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Influence of educational level of families of hard of hearing children and adolescents on their informational needs: descriptive study

Influência da escolaridade de famílias de crianças e adolescentes com deficiência auditiva em suas necessidades de informação: estudo descritivo

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ABSTRACT

Purpose: To evaluate the influence of education of guardians of hard of hearing children with formal education levels from elementary to high school, in relation to their information needs in the context of an auditory rehabilitation service. **Methods:** Cross-sectional, observational study, with a convenience sample of 58 guardians of children with hearing loss. The Family Needs Inventory (INF) was applied, translated, and adapted into Brazilian Portuguese, and parents' education was collected, in addition to the variables age of the child and age at diagnosis. **Results:** In the quantitative analysis of the "yes" responses from the INF, all the families presented need for information , and for families with less education, the need for information about hearing and hearing devices was greater. In the regression analysis, there was no influence of schooling on the amount of information needed, even considering the chronological age and diagnosis of the child in the model. As limitations of this study, we highlight the absence of sufficient number of families with higher education for the analysis of the final model, as well as the impossibility of including other variables in the analysis. **Conclusion:** The analyzed families with different levels of schooling showed need for information , and schooling did not influence the amount of information required by them. It was possible to observe a qualitative difference in the topics of needed information , which alerts to the importance of investigation about the needs of families in child auditory rehabilitation programs, to implement more family-centered approaches.

Keywords: Family; Child; Hearing loss; Correction of hearing impairment; Needs assessment

RESUMO

Objetivo: avaliar a influência da escolaridade de responsáveis por crianças com deficiência auditiva com níveis de educação formal do ensino fundamental ao ensino médio, em relação às suas necessidades de informação no contexto de um serviço de reabilitação auditiva do Sistema Único de Saúde. **Métodos:** estudo transversal, observacional, com amostra de conveniência de 58 responsáveis por crianças com deficiência auditiva. Aplicou-se o Inventário de Necessidades Familiares traduzido e adaptado para o português brasileiro e foram coletados os dados de escolaridade dos responsáveis e as variáveis idade da criança e idade no diagnóstico. Foi realizada análise descritiva e inferencial. **Resultados:** todas as famílias apresentaram necessidades de informação, sendo que, para as famílias com menor escolaridade, a necessidade de informações sobre a audição e os dispositivos auditivos foi mais frequente. Na análise de regressão, não se observou influência da escolaridade na quantidade de necessidades de informação, mesmo considerando no modelo a idade cronológica da criança e a idade no seu diagnóstico. **Conclusão:** famílias de todas as escolaridades analisadas apresentaram necessidades de informação, sendo que a escolaridade não influenciou a quantidade de informações requeridas. Foi possível observar diferença qualitativa nos tópicos de necessidades de informação, o que alerta para a importância de investigações sobre as necessidades das famílias em programas de reabilitação auditiva infantil, de modo a se efetivar abordagens mais centradas nas famílias.

Palavras-chave: Família; Criança; Perda auditiva; Correção de deficiência auditiva; Determinação de necessidades de cuidados de saúde

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INTRODUCTION

The beneficial impact of effective family participation in the intervention for hearing-impaired children is evident, so the role of families in the process of children's auditory rehabilitation is considered a relevant factor for the child's prognosis(1,2).

Thus, the development of a child with hearing impairment depends on multiple factors, among which we highlight timely diagnosis and intervention, in addition to the constant use of hearing devices, and others. It is noteworthy that these factors can be influenced by family conditions, such as family dynamics, socioeconomic status, feelings about the diagnosis of hearing loss, and the level of education of those responsible for the child(1,3-9).

Parental stress triggered by the diagnosis of hearing impairment in childhood must also be considered. It is expected that during this process there will be a modification in the behavior of families and caregivers, generating negative feelings that can destabilize the family dynamics(8). Thus, the support network for family members of children with any disability must be solid and well-structured(8).

Given this, knowing the needs of the families of hearing-impaired children is especially important to be able to organize care programs that meet the specific needs of each family group, to provide effective counseling(9-14).

It is worth noting that children with parents more active in the intervention present more favorable conditions for auditory exposure, which consequently benefits their language development(5-7).

Given that, according to the information needs identified by the families, and that they rely on the availability of clear information on the main topics related to hearing loss and on how to deal with the hearing-impaired child on a day-to-day basis, it is possible to highlight that singular orientations are crucial to this process. Thus, favoring the autonomy and security of the family so that it can effectively assist the child in his development(14-16).

Therefore, knowing the information needs of each family in infant auditory rehabilitation programs is essential for the development of a therapeutic plan that results in greater adherence to auditory rehabilitation(16-18).

In addition, it should be questioned whether other factors, such as the schooling of the family members, can be determinants for the needs to be worked on with them since this factor is also related to the potential of families to act with the child's development(19,20).

Thus, taking into consideration that the socio-demographic condition of the family can have a significant impact on the communicative interaction with the infant(21) and that there is evidence that maternal education can directly interfere the performance of language skills in childhood, given the fact that mothers with low education have greater difficulty in providing stimuli with repercussions on the development of children's vocabulary(22), analyzing the relationship between schooling and the information needs of families can contribute with important data for the auditory rehabilitation process in childhood.

