

Development and Validation of the Children's Voice Handicap Index-10 for Parents

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Summary: Objectives/Hypothesis. The Children's Voice Handicap Index-10 (CVHI-10) was introduced as a tool for self-assessment of children's dysphonia. However, in the management of children with voice disorders, both parents' and children's perspectives play an important role. Because a self-tool including both a children's and a parents' version does not exist yet, the aim of the study was to develop and validate an assessment tool which parallels the CVHI-10 for parents to assess the level of voice handicap in their child's voice.

Study Design. Observational, prospective, cross-sectional study.

Methods. To develop a CVHI-10 for parents, called "CVHI-10-P", the CVHI-10 items were adapted to reflect parents' responses about their child. Fifty-five children aged 7–12 years completed the CVHI-10, whereas their parents completed the CVHI-10-P. Each child's voice was also perceptually assessed by an otolaryngologist using the Grade Breathness Roughness (GRB) scale. Fifty-one of the 55 children underwent voice therapy (VT) and were assessed afterward using the GRB, CVHI-10, and CVHI-10-P.

Results. CVHI-10-P internal consistency was satisfactory (Cronbach alpha = .78). Correlation between CVHI-10-P and CVHI-10 was moderate ($r = 0.37$). CVHI-10-P total scores were lower than CVHI-10 scores in most of the cases. Single-item mean scores were always lower in CVHI-10-P compared with CVHI-10, with the exception of the only one item of the CVHI-10-P that directly involves the parent's experience (item 10). Data gained from one tool are not directly related to the other, suggesting that these two tools appraise the child's voice handicap from different perspectives. The overall perceptual assessment scores of the 51 children after VT significantly improved. There was a statistically significant reduction of the total scores and for each item in CVHI-10 and CVHI-10-P after VT. These data support the adoption of the CVHI-10-P as an assessment tool and an outcome measure for management of children's voice disorders.

Conclusions. CVHI-10-P is a valid tool to appraise parents' perspective of their child's voice disorder. The use of the CVHI-10 and the CVHI-10-P is recommended for objectively determining the level of voice handicap in children by parents and child.

Key Words: Voice handicap index–Children–Voice therapy–Self-assessment.

INTRODUCTION

The use of self-assessment tools in the management of voice disorders has been increasing over the last 15 years.¹ Although several tools have been developed,^{2–5} the Voice Handicap Index (VHI) appears to be the most popular one. The VHI was originally developed in 1997,² and it has been translated and adapted into many languages.^{6–23} More recently, different versions for special populations such as singers have been developed.^{24–33} All of these self-assessment tools are used worldwide in clinical practice as part of the assessment process and also as a measure of treatment outcome.^{34,35}

Although the VHI is probably the most widely adopted self-assessment tool of voice handicap, both the 30 items and the 10 items VHI (VHI-10)¹² versions cannot be used with children as the items have not been developed for this age population and

are also not easily understood by children.³⁶ For this reason, different self-assessment tools have been developed for the pediatric population,^{37–39} including the Pediatric Voice Handicap Index (pVHI),⁴⁰ which has been adapted to several languages.^{41–43} The pVHI is made of 23 items and has been developed from the adult handicap index as a parent proxy tool. To have information directly from children, the Children's Voice Handicap Index-10 (CVHI-10) has been recently introduced.⁴⁴ The CVHI-10 is made of 10 items, and it is appropriate for children aged 8–14 years. To have better content validity, it has been developed in the Italian cultural text starting from children's vision of the voice handicap rather than simply adapting the adult VHI-10 to a pediatric age group.⁴⁵ The CVHI-10 is scored from 0–3, to make it easier for the child to score his/her perceived voice handicap.

In the management of children's voice disorders, the parent's perspective plays an important role as previous research suggested that a family centered approach is recommended in the treatment of children's voice disorders.^{46,47} Knowing the relationship between the parent's impression of the voice handicap and the child's, may offer the clinician a clearer approach to the management of the voice disorder. Currently, no available tool has both a child and a parent version of the same self-assessment tool of voice handicap. Self-assessment of voice handicap in children using a complimentary set of tools for parents and children may offer independent assessment of a

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child's voice handicap not available from parent or child individually. Therefore, the aim of the study was to develop and validate an assessment tool for parents of voice-disordered children based on the CVHI-10. We called it the CVHI-10 for parents (CVHI-10-P).

MATERIALS AND METHODS

This observational, prospective cross-sectional study was carried out according to the Declaration of Helsinki, which stipulates that each parent of the child included in the study had to give a written informed consent. Statistical tests were performed using the SPSS 17.0 statistical software (SPSS, Inc., Chicago, IL). The study was divided into two phases: (1) development of the CVHI-10-P and (2) internal consistency and validity analysis of the CVHI-10-P.

