Original Article

Artigo Original

Assessment of telephone speech perception in individuals who received cochlear implant in the period 1993–2003

Avaliação da percepção de fala ao telefone em indivíduos que receberam o implante coclear no período de 1993 a 2003

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Keywords

Cochlear implantation
Telephone
Auditory perception
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Hearing

ABSTRACT

Objective: To evaluate telephone speech perception in individuals who received cochlear implant in the period 1993-2003. **Methods:** Twenty seven CI users were divided into pre and post-lingual groups, being the speech perception assessed in two stages: first by a list of sentences imposed on speakerphone with the same mapping used to evaluate the phone and, in a second stage, using the landline, landline phone adapter with CI and cell phone. **Results:** In the group of pre-lingual hearing loss, 75% of subjects were able to maintain a dialogue with the interlocutor and 19% did so with difficulty. In the post-lingual group, 89% were able to maintain the dialogue with the interlocutor and 11% did so with difficulty. Both groups of subjects pre and post-lingual use the phone as a media, and most have satisfactory performance without the need for aid or CI accessories. **Conclusion:** One of the benefits of the CI is to introduce the life of the hearing impaired phone use regardless of their technology and accessories, as well as with the phone adapter and cell phone. In this study, most individuals CI users showed satisfactory performance in the comprehension of sentence and questions by the telephone, with better performance, although discrete, for the group post-lingual. Thus, there is the importance of careful indication of the IC and auditory rehabilitation program that minimize the impact of deafness in the communication, especially via telephone, regardless of the time when the hearing was acquired. So, this fact improves the conditions for CI users to maintain their daily activities, following the dynamism of contemporary life.

Descritores

Implante coclear
Telefone
Percepção auditiva
Perda auditiva
Audição

RESUMO

Objetivo: Avaliar a percepção de fala ao telefone em indivíduos que receberam o implante coclear multicanal no período de 1993 a 2003. **Métodos:** Vinte e sete usuários de IC foram divididos em grupos pré e pós-lingual, sendo que a percepção de fala foi avaliada em dois momentos: primeiramente por uma lista de sentenças aplicada a viva-voz com o mesmo mapeamento utilizado na avaliação ao telefone e, em um segundo, utilizando-se o telefone fixo, telefone fixo com adaptador para IC e telefone celular. **Resultados:** No grupo de deficiência auditiva pré-lingual, 75% dos indivíduos foram capazes de manter o diálogo com o interlocutor e 19% o fizeram com dificuldade. Já no pós-lingual, 89% foram capazes de manter o diálogo com o interlocutor e 11% o fizeram com dificuldade. Tanto os indivíduos dos grupos pré quanto os do pós-lingual utilizam o telefone como meio de comunicação, e a maioria apresenta desempenho satisfatório sem a necessidade de auxílio ou acessórios do IC. **Conclusão:** Um dos benefícios do IC é introduzir na vida do deficiente auditivo o uso do telefone independente de sua tecnologia e acessórios, bem como o telefone com adaptador e o celular. Neste estudo, a maioria dos

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indivíduos usuários de IC apresentou desempenho satisfatório de compreensão de sentenças e perguntas ao telefone, com melhor desempenho, apesar de discreto, do grupo pós-lingual. Desta forma, verifica-se a importância da indicação criteriosa do IC e do programa de reabilitação auditiva, que minimizam os prejuízos da surdez na comunicação, principalmente via telefone, independente do momento no qual a deficiência auditiva foi adquirida. Assim, melhoram-se as condições para os usuários de IC manterem suas atividades diárias acompanhando o dinamismo da vida contemporânea.

INTRODUCTION

Multichannel cochlear implant (CI) is a technologically sophisticated device that is recommended as a treatment option to individuals with severe and profound bilateral neurosensory hearing loss. Since its conception, studies have considered it an effective resource, given that, with its use, it is possible to achieve tonal thresholds close to normalcy and to improve speech perception even in noisy environments. Furthermore, CIs have the purpose of restoring the ability of an individual with hearing loss to communicate in specific situations, such as by telephone.

The telephone is a means of communication used worldwide. Its technology has shortened time and approximated borders in contemporary life, more so with the invention of digital cellular telephones. Considering that these devices make life easier, it is hardly possible to find situations in which their use is not necessary nowadays.

However, communicating via telephone is a special challenge to any individual with hearing loss, including CI users. Some individuals are able to start using the telephone for the first time, while others can reintroduce it in their routine after a long time without using it.