Furthermore, the higher the educational level of the responsible person, the better understanding of the baby's or child's health condition and the adherence to intervention programs are assumed, such as the consistent use of hearing aids, whose influence of maternal education has already been pointed out(22-24).

This justifies the need for studies that investigate the relationship between the education of the families of hearing-impaired children and their information needs, to contribute to the organization of increasingly effective rehabilitation programs for this population.

This study uses the hypothesis that the education of the families influences their information needs. And the following question was developed: "Does the education of the responsible person or primary caregiver of hearing-impaired children influence their information needs?"

Therefore, the present study aimed to evaluate the influence of the schooling level of guardians of hearing-impaired children with formal education levels from elementary school to high school, concerning their information needs in a hearing rehabilitation service of the Brazilian National Health System (SUS).

METHODS

A cross-sectional, observational, descriptive-analytical study, approved by the Research Ethics Committee (CEP) of the Federal University of Rio Grande do Norte, under opinion number 3.440.683. The manuscript followed the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) checklist (25) for observational studies (Annex A).

The study participants were 58 persons responsible for children and/or adolescents with hearing impairment of any type, from mild to profound, using cochlear implants (CI) or personal sound amplification device (PSAD) between 3 and 14 years of age. Such a sample is representative of a SUS hearing health service since almost all the families (64) attending the Aurioral Auditory Rehabilitation Program were interviewed.

According to the degree of kinship of the 58 caretakers interviewed, 54 were mothers (93.1%), two were aunts (3.45%), one was a grandmother (1.72%), and one was the father (1.72%) of the child or adolescent.

All the children/adolescents whose families participated in this research were inserted in a SUS hearing rehabilitation service and participated in individual and/or group therapy, besides the support from psychology and social services to each of the families.

Inclusion criteria for this convenience sample were: being parents or guardians, of legal age, users of the aforementioned auditory rehabilitation service, and enrolled in a program based on the Aurioral Method.

All subjects signed the Informed Consent Form, and all questions about the study were answered.

The data was collected in the same period that comprised approximately two months.

The interview was conducted face-to-face between a researcher and the person responsible, individually, in an air-conditioned, pleasant room, in a session lasting approximately 50 minutes.

To collect family needs data, we applied the *Inventário de Necessidades Familiares* (INF), which was adapted from the Family Needs Survey. The INF consists of 38 questions divided into seven domains that assess the information needs of parents of children/adolescents with hearing loss(18) (Appendix A).

Annex A. Essential items that should be described in observational studies, according to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE), 2007[(25)]

Item	No	Recommendation	Checking
Title and Abstract	1	Indicate the study's design with Title and abstract 1 a commonly used term in the title or the abstract	Y
		Provide in the abstract an informative and balanced summary of what was done and what was found	Y
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported.	Y
Objectives	3	State specific objectives, including any prespecified hypotheses	Y
Methods			
Study design	4	Present key elements of study design early in the paper	Y
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	Y (if applicable)
Participants	6	Cross-sectional study—Give the eligibility criteria, and the sources and methods of selection of participants	Y
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	Y (if applicable)
Data sources/ measurement	8	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	Y (if applicable)
Bias	9	Describe any efforts to address potential sources of bias	Y (if applicable)
Study size	10	Explain how the sample size was determined.	Y
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	Y
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	Y (if applicable)
		(b) Describe any methods used to examine subgroups and interactions	
		(c) Explain how missing data were addressed	
		Cross-sectional study—If applicable, describe analytical methods taking account of sampling strategy	
Results			
Participants	13	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analyzed	Y (if applicablel)
		(b) Give reasons for non-participation at each stage	
		(c) Consider use of a flow diagram	
Descriptive data	14	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	Y (if applicable)
		(b) Indicate number of participants with missing data for each variable of interest	
Outcome data	15	Cross-sectional study—Report numbers of outcome events or summary measures	Y
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Y (if applicable)
		(b) Report category boundaries when continuous variables were categorized	
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	Y (if applicable)
Discussion			
Key results	18	Summarize key results with reference to study objectives	Y
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision.	Y (if applicable)
		Discuss both direction and magnitude of any potential bias	
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, the multiplicity of analyses, results from similar studies, and other relevant evidence	Y (if applicable)
Generalizability	21	Discuss the generalizability (external validity) of the study results	Y (if applicable)
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	Y (if applicable)

Source: STROBE: Malta et al.[(25,26)]

The INF topics are: general information; information about hearing and hearing loss; communication; educational services and resources; family and social support; community services and care; financial issues(17,18).

The response alternatives to the INF questions are: "no" when the respondents have sufficient knowledge and do not need more information about the topic; "doubtful" when they have information but may still ask questions about the topic; "yes" when they need information about a certain topic(18).

To analyze the information needs of those responsible, the answers marked "yes" in the INF were considered, assuming that the questions answered "yes" would be those of greatest need of information or priority for the family, and the total number of "yes" answers for each respondent was the dependent variable of this study.

The answers marked as "no" or "doubtful" were not selected for analysis, since such options indicate that the family already has some knowledge and such information is not a priority within each topic covered.

