence __ with noise __ with visual cues __ only auditory					
(G) 12.4 Memory: recalls numbers that were heard or shown right after the stimulus (YOUNGER CHILDREN)					
Evaluator: first ask the child to repeat the onomatopoeia. If the child shows difficulty, present the animal figures so that the child can place them in the order of the therapist's audio or speech.					
( ) w aw ( ) w aw, meow ( ) oo, quack, baa ( ) w aw, meow, baa, quack ( ) oo, quack, baa, aw aw, meow					
__ recorded material __ in silence __ with noise __ with visual cues __ only auditory					
NP = (0-35%)	**IP = (36-79%)**	**A = (80-100%)**	Total Score **(digits)**/45 =		
NP = (0-35%)	**IP = (36-79%)**	**A = (80-100%)**	Total Score **(onomatopoeia)**/15 =		
LINGUISTIC AUDITORY PROCESSING					
*** 13.1 (YOUNGER CHILDREN) Application of auditory information:** children understand and use auditory information and recall from its general knowledge the meaning of a variety of situations:					
Evaluator: observe the vocal behavior/shift change proposing a situation of dialogue with the child, while it performs some simultaneous activity.					
Proposal for materials for the simultaneous activity: thematic illustrations, painting books, colored pencils, or distracting toys, such as a puzzle/earthquake.					
Possible questions: What is your favorite game? What cartoons do you like to watch? What are the names of your school friends? (These questions are suggestions only. The speech therapist will be able to replace and add according to questions to the need of and application to each child).					
__ with visual cues __ only auditory __ in silence __ with noise __ alone activity __ simultaneous activities					
*** 13.2 (OLDER CHILDREN) Application of auditory information:** children understand and use auditory information and recall from its general knowledge the meaning of a variety of situations (conversation):					
Evaluator: while the child performs an activity, talk to it using different types of questions.					
Proposal for materials for the simultaneous activity: thematic illustrations, painting books, colored pencils, or distracting toys, such as a puzzle/earthquake.					
Possible questions: Who came with you for therapy? What places do you like to go to? What do you like to do on weekends? (These questions are suggestions only. The speech therapist will be able to replace and add according to questions to the need of and application to each child).					
__ with visual cues __ only auditory __ in silence __ with noise __ alone activity __ simultaneous activities					
14. Phone conversation					
Evaluator: while carrying out an activity, ask the relative to leave the room and speak to the child over the phone.					
Suggested questions for the family member to ask: What are you doing? What is the name of your speech therapist? Are you enjoying the activity? What will you do later?					
(These questions are suggestions only. The speech therapist will be able to replace and add according to questions to the need of and application to each child).					
__ alone activity __ simultaneous activities					
(G) 15. 1 (YOUNGER CHILDREN): follows an instruction					
Evaluator: ask the child to perform some actions.					
( ) lap your hands ( ) rab your head ( ) ap your feet on the floor					
__ recorded material __ with noise __ in silence					

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Annex 1. Continued...

(G) 15. 2 (YOUNGER CHILDREN): follow two instructions					
Evaluator: ask the child to perform some actions.					
Note: leave figures of different semantic categories within the reach of the child, including that of an animal. Suggestions of figures: dog, table, ship, and girl.					
( ) ake the figure of an animal and place it under the table					
( ) low a kiss and say goodbye					
( ) rab your nose and then touch your eye					
__ recorded material __ with noise __ in silence					
(G) 15. 3 (YOUNGER CHILDREN): follow three instructions					
Evaluator: ask the child to perform some actions.					
Note: leave figures of different semantic categories within the reach of the child, including that of an animal. Suggestions of figures: dog, table, ship, and girl.					
( ) ouch the tip of your nose, clap your hands, and grab a figure					
( ) how your tongue, touch your belly, and tap your feet					
( ) ake your hair, stand, and walk around the room					
__ recorded material __ with noise __ in silence					
(G) 15.4 (OLDER CHILDREN): follow orders and instructions					
Evaluator: ask the child to perform some actions.					
( ) rab your hair and stand					
( ) mile, say goodbye, and blow a kiss					
( ) ake a face, pretend you're asleep, and stick out your tongue					
__ recorded material __ with noise __ in silence					
NP = (0-35%)	**IP = (36-79%)**	**A = (80-100%)**	Total Score **(younger children)**/39 =		
NP = (0-35%)	**IP = (36-79%)**	**A = (80-100%)**	Total Score **(older children)**/33 =		

Note 1: NP - not present, IP - in process, A - acquired. **Note 2:** *Items that must be applied in the corridor (distance situation) and in the room (noise situation) in a controlled manner. **Note 3: (G)** Items that should initially be tested along with recorded material. If the evaluator notices the child's difficulty in listening to the recorded message, proceed with the application of the item using vocal commands.