A good performance when communicating by telephone requires a thorough process of enablement and rehabilitation, given that a change in hearing ability, consequential of the use of CIs, affects the patient, his/her family, friends, and workmates. The rehabilitation process is speedy, and the opportunities for success multiply if the users of CIs are involved in the process.

Scholars applied a questionnaire related to the use of telephones in 66 individuals who utilize *Ineraid* CI, and observed that 51% started communicating over the phone, most of the time with relatives and friends. They also verified that 48% of the individuals reported that they were able to identify the interlocutor's sex or age by the voice, 27% were able to identify a familiar interlocutor, and 48% reported that they were able to maintain a dialogue with a known interlocutor about a topic of which they had previous knowledge[1].

In a subsequent study, the benefits of CIs were analyzed in a geriatric population composed of 28 individuals. It was verified that 65% of the patients were able to recognize voices on the telephone, and more than 80% believed that their life quality had improved significantly, CIs benefit geriatric populations, and the age factor must not be a limitation when recommending it[2].

Researchers have also investigated the ability to communicate on the telephone with and without the use of an adaptor in CI users who are able to maintain a live-voice conversation without difficulties. The results showed that, generally, the ability of an individual who uses CI to communicate on the telephone is not enough to maintain an effective conversation; however, with the use of a telephone adaptor, the performance obtained comes close to that observed with live-voice dialogues[3].

In the aforementioned study, 67 adults were assessed, and the results in relation to the use of a telephone showed that the CI was beneficial to these individuals' hearing and speech recognition[4]. Other scholars have demonstrated that about 50% of the individuals in their sample were able to use the telephone to communicate with a familiar interlocutor after 1 year of activation of the CI[5]. Similar results have been described in other studies[6-8].

On the other hand, some studies have presented results below 30% for the analysis of speech perception through the comparison of telephone types. In two of them, scholars verified that 51 (84%) of the 61 individuals assessed were able to communicate using a landline telephone. However, only 27 of them presented similar performance when using a digital cellular telephone[9,10].

The literature also presents that, after a period of use of CIs and adequate hearing training, all six children that composed a study sample developed the ability to use the telephone to communicate with their relatives[10]. Similar results have been described in subsequent studies: children unable to use the telephone before the CI regardless of the age improved their performance significantly year after year following surgery, except from the third to the fourth year. Their performance on the telephone demonstrated significant correlation with the results of speech recognition tests, applied in open and closed sets[10,11]. However, this correlation depends on the test type, given that a poor performance on the Central Institute for the Deaf's Telephone Sentences Test did not prevent the use of the device by the individuals assessed[12].

A new method that uses extended broad band to improve speech perception on the telephone was evaluated with users of CI. The transmission of acoustic information contained in speech over the telephone is high (3400 Hz). The effect of the method of band extension was assessed through *IEEE Recommended Practices for Speech Quality Measurements* sentence recognition tests in seven users of CI. The results showed a discreet improvement in performance on the telephone, but significant progress in speech recognition with the use of the method proposed. Furthermore, it was observed that CI users became highly dependent of the band extension method[13].

In another study, researchers compared and characterized the time-length of telephone use and the comprehension performance of normal children and children who had been using CI

for at least 8 months through a questionnaire sent by mail. There was a significant difference between the two groups in relation to the reported time of telephone use, and the comprehension of speech uttered by familiar and unknown people, which was significant among teenagers. The sound quality reported by both groups was similar[14].

Therefore, the studies on communication by telephone in individuals who use multichannel CI present, as results, performances that vary in such a specific situation. We did not find studies on this topic in the national literature.

Thus, the aim of this study was to assess speech perception on the telephone in individuals who use initial technology multichannel CI with pre and postlingual hearing loss as a possible benefit consequential of the use of this device.

METHODS

This study was conducted with individuals who use multichannel CI and are part of the Cochlear Implant Program of the Center for Research on Hearing, Hospital of Rehabilitation of Craniofacial Anomalies, Universidade de São Paulo, protocol number 13/2003. All individuals and/or legal guardians signed the Informed Consent of the research project approved by the institution's Research Ethics Committee.

We selected individuals who had been using CI for at least 6 months and who also undertook an open-set speech perception test.

The sample composed of 27 users of multichannel CI, divided in two groups according to the age when the onset of hearing loss occurred:

- Prelingual: nine individuals, five females (55%) and four males (45%), ranging from five to 11 years of age (8.11±1.90 years).
- Postlingual: 18 individuals, 11 females (61.11%) and seven males (38.88%), ranging from six to 63 years of age (31.94±17.23 years).