We also collected with the guardians their schooling, distributed in the following categories, according to the criteria of the Brazilian Association of Research Companies (ABEP)(27): Incomplete Elementary School (IES); Complete Elementary School (CES); Incomplete High School (IHS); Complete High School (CHS).

The categories incomplete higher education (IHS) and complete higher education (CHS) were not considered for analysis, since no guardian had ESI and only 3% had ESC, the latter being excluded from the sample.

From the medical records of each child, the chronological age and their age at diagnosis of hearing loss were collected. These data are considered possible interfering variables in the information needs of responsible persons since, depending on the age of the child and the moment when the diagnosis was made, the needs of the guardian may be greater and more varied, or concentrated on certain topics. It was felt that especially these two variables could be confounding variables and were therefore incorporated into the multiple regression analysis. Thus, the independent variables of this research included in the regression model were: the education of the guardian, the chronological age of the child, and the age at diagnosis.

Other variables, such as the time of use of the electronic hearing aids, as well as the time of speech therapy, were not computed in this analysis due to imprecise recording or reporting by the participating families.

It is worth saying that socioeconomic status was not considered as a variable in this analysis, since more than 95% of the sample was classified in economic class D-E according to the Brazilian Economic Classification Criteria (ABEP)(27).

All data were tabulated in an Excel® spreadsheet and evaluated descriptively and inferentially, through the presentation of percentages, mean, median, standard deviation, minimum, and maximum in the descriptive analysis. The families' answers were also observed qualitatively regarding the frequency of their questions in the different domains of the INF, according to their education (Appendix B).

The normality of the data was checked with the Shapiro-Wilk test, which showed normal distribution.

Linear and multiple linear regression analysis was applied (INF x schooling only and INF x schooling, considering in the regression model the chronological age of the child and the age at diagnosis), in addition to the analysis of variance (ANOVA) of the information needs among the groups, organized according to education, considering significant p less than or equal to 0.05. For the statistical analysis Jamovi software(28-30) was used.

RESULTS

The highest frequency of education was incomplete elementary school (55%), followed by complete high school (24%), incomplete high school (12%), and complete elementary school (9%) (Figure 1).

The distribution of schooling was considered normal (Figure 2).

The descriptive analysis of the result of "yes" answers in the INF, according to the education of the responsible person, is shown in Table 1.

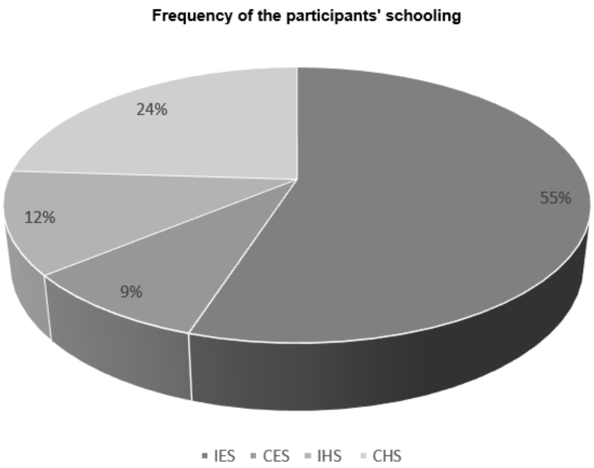

Figure 1. Frequency of the participants' schooling.
Subtitle: % = Percentage; IES = Incomplete elementary school; CES = Complete elementary school; IHS= Incomplete High School; CHS = Complete High School.
Source: Own authorship

Table 1. Overall score on the Family Needs Inventory (FNI) according to the education of the responsible person

	Guardian´s Schooling	N	Mean	Median	SID	Minimum	Maximum
Total FNI	0	32	67.1	71.0	20.5	19	108
	1	5	61.0	55	11.1	50	73
	2	7	69.9	72	11.5	52	84
	3	14	58.2	60.0	17.7	23	87

Source: Own authorship

Subtitle: N = Number of participants; SID = Standard Deviation; 0 =Incomplete elementary school; 1 = Complete elementary school; 2 = Incomplete high school; 3 = Complete High School

For the quantitative and qualitative analysis of the responses, it was observed that participants with incomplete or complete elementary school education (IES or CES) had more questions in the domains of hearing and hearing loss, especially about the electronic assistive listening devices and educational services and resources. For families with high school education, it was observed that information about communication and family and social support were the most needed (Figure 3).

Moreover, it was noted that the statistics of variance (ANOVA) showed no significant difference between the groups concerning the schooling of those responsible and the answers marked as "yes" in the INF showed p value = 0.306 and test: F = 1.31 (Figure 4).

Tables 2 and 3 demonstrate the models that were applied in the regression analysis for the evaluation of the influence of schooling on families' information needs, first considering only the independent variable "schooling" and a multiple regression model, in which schooling and two more predictive factors for guardians' needs - the age of the child and his/her age at diagnosis were considered.

All reliability analyses on the regression models were applied: There was no autocorrelation among the predictors, and no multicollinearity, so the variables have not interfered with each other, and the normality test of the residuals was above 0.05, indicating normality of the data, thus all assumptions were met for the regression analysis.