Scale development

The CVHI-10 (Appendix 1) was used as a starting point for the development of the CVHI-10-P. Each CVHI-10 item was adapted through changes in the language of the statements to reflect a parent's responses about his or her child's voice. This process led to a new tool, the CVHI-10-P (Appendix 2), reflecting parental opinion of the severity of their child's voice.

Population

Fifty-five children aged 7–12 years (mean age: 9.4 years) and one of their parents were included in the study. Inclusion criterion for each child was the presence of dysphonia for at least 6 months. Exclusion criteria were reading limitations of any origin or the presence of neurological or psychiatric disorders. Inclusion criteria for each parent included their ability to read and the fact that the parent lived with the child. Each child underwent videolaryngostroboscopic examination with either rigid or flexible endoscope by an experienced phoniatrician. Vocal diagnosis was vocal fold nodules in 40 cases, spindle-shaped edema in eight cases, congenital cyst in three cases, and unilateral vergeture in four cases. Fifty-one children of the original group underwent voice therapy (VT). They completed the CVHI-10 before and after 10 sessions of VT. Children and parents completed their forms separately.

Voice therapy

Fifty-one children included in the study underwent 10 sessions of voice treatment. VT was provided by a speech-language therapist with more than 10 years of experience in VT for children. Each session lasted 40–45 minutes and was held twice a week over a period of approximately 40 days. The cooperation of the patient's family, educators, peers, and friends was requested when appropriate and possible. Counseling of parents and play therapy with the child and the family were also part of the VT program.⁴⁶ The therapeutic protocol consisted of different behaviorally based approaches including vocal hygiene, direct facilitation, respiration and distension exercises, and finally, a carryover approach. Vocal hygiene was aimed at increasing children's awareness of vocal abuse situations and behaviors and encouraging their avoidance. Their caregivers received additional information about the importance of hydra-

tion and lubrication. Direct facilitation was based on reducing loudness, yawn-sigh, humming, resonant voice, confidential voice, and strong voice attack reduction or augmentation (depending on the child and the voice disorder). Caregivers participated in vocal games designed to reinforce the practiced techniques at home. Respiration and distension exercises were used sparingly because children often consider them boring and, as a result, they also contribute to reducing children's compliance. Carryover approach involved attempts to transfer the newly learned vocal behaviors to everyday speaking situations.⁴⁷ The speech-language pathologist (SLP) recorded each child's voice during conversational speech and sustained vowels before and after VT.

Clinical assessment

An experienced phoniatrician and an experienced SLP separately rated the recorded voice of each child during conversational speech and sustained vowels. Neither the phoniatrician nor the SLP was aware of whether they were assessing the pre- or post-VT recordings. The GRB parameters of the GRBAS scale⁴⁸ were used for auditory-perceptual evaluation. Each of the 55 children filled out the CVHI-10, whereas their parents filled out the CVHI-10-P, separately.

Internal consistency and validity

Cronbach's alpha coefficient was used to analyze internal consistency of CVHI-10-P rated before VT. Values greater than 0.7 but less than 0.8 were considered "satisfactory," those greater than 0.8 but less than 0.9 were considered "good," whereas values greater than 0.9 were considered "excellent."

Mean, standard deviations, and ranges of CVHI-10-P and CVHI-10 were computed. Spearman test was used to analyze single items and total scores correlation between CVHI-10-P and CVHI-10.

Correlation between perceptual voice assessment and CVHI-10-P was used to test external validity. Correlation between perceptual assessment and CVHI-10 was also used to analyze differences between the clinician's perceptual assessment and the child's assessment of voice handicap. The correlation between CVHI-10-P, CVHI-10, and GRB scores were assessed using Spearman's correlation coefficient. The correlation strength was considered strong for values greater than 0.5, moderate for values ranging between 0.3 and 0.5, and weak for values less than 0.3.

GRB scores before and after VT were compared through Wilcoxon test to investigate whether a change in the scores was detectable after treatment. CVHI-10-P and CVHI-10 before and after VT were compared using the Wilcoxon test to analyze changes after the VT program.