The distribution of the sample in regards to the time of use of CI (years), average of tonal thresholds (dB), and performance on the clinical assessment of speech perception for the pre and postlingual groups is displayed in Table 1.

Data concerning the participants' current age, type of CI, insertion, model of speech processor, processor's strategies, speed, and stimulation method of the pre and postlingual groups are shown in Table 2.

Table 1. Sample distribution in regards to the time of use of cochlear implant, average of tonal thresholds, and clinically analyzed speech perception

	Mean±SD	Min–Max
Prelingual (n=9)		
Time of CI use (years)	4.77±0.83	3–6
Average TT (0.5, 1, 2, and 4 KHz)	28.31±7.22	20–41.75
Speech perception – CA	61.69±23.25	17–94
Postlingual (n=18)		
Time of CI use (years)	4.47±2.71	0.6–9
Average TT (0.5, 1, 2, and 4 KHz)	29.65±5.83	18.75–40
Speech perception – CA	81±24.86	16–100

Caption: CI = cochlear implant; TT = tonal thresholds; CA = clinical analysis; SD = standard deviation; Min-Max = Minimmum-Maximmum

Table 2. Sample distribution in relation to current age, type of cochlear implant, insertion, model of speech processor, processor strategy, speed, and stimulation method in the pre and postlingual groups

Individual	CA	OHL	CI type	Insertion	SPM	PS	Speed	SM
1	10	Postlingual	CI24M-Nucleus24	Total	Esprit	ACE	1,200 Hz	MP1+2
2	10	Postlingual	CI24M-Nucleus24	Total	Esprit	ACE	1,200 Hz	MP1+2
3	9	Postlingual	CI24M-Nucleus24	Total	Esprit	ACE	1,200 Hz	MP1+2
4	20	Postlingual	CI24M-Nucleus24	Total	Esprit	SPEAK	1,200 Hz	MP1+2
5	22	Postlingual	Med-el C40+	Total	TEMPO +	CIS+	925.9 pps	MP
6	41	Postlingual	CI22M-Nucleus22	Total	Spectra	SPEAK	250 Hz	BP+1
7	40	Postlingual	CI22M-Nucleus22	Total	Spectra	SPEAK	250 Hz	BP+1
8	39	Postlingual	Med-el C40+	Total	TEMPO+	CIS+	983.6 pps	MP
9	40	Postlingual	Clarion	Total	SP-Series	CIS	812.5 pps	BP medial
10	56	Postlingual	CI24M-Nucleus24	Total	Esprit	ACE	1,200 Hz	MP1+2
11	36	Postlingual	CI22M-Nucleus22	Total	Spectra	SPEAK	250 Hz	BP+1
12	50	Postlingual	Clarion	Total	SP S-SERIES	CIS	812.5 pps	BP medial
13	34	Postlingual	Med-el C40+	Total	CIS PRO+	CIS	925.9 pps	MP
14	6	Postlingual	CI24M-Nucleus24	Total	Sprint	ACE	1,200 Hz	MP1+2
15	41	Postlingual	Clarion	Total	SP-S SERIES	CIS	812.5 pps	BP medial
16	9	Prelingual	CI24M-Nucleus24	Total	Sprint	ACE	1,200 Hz	MP1+2
17	8	Prelingual	CI24M-Nucleus24	Total	Sprint	ACE	1,200 Hz	MP1+2
18	43	Postlingual	Med-el C40+	Total	TEMPO+	CIS+	1,652.9 pps	MP
19	5	Prelingual	CI24M-Nucleus24	Total	Sprint	ACE	1,200 Hz	MP1+2
20	63	Postlingual	CI22M-Nucleus22	Total	Spectra	SPEAK	250 Hz	BP+1
21	6	Prelingual	Med-el C40+	Total	CIS-PRO+	CIS	925.9 pps	BP medial
22	15	Postlingual	Med-el C40+	Total	CIS PRO+	CIS	1,818.2 pps	MP
23	11	Prelingual	Med-el C40+	Total	CIS-PRO +	CIS	925.9 pps	BP medial
24	9	Prelingual	CI24M-Nucleus24	Total	Sprint	ACE	1,200 Hz	MP1+2
25	7	Prelingual	CI24M-Nucleus24	Total	Sprint	ACE	1,200 Hz	MP1+2
26	8	Prelingual	CI22M-Nucleus22	Total	Spectra	SPEAK	250.0 Hz	BP+1
27	10	Prelingual	CI24M-Nucleus24	Total	Sprint	ACE	1,200 Hz	MP1+2

Caption: CA = current age; OHL = onset of hearing loss; CI = cochlear implant; SPM = speech processor model; PS = processor strategy; SM = stimulation method

In order to achieve the objectives proposed, speech perception was assessed in two stages with individuals using their devices: on the telephone, and using live voice.