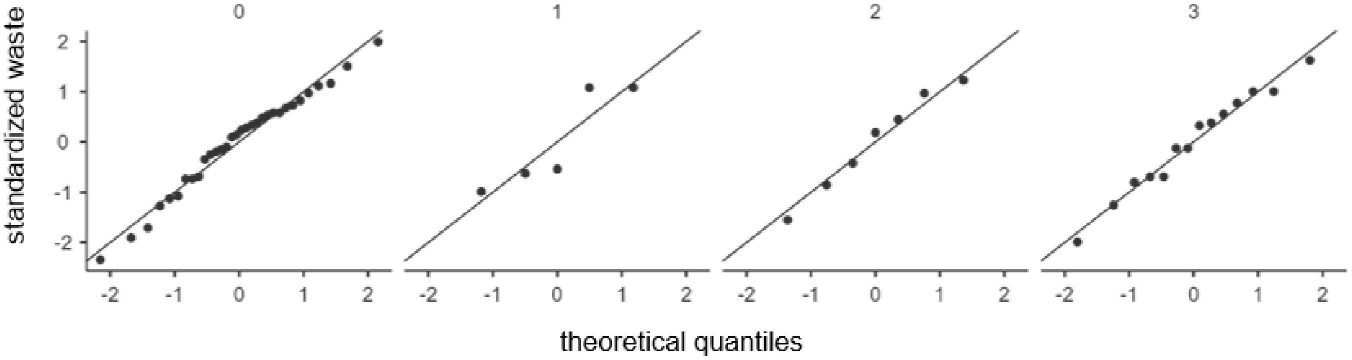

Figure 2. Graph of data distribution at each level of schooling
Source: Own authorship

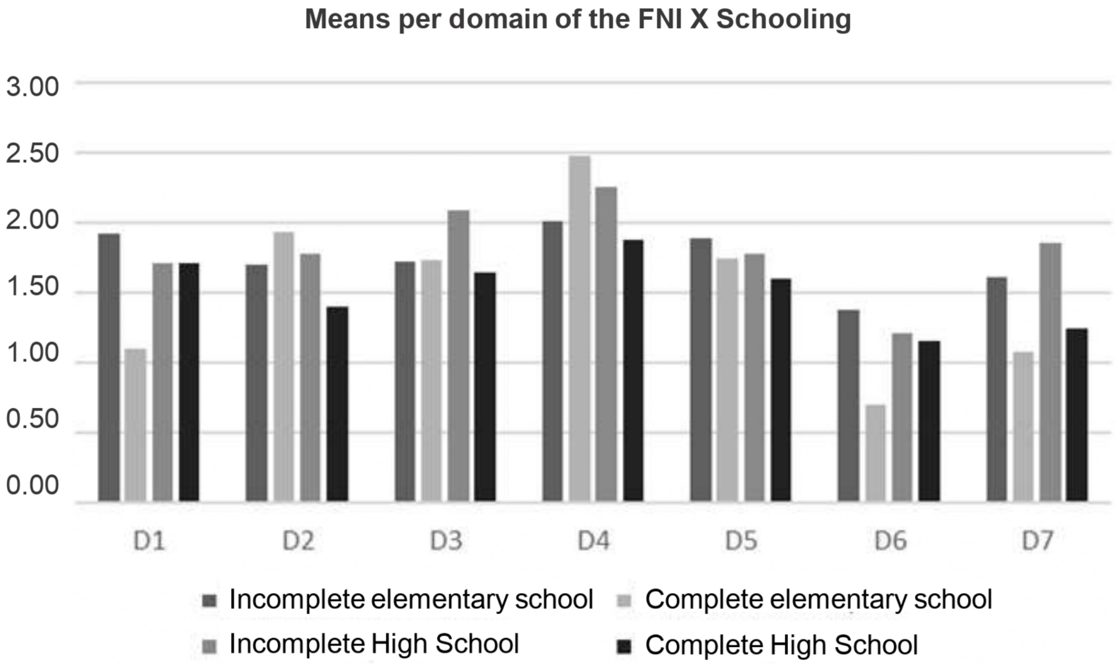

Figure 3. Means proportional to the number of items with "yes" answers for each domain of the Family Needs Inventory X Schooling
Subtitle: FNI = Family Needs Inventory; D =Domains of the Family Needs Inventory: D1 =General Information; D2 = Hearing and Hearing Loss; D3 = Communication; D4 = Educational Services and Resources; D5 = Family and Social Support; D6 = Community Services and Care; D7 = Financial.
Source: Own authorship