On the telephone

Speech recognition was assessed with a list of open-set phonetically balanced sentences (Appendix 1). Each list contained 10 sentences with 25 items to be considered, and the total analysis corresponded to 100%.

The evaluation was conducted with the use of landline telephones, landline telephones with CI adaptors, and cellular phones, with the purpose of comparing the results to the different types of telephone and situations. The telephone adaptor was used by all individuals with Nucleus 22 (Spectra processor) and Nucleus (Sprint processor) CIs. It was not possible to use the adaptor with the CI models Clarion (SP S-SERIES) and Med-el (CIS-PRO+ and TEMPO+ processors).

For the conduction of the tests, we used two acoustically prepared rooms, in which the assessor and the patient remained separated in each one of them with their respective telephones. In order to guarantee the consistency of the results, the tests were always conducted by the same examiner, a stranger to the patient, in the same room, and using the same telephones.

Considering that there was repetition of the speech material used, we paid close attention to the sequence of speech sample and to which telephone was used first, at times initiating the test with the landline telephone, and at other times starting with the landline telephone with the adaptor or the cellular phone, so that the learning factor was not a variable considered in this study.

Clinical evaluation of live-voice speech perception

Speech perception was assessed with a list of sentences spoken live-voice using the same mapping to evaluate perception on the telephone, including the assessment of hearing recognition abilities (sentence recognition test–Appendix 1) and hearing comprehension (question comprehension test–Appendix 2).

The ability to maintain a dialogue on a landline telephone was assessed by means of an open-set interview with simple and complex questions (Appendix 2). The results analyzed led to the following classification of the individuals: (a) unable to use the telephone (score ≤30%), (b) use the telephone with pronounced difficulty (31–50%), (c) use the telephone with difficulty (51–70%), and (d) able to maintain a dialogue over the telephone (>70%).

The sample profile was defined based on descriptive statistical analysis (average/minimum and maximum standard deviation).

The comparison between the pre and postlingual groups was conducted through Mann-Whitney's test for all the variables studied. The correlation test used was Spearman's Rank Correlation. We adopted a significance level of 5% or 0.05.

RESULTS

Table 3 presents the results of the individuals' performance in perceiving sentences on a landline telephone, landline telephone with an adaptor, and on a cellular phone. The test of using the telephone with an adaptor was only conducted with the individuals who had this device for their respective CI models.

Table 4 displays the statistical analysis conducted in order to compare the participants' performances in sentence perception in the pre and postlingual groups on the landline telephone, landline telephone with adaptor, and cellular phone.

Table 5 shows the results of the statistical analysis conducted with the purpose of comparing sentence recognition on the landline telephone, landline telephone with adaptor, and cellular phone, considering the variables: time of CI use, average of tonal thresholds, and recognition of silent speech sentence recognition (live voice) in both groups evaluated.

Table 3. Results of the performance in sentence recognition on the landline telephone, landline telephone with adaptor, and cellular telephone in the pre and postlingual groups according to the number of individuals tested

	Prelingual (n=9)			Postlingual (n=18)		
	LT (n=9)	LTA (n=5)	CT (n=8)	LT (n=18)	LTA (n=4)	CT (n=7)
Average (%)	82.22	92.80	69.50	70.82	87.50	90.28
Standard deviation (%)	12.62	6.72	19.53	25.30	9.00	14.44
Minimum (%)	66.00	82.00	42.00	32.00	76.00	60.00
Maximum (%)	100.00	100.00	96.00	100.00	98.00	100.00

Caption: LT = landline telephone; LTA = landline telephone with adaptor; CT = cellular telephone

Table 4. Comparison of the individuals' performance in sentence recognition on the landline telephone, landline telephone with adaptor, and cellular telephone in the pre and postlingual groups

	LT	LTA	CT
Prelingual × postlingual	0.329657	0.325170	0.031823*

*Statistically significant values (p≤0.05) – Mann-Whitney's test

Caption: LT = landline telephone; LTA = landline telephone with adaptor; CT = cellular telephone