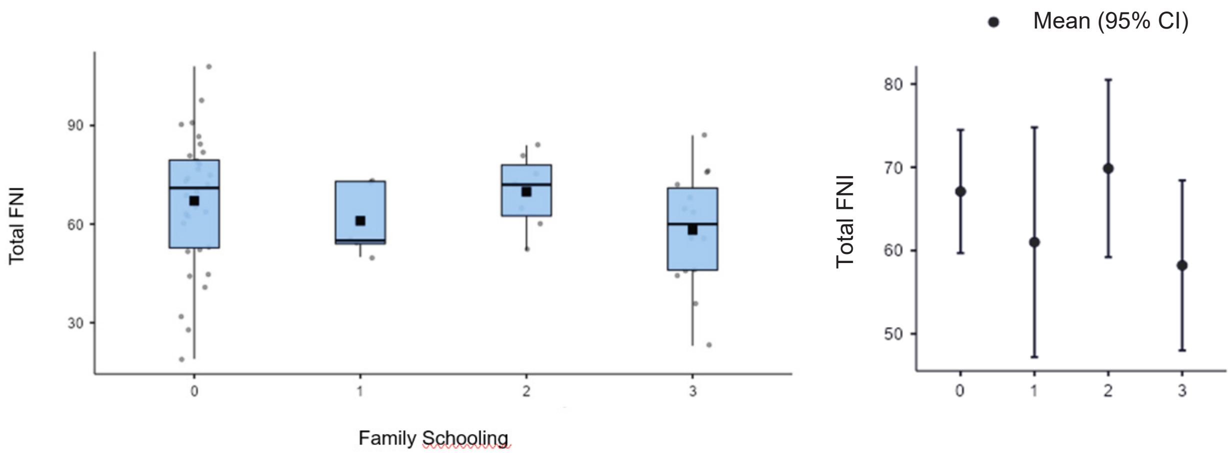

Figure 4. Analysis of variance between education and total score on the Family Needs Inventory (information needs) and confidence interval between groups. p-value = 0.306; test statistic: F = 1.31D
Subtitle: % = Percentage; CI = confidence interval; FNI = Family Needs Inventory; 0 =Incomplete elementary school; 1 = Complete elementary school; 2 = Incomplete high school; 3 = Complete High School.
Source: Own authorship

Table 2. Linear Regression Model of Schooling x Information Needs on the Family Needs Inventory

Predictor	Estimates	Standard Error	t	p-value
Intercept[a]	58.21	4.93	11.800	< 0.001
Guardian´s Schooling:				
0 – 3	8.88	5.91	1.501	0.139
1 – 3	2.79	9.62	0.290	0.773
2 – 3	11.64	8.54	1.363	0.179

Source: Own authorship
[a] represents the reference level; R = 0.230 and $R^2 = 0.0528$.
Subtitle: 0 =Incomplete elementary school; 1 = Complete elementary school; 2 = Incomplete high school; 3 = Complete High School

Table 3. Multiple Regression Model - Schooling, Age of child and Age at diagnosis

Predictor	Estimates	Standard Error	t	p-value
Intercept[a]	63.021	8.133	7.749	< 0.001
Guardian´s Schooling:				
0 – 3	8.053	6.055	1.330	0.189
1 – 3	1.716	9.823	0.175	0.862
2 – 3	11.604	8.625	1.345	0.184
Age of Child in Years	-0.922	0.809	-1.140	0.260
Age at Diagnosis (Months)	0.119	0.114	1.042	0.302

Source: Own authorship
[a] represents the reference level; R = 0.298, $R^2 = 0.0888$ and Adjusted $R^2 = 0.00117$.
Subtitle: 0 =Incomplete elementary school; 1 = Complete elementary school; 2 = Incomplete high school; 3 = Complete High School

DISCUSSION

The results of the linear regression analysis with the selected variables showed that there was, for the sample studied, no statistically significant influence of the schooling of those responsible for the children/adolescents with hearing impairment on their information needs, even in the multiple regression model, which considered the child’s age and age at diagnosis. All family members of different educational levels had questions in all seven domains of the Family Needs Inventory (FNI)(17,18). Information needs related to the topics of family and social support, educational resources, and communication were the most frequent. It is worth mentioning that the sample analyzed here included participants with schooling up to complete high school, and therefore it is necessary to expand this study in a multicenter way, considering in the analysis participants with incomplete and complete college education.

Still, the frequency of “yes” answers, especially in the domain family and social support in the INF, common to all schooling levels, is an indication for professionals working in childhood auditory rehabilitation. These professionals should consider the benefit of support from parent groups, as well as the potential benefit of involving families as a whole, not just the mother or father, in the hearing rehabilitation process of hearing-impaired children and adolescents(1-10,16).

It is common for a family member - usually the mother - to take over the care of the child during this process, which can become another point of stress, with negative consequences for the dynamics and interaction between mother and child, causing medium and long-term damage to the child's progress(4,5). In this survey, it was observed that 93% of the interviewees were mothers, denoting their massive involvement with their children's hearing rehabilitation.

Given this, it is important to investigate the support needs of families, which go beyond guidance about hearing impairment, since stress and lack of support can interfere with parent-child interaction, as well as the quality of the auditory-linguistic environment to which hearing-impaired children are exposed(19-21). Future studies should investigate the relationship between parental stress and the need for information in family members of hearing-impaired children, especially mothers, contributing to the performance of the interdisciplinary team in rehabilitation services.

Considering that low maternal education may be related to the delay in the child's communication skills(21) and that the sample in this research was characterized by the massive participation of mothers in the rehabilitation program, therefore carefully analyzing the needs of mothers with less education is essential for the progress of the children, with emphasis on unique guidance strategies, in addition to the group framework, considering its potential in supporting the children's primary caregivers.