Table 5. Correlation between the results of the sentence recognition test on the landline telephone, landline telephone with adaptor, and cellular telephone with the variables: length of use of the cochlear implant, average of the tonal thresholds, and sentence recognition in silence (live voice) in the pre and postlingual groups

	Sentence recognition (prelingual)			Sentence recognition (postlingual)		
	LT	LTA	CT	LT	LTA	CT
Length of use of the cochlear implant	0.648695	0.004818	0.510726	0.725811	0.683772	0.711124
Average of the tonal thresholds	0.708	0.003*	0.545	0.166	0.171	0.714
Sentence recognition (live voice)	0.949	0.190	0.891	0.019*	0.059	0.185

*Statistically significant values (p≤0.05) – Spearman's Rank Order Correlations test
Caption: LT = landline telephone; LTA = landline telephone with adaptor; CT = cellular telephone

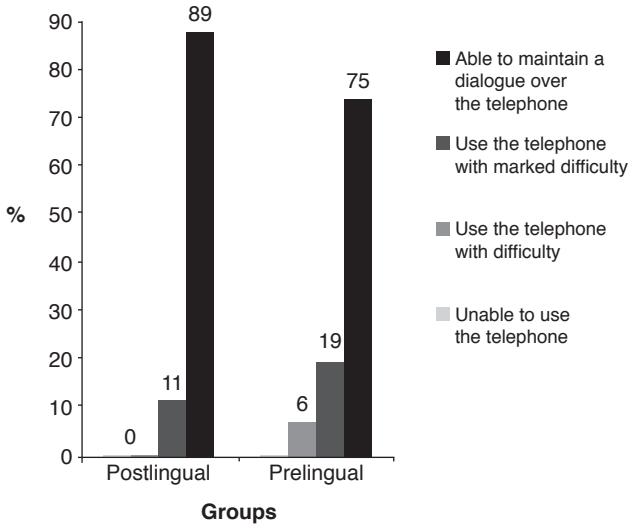

Figure 1. Qualitative analysis of the performance in maintaining a dialogue over the telephone on a landline telephone, landline telephone with adaptor, and cellular phone in the pre and postlingual groups

Figure 1 presents the result of the individuals' hearing comprehension while maintaining a dialogue (hearing comprehension evaluation) regardless of the type of telephone and use of adaptor in the pre and postlingual groups.

DISCUSSION

The individuals with severe and/or profound hearing loss have significant difficulties to communicate and a marked limitation to use the telephone effectively. With the use of a personal sound amplifier device (PSAP), an individual is able to achieve a level of open-set recognition and speech comprehension that allows for the effective use of a telephone. Therefore, the patients who obtain scores lower than 50% in sentence recognition with PSAP are candidates to CIs, which improve speech recognition and comprehension, including in communication by telephone.

One of the problems of using a PSAP while on the telephone is the microphony that occurs when an individual touches the PSAP microphone with the telephone, causing comprehension and dialogue maintenance to be even more difficult. This does not occur in the case of CI users, as there are even models with available adaptors that facilitate conversation on the telephone.

In the sample of this study, we analyzed individuals with pre and postlingual hearing loss, with several years of CI use, because, a priori, it was possible that we could find differences in performance, considering the time of the onset of hearing loss. It is important to highlight that all individuals evaluated were able to complete the sentence recognition test on a landline telephone, and, when possible, on a landline telephone with adaptor, and also on a cellular phone.

Taking into consideration the type of telephone specifically, we found the average performance for the use of landline telephone, landline telephone with adaptor, and cellular phone (Table 3). The data show that the adaptor is an important accessory when using a telephone, as it improves the ability to recognize speech for the majority of the individuals who used it in both groups.

The CI users with pre and postlingual hearing loss presented a satisfactory performance when using the telephone, without a significant difference between the groups in regards to the use of a landline telephone with and without an adaptor. It is worth highlighting that the postlingual group presented a lower average due to the fact that two individuals registered poor performances in live-voice speech perception (Table 3).

Through the comparative analysis of the performances presented while using different types of telephone (landline and cellular), it was possible to observe that only the group with postlingual hearing loss reported better sound clarity while using a cellular telephone, which justifies the better performance in that group when compared to the landline telephone, even when using an adaptor. This could probably be justified by the fact that the cellular phone makes use of a digital technology that transmits information over the telephone with better acoustic quality. However, the opposite was verified in the prelingual group, with poorer performances in the latter type of telephone and statistically significant difference between the groups (Table 4).