Likewise, although in this study the information needs of families have not been quantitatively influenced by education, from the qualitative data analysis we must consider that children and adolescents whose guardians are between elementary school (incomplete and complete) presented a potential risk for the use of hearing aids since the greatest number of questions about hearing and devices was present for families with less education. Therefore, it is important to observe the different possibilities of orienting, as well as the systematicity in the orientations, with a closer follow-up of these families regarding the adaptation of the devices(6,10). It is noteworthy that national studies evaluating the relationship between family schooling and the effective use of hearing devices by hearing-impaired children are desirable.

Regarding parents with higher levels of education, who were distributed among high school students, it was observed that they still have information needs, especially regarding the development of language and speech, and family and social support, which indicates that for the sample studied, guidance and support should be planned considering these specific needs of families(23,24).

It is important to emphasize that not only the socio-environmental factors but also the feelings related to the diagnosis of hearing impairment are capable of negatively affecting the parents' role as active agents in the process of stimulating communication skills, as well as the entire family dynamic. All these issues generate questions about the process of auditory rehabilitation(1,2,4,5,7), and should be recognized and addressed in different therapeutic frameworks.

Although the families in this study were users of a hearing rehabilitation service, from the application of the INF it was possible to observe the need for more guidance on general issues about the use and handling of hearing aids, especially for families in the elementary school level. This is an important warning point since difficulties in the use and handling of the devices can lead to ineffective use, with negative consequences for the entire process of hearing rehabilitation in childhood.

Thus, it is highlighted that a well-trained family that has the security to deal with difficult situations involving their children's device, can give more support to their children and pass information to other people who are part of the support network and are present in the daily life of the user of hearing devices, favoring their use(10,12,15,16).

It is noteworthy that after this research was conducted, support groups for families were instituted in the service in question, and their effects have already been described in a previous study(16).

The application of the inventory was, therefore, essential to know the specific information needs of each family, and thus can be an aid for the speech therapist to develop unique therapeutic planning more consistent with these needs(10-13,16,19).

The more the family feels welcomed and close to the service or professional, the greater the tendency for active participation in the intervention and consequently the greater the benefit in the development of the child's hearing and language skills, with positive consequences for the psychosocial aspects of both the child and the family(5-7).

As limitations of this study, we can mention the non-inclusion of the incomplete and complete college education categories, due to the low representativeness of these categories by the participating guardians. Moreover, the fact that it was carried out in one region of the country, in the universe of a hearing rehabilitation service, is a limitation and a call for multicenter studies that consider in their analyses the different cultural and sociodemographic realities of Brazil.

Finally, the analysis of more variables, such as etiology, degree of hearing loss, frequency of speech therapy, time of use of hearing devices, and time of therapy in months, among others, could have been incorporated into the regression model, which was also a limiting factor in this study.

It is considered important to conduct multicenter studies, which may contribute to a better understanding of the information needs of families of hearing-impaired children in the country. This may promote the adoption of strategies for the optimization of resources and the results achieved in rehabilitation programs, as well as in the quality of life of children/adolescents and their families.

CONCLUSION

The schooling of the sample studied did not quantitatively influence their information needs. Families of different levels of education presented information needs in all domains of the inventory, with those with less education having as priority questions the topics associated with hearing and hearing loss, especially regarding electronic assistive hearing devices and educational services and resources. About families with high school education, it was observed that information concerning communication and family and social support were the most needed.

The doubts on the topic of "family and social support" were common for all families, indicating the need for the other members of the family to be closer in the hearing rehabilitation process of children/adolescents with hearing loss.

Thus, the present study denotes the relevance of parental training and family counseling programs and of conducting research in Brazil, preferably multicenter, to promote increasingly effective interventions for families that result in greater effectiveness of hearing rehabilitation in childhood and adolescence.

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Appendix A. Items from the Family Needs Inventory domains[17,18]

TOPICS	QUESTIONS	KEY
GENERAL INFORMATION	1	How children grow and develop
	2	How to play or talk with my child
	3	How to teach my child
	4	How to handle my child's behavior
INFORMATION - HEARING AND HEARING LOSS	1	How normal hearing works
	2	How my child hears, causes of hearing loss
	3	About the hearing aid / cochlear implant
	4	How the hearing aid/cochlear implant can help my child
	5	About other types of electronic hearing aids
	6	How to get my child to use the hearing aid/cochlear implant properly
COMMUNICATION	1	How to teach my child to listen
	2	How hearing loss may affect my child's ability to learn to talk
	3	How language develops
	4	Information on Brazilian Sign Language (LIBRAS)
	5	How my child will communicate
	6	How I can communicate with my child
EDUCATIONAL SERVICES AND RESOURCES	1	Information about special resources available for my child
	2	Information about special resources my child may need in the future
	3	More time to talk with my child's therapist or teacher
	4	Information about other needs my child may have
	5	Written materials and videos about hearing loss
FAMILY AND SOCIAL SUPPORT	1	Talking to someone in my family or a friend about my concerns
	2	Opportunity to meet with other parents of children with hearing loss
	3	Opportunity to meet with adults with hearing loss
	4	Information about parent groups
	5	More time for me
	6	Help for our family to accept hearing loss
	7	Meeting with a professional counselor specializing in hearing impairment
	8	Explaining my child's hearing problem to other people
COMMUNITY SERVICES AND CARE	1	Help finding a good babysitter for my child
	2	Help finding a day care for my child
	3	Help finding a doctor, dentist, etc.
	4	Help with transportation
FINANCIAL	1	Paying for a hearing aid
	2	Paying for a therapist
	3	Paying for a caregiver
	4	Pay for other special equipment that my child needs
	5	Paying for food, housing, health insurance, clothing or transportation