The variable time of CI use had no correlation with the individuals' performances when using the telephone in both groups. However, their performance in live-voice sentence recognition had a significant correlation with the individuals' performance while communicating via landline telephones and landline telephones with adaptor, respectively (Table 5).

In the qualitative evaluation, we verified that all individuals in both groups were able to use the telephone. In the prelingual hearing loss group, 75% of the individuals maintained a dialogue with the interlocutor, and 19% did so with difficulty. Marked difficulty was observed in 6% of the participants in the prelingual group. However, those who maintained a dialogue with difficulty and even with marked difficulty obtained high scores in sentence recognition, which means that they were in a stage of acquiring hearing recognition abilities and/or had not acquired a sufficient lexical system to understand the questions.

On the other hand, in the group with postlingual hearing loss, 89% of the individuals were able to maintain a dialogue with the interlocutor, and 11% did so with difficulty. However, there were no individuals with marked difficulty to use the telephone (Figure 1).

In studies found in the literature, we observed poorer performances in using the telephone by CI users both in the pre and postlingual groups, even when the interlocutor was familiar to the participant[1-5,9-12,15].

In relation to the postlingual group, the better performance in this study can be justified by the rigorous criteria used to recommend a CI to a patient. These individuals undergo a time span of sensory deprivation shorter than those cited in previous studies, and, for this reason, time is no longer a significant variable. Moreover, the rehabilitation strategies used in the CI program are constantly updated and present better performance levels when previous studies found in the literature are taken into consideration.

In regards to the prelingual group, the time span of sensory deprivation and age of the surgery are no longer significant variables after 4–5 years of CI use, because, at this point, children have already achieved a good developmental level of hearing abilities and language. On the other hand, the prelingual group evaluated in this study showed a better performance than that reported in aforementioned studies, because the use of CI was recommended when the participant was no older than 4 years of chronological age. This does not occur in other studies found in the literature, in which prelingual groups suffered significant sensory deprivation until the CI was recommended.

Generally, the individuals in the pre and postlingual groups use the telephone as a means of communication in their daily activities, and the majority presented satisfactory performance without help or CI accessories. The technological evolution of electronic devices has enabled CI users to use the telephone effectively, with a positive impact on life quality. Other studies are currently being conducted at our center with the latest technology in CIs.

CONCLUSION

One of the benefits of CIs is to introduce the use of telephones into the life of individuals with hearing loss regardless of their technology and accessories, as well as telephones with adaptors and cellular phones.

In this study, the majority of CI users presented a satisfactory performance in comprehending sentences and questions over the telephone, with a better performance, albeit discreet, in the postlingual group. We thus verified the importance of rigorous criteria of CI recommendation and the hearing rehabilitation program, which minimize the impact of deafness during communication, especially via telephone, regardless of the moment when the loss of hearing occurred. In this way, CI users experience improved conditions to perform daily activities while keeping up with the dynamism of contemporary life.

**OAC was responsible for the study outline and overall supervision of the stages of manuscript writing and elaboration; PPR was responsible for data collection and tabulation, and manuscript elaboration; MCB was responsible for supervising the stages of manuscript writing and elaboration; LTN collaborated with data collection and analysis; KFA collaborated with data collection and analysis, and manuscript elaboration.*

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Appendix 1. List of sentences used on the live-voice and telephone tests

1. A menina estava passeando no jardim.
   1 2 3 4
2. Ele comeu caqui maduro.
   5 6 7 8
3. O gato bebeu leite.
   9 10 11
4. Choveu muito ontem.
   12 13 14
5. O bolo de morango e creme é muito bom.
   15 16 17 18 19 20
6. Eu assisti um filme de terror na televisão.
   21 22 23 24 25
7. Amanhã ele vai vender a geladeira velha.
   26 27 28 29 30 31
8. A cadeira que ela sentou estava quebrada.
   32 33 34 35 36
9. Ela foi ao supermercado ontem à tarde para comprar frutas.
   37 38 39 40 41 42 43 44
10. O caminhão que viajava para São Paulo quebrou no caminho.
    45 46 47 48 49 50

Appendix 2. List of questions used in the live-voice and telephone interviews

1. Qual é o seu nome?
2. Quantos anos você tem?
3. Onde você mora?
4. Você tem irmão(s)?
5. Qual o nome de seu(s) irmão(s)?
6. Você está na escola (ou trabalhando)?
7. Qual a cor da sua blusa?
8. Quais as atividades que você desenvolve nas suas horas de lazer? (adulto)
9. Do que você gosta de brincar? (criança)
10. Qual o nome de sua mãe?