Source: Bailey and Simeonsson(17), Araújo(18)

Appendix B. Descriptive statistics by domains of the INF x participants' education

	Guardian´s Schooling	N	Mean	Median	Standard Deviation	Minimum	Maximum
AGE OF CHILD IN YEARS	0	32	8.5	8.500	3.436	3	14
	1	5	9.000	8	2.000	7	12
	2	7	9.000	10	2.944	6	13
	3	14	7.929	8.000	2.786	4	12
AGE AT DIAGNOSIS (MONTHS)	0	32	32.469	24.000	26.020	1	120
	1	5	38.400	36	10.040	24	48
	2	7	29.714	36	20.774	7	60
	3	14	21.071	17.500	15.082	6	60
D1.1	0	32	2.000	2.000	1.078	0	3
	1	5	1.800	2	1.095	0	3
	2	7	2.000	2	0.816	1	3
	3	14	2.071	2.000	0.917	0	3
D1.2	0	32	1.969	2.000	1.121	0	3
	1	5	1.200	1	1.304	0	3
	2	7	0.857	0	1.215	0	3
	3	14	1.429	1.500	1.016	0	3
D1.3	0	32	1.969	2.000	1.121	0	3
	1	5	0.400	0	0.548	0	1
	2	7	2.143	2	1.069	0	3
	3	14	1.643	2.000	1.151	0	3
D1.4	0	32	1.750	2.000	1.047	0	3
	1	5	1.000	1	1.000	0	2
	2	7	1.857	2	1.069	0	3
	3	14	1.714	2.000	1.069	0	3
D2.1	0	32	1.438	1.000	1.162	0	3
	1	5	2.400	3	1.342	0	3
	2	7	1.286	1	1.113	0	3
	3	14	1.357	1.500	1.216	0	3
D2.2	0	32	1.781	2.000	1.099	0	3
	1	5	2.400	2	0.548	2	3
	2	7	1.571	1	1.134	0	3
	3	14	1.643	2.000	0.929	0	3
D2.3	0	32	1.594	1.500	1.160	0	3
	1	5	2.200	3	1.304	0	3
	2	7	1.429	1	1.272	0	3
	3	14	1.357	2.000	1.008	0	3
D2.4	0	32	1.719	2.000	1.143	0	3
	1	5	1.600	2	1.140	0	3
	2	7	1.571	2	1.272	0	3
	3	14	1.143	1.000	0.864	0	2
D2.5	0	32	2.281	3.000	0.924	0	3
1	5	2.000	2	1.000	1	3	
	2	7	2.857	3	0.378	2	3
	3	14	1.643	1.500	0.929	0	3
D2.6	0	32	1.406	1.500	1.316	0	3
	1	5	1.000	0	1.414	0	3
	2	7	2.000	2	1.000	0	3
	3	14	1.286	1.500	1.139	0	3
D3.1	0	32	1.531	1.500	1.218	0	3
	1	5	1.800	2	1.304	0	3
	2	7	1.857	2	1.345	0	3
	3	14	1.786	2.000	0.893	0	3
D3.2	0	32	1.906	2.000	1.088	0	3
	1	5	1.600	2	1.140	0	3
	2	7	2.857	3	0.378	2	3
	3	14	1.857	2.000	1.027	0	3
D3.3	0	32	1.844	2.000	0.987	0	3
	1	5	2.200	2	0.837	1	3
	2	7	1.857	2	0.900	1	3
	3	14	1.857	2.000	0.864	0	3

Subtitle: Domains of FNI: D1: General Information; D2: Hearing and Hearing Loss; D3: Communication; D4: Educational Services and Resources; D5: Family and Social Support; D6: Community Services and Care; D7: Financial.

Appendix B. Continued...

	Guardian´s Schooling	N	Mean	Median	Standard Deviation	Minimum	Maximum
D3.4	0	32	1.875	2.000	1.264	0	3
	1	5	2.200	3	1.304	0	3
	2	7	1.429	1	1.272	0	3
	3	14	1.143	1.000	1.027	0	3
D3.5	0	32	1.750	2.000	1.218	0	3
	1	5	1.800	2	0.837	1	3
	2	7	2.286	3	0.951	1	3
	3	14	1.429	1.500	0.852	0	3
D3.6	0	32	1.469	2.000	1.295	0	3
	1	5	0.800	0	1.095	0	2
	2	7	2.286	3	1.113	0	3
	3	14	1.786	2.000	1.122	0	3
D4.1	0	32	1.969	2.000	0.933	0	3
	1	5	2.600	3	0.548	2	3
	2	7	2.286	2	0.756	1	3
	3	14	1.929	2.000	0.730	1	3
D4.2	0	32	1.938	2.000	1.076	0	3
	1	5	2.600	3	0.548	2	3
	2	7	2.429	3	0.787	1	3
	3	14	1.929	2.000	0.917	1	3
D4.3	0	32	2.188	2.000	0.998	0	3
	1	5	2.400	2	0.548	2	3
	2	7	2.571	3	0.787	1	3
	3	14	1.714	2.000	1.267	0	3
D4.4	0	32	1.906	2.000	0.995	0	3
	1	5	2.200	2	0.837	1	3
	2	7	2.286	3	1.113	0	3
	3	14	2.214	2.000	0.802	0	3
D4.5	0	32	2.094	2.500	1.088	0	3
	1	5	2.600	3	0.548	2	3
	2	7	1.714	3	1.604	0	3
	3	14	1.643	2.000	1.151	0	3
D5.1	0	32	1.563	2.000	1.343	0	3
	1	5	1.600	2	1.517	0	3
	2	7	1.286	0	1.604	0	3
	3	14	1.286	1.500	1.139	0	3
D5.2	0	32	2.094	2.500	1.118	0	3
	1	5	2.200	3	1.304	0	3
	2	7	1.857	2	1.345	0	3
	3	14	1.357	2.000	1.151	0	3
D5.3	0	32	2.281	3.000	0.991	0	3
	1	5	2.000	2	1.225	0	3
	2	7	1.143	0	1.464	0	3
	3	14	1.143	1.000	1.167	0	3
D5.4	0	32	1.969	2.500	1.257	0	3
	1	5	1.400	2	1.342	0	3
	2	7	1.429	2	1.397	0	3
	3	14	1.643	2.000	1.008	0	3
D5.5	0	32	1.969	3.000	1.282	0	3
	1	5	2.000	2	1.225	0	3
	2	7	3.000	3	0.000	3	3
	3	14	1.643	2.000	1.216	0	3
D5.6	0	32	1.469	2.000	1.270	0	3
	1	5	0.800	0	1.095	0	2
	2	7	2.000	3	1.414	0	3
	3	14	1.857	2.000	1.099	0	3
D5.7	0	32	2.125	2.000	1.008	0	3
	1	5	2.000	2	1.225	0	3
	2	7	1.571	2	1.512	0	3
	3	14	2.071	2.000	1.072	0	3

Subtitle: Domains of FNI: D1: General Information; D2: Hearing and Hearing Loss; D3: Communication; D4: Educational Services and Resources; D5: Family and Social Support; D6: Community Services and Care; D7: Financial.

Appendix B. Continued...

	Guardian´s Schooling	N	Mean	Median	Standard Deviation	Minimum	Maximum
D5.8	0	32	1.688	2.000	1.203	0	3
	1	5	2.000	2	1.000	1	3
	2	7	2.000	2	1.155	0	3
	3	14	1.786	2.000	1.122	0	3
D6.1	0	32	0.938	0.000	1.268	0	3
	1	5	0.000	0	0.000	0	0
	2	7	1.429	2	1.397	0	3
	3	14	0.929	0.000	1.141	0	3
D6.2	0	32	1.688	2.000	1.306	0	3
	1	5	1.000	0	1.414	0	3
	2	7	1.429	2	1.397	0	3
	3	14	1.143	1.000	1.099	0	3
D6.3	0	32	1.656	2.000	1.208	0	3
	1	5	1.400	2	1.342	0	3
	2	7	1.429	2	1.397	0	3
	3	14	1.357	1.500	1.336	0	3
D6.4	0	32	1.219	0.000	1.385	0	3
	1	5	0.400	0	0.894	0	2
	2	7	0.571	0	0.976	0	2
	3	14	1.214	1.000	1.311	0	3
D7.1	0	32	1.750	2.000	1.191	0	3
	1	5	2.200	2	0.837	1	3
	2	7	2.000	2	1.000	1	3
	3	14	1.571	2.000	1.222	0	3
D7.2	0	32	1.563	2.000	1.268	0	3
	1	5	0.400	0	0.894	0	2
	2	7	1.571	2	1.512	0	3
	3	14	1.143	0.500	1.292	0	3
D7.3	0	32	1.313	1.000	1.355	0	3
	1	5	0.400	0	0.894	0	2
	2	7	2.000	3	1.414	0	3
	3	14	1.000	0.000	1.240	0	3
D7.4	0	32	2.156	3.000	1.110	0	3
	1	5	1.800	2	1.304	0	3
	2	7	2.143	3	1.215	0	3
	3	14	1.500	2.000	1.160	0	3
D7.5	0	32	1.281	1.500	1.301	0	3
	1	5	0.600	0	1.342	0	3
	2	7	1.571	2	1.512	0	3
	3	14	1.000	0.000	1.414	0	3
Total FNI	0	32	67.094	71.000	20.510	19	108
	1	5	61.000	55	11.113	50	73
	2	7	69.857	72	11.510	52	84
	3	14	58.214	60.000	17.695	23	87

Subtitle: Domains of FNI: D1: General Information; D2: Hearing and Hearing Loss; D3: Communication; D4: Educational Services and Resources; D5: Family and Social Support; D6: Community Services and Care; D7: Financial.