RESULTS

Complete CVHI-10-P and CVHI-10 forms were obtained from all participants. CVHI-10-P internal consistency was satisfactory with Cronbach's alpha value of .78. Mean, standard deviation, and ranges of CVHI-10-P and CVHI-10 in the 55 children and their parents are reported in Table 1. CVHI-10-P total scores for most children were lower than CVHI-10 scores in

TABLE 1.
Mean Scores ± Standard Deviation and Range of First CVHI-10-P and CVHI-10 Rating in the 55 Children and Their Parents

Item Number	CVHI-10-P Score	CVHI-10 Score	Correlation
Item 1	0.62 ± 0.71 (0–3)	0.74 ± 0.61 (0–2)	0.18
Item 2	0.62 ± 0.80 (0–3)	1.14 ± 0.90 (0–3)	0.34*
Item 3	0.14 ± 0.35 (0–1)	0.38 ± 0.65 (0–3)	0.21
Item 4	0.14 ± 0.40 (0–2)	0.45 ± 0.69 (0–3)	0.09
Item 5	0.53 ± 0.80 (0–3)	0.62 ± 0.76 (0–3)	0.24
Item 6	1.14 ± 0.91 (0–3)	1.34 ± 1.00 (0–3)	0.42†
Item 7	1.00 ± 0.84 (0–3)	1.20 ± 0.72 (0–3)	0.15
Item 8	0.56 ± 0.76 (0–3)	0.84 ± 0.76 (0–3)	0.07
Item 9	0.20 ± 0.56 (0–3)	0.47 ± 0.77 (0–3)	0.16
Item 10	0.78 ± 0.87 (0–3)	0.67 ± 0.75 (0–3)	0.23
Total score	5.71 ± 4.77 (0–19)	6.56 ± 3.32 (0–15)	0.37*

Notes: Single item and total scores correlations between CVHI-10-P and CVHI-10 are also reported.

* Significant correlation at $P = 0.05$.

† Significant correlation at $P = 0.001$.

most of the cases. Single-item mean scores were always lower in CVHI-10-P compared with CVHI-10, with the exception of item 10 (“People ask me: what’s wrong with the voice of your child?”) which directly involves the parent’s experience. Total scores were less than 10 in both statements and single items with highest scores were Item 6 (“I feel I have to strain to produce my voice”) and item 7 (“My voice is not light”) for both CVHI-10-P and CVHI-10. Single items with lowest scores were item 3 (“My voice difficulties prevent me to stay with people”) and item 4 (“I feel left out of conversations because of my voice”) for both CVHI-10-P and CVHI-10. Correlation between CVHI-10-P and CVHI-10 total scores was moderate ($r = 0.37$, $P = 0.005$). Most single-item correlations between CVHI-10-P and CVHI-10 were nonsignificant, with the exception of items 2 (“People have difficulty understanding me in a noisy room”) and 6 (“I feel I have to strain to produce my voice”), which showed moderate correlations, with values of respectively $r = 0.34$ and $r = 0.42$.

Table 2 shows the number of times in which CVHI-10-P and CVHI-10 were the same, lower, or higher. Total scores were the same in CVHI-10 and CVHI-10-P in 9.0% of the cases, whereas CVHI-10-P presents lower scores than CVHI-10 in 70% of the cases. Item 1 (“People have difficulty hearing me because of my voice”) and item 2 (“People have difficulty understanding me in a noisy room”) presented CVHI-10 scores higher than in CVHI-10-P in almost 50% of the cases. Item 3 (“My voice difficulties prevent me to stay with people”), item 4 (“I feel left out of conversations because of my voice”), and item 9 (“My voice makes me feel inferior to other children or other boys”) presented the same values in about 60% of the cases, whereas item 5 (“My voice difficulties reduce my school outcome”), item 6 (“I feel I have to strain to produce my voice”), and item 7 (“My voice is not light”), resulted in scores lower for the CVHI-10 than for the CVHI-10-P in 20–25% of the cases.

Correlations between GRB and both CVHI-10-P and CVHI-10 single item and total scores are reported in Table 3. Most

TABLE 2.
Comparison Between Single Item and Total CVHI-10-P and CVHI-10 Scores

Item Number	Scores Lower in CVHI-10 Than in CVHI-10-P	Identical Scores in CVHI-10-P and CVHI-10	Scores Higher in CVHI-10 than in CVHI-10-P
Item 1	9/55 (16.3%)	20/55 (36.3%)	26/55 (47.3%)
Item 2	5/55 (9.0%)	23/55 (41.2%)	27/55 (49.0%)
Item 3	4/55 (7.3%)	35/55 (63.6%)	16/55 (29.0%)
Item 4	4/55 (7.3%)	32/55 (58.2%)	19/55 (34.5%)
Item 5	11/55 (20.0%)	29/55 (52.7%)	15/55 (27.3%)
Item 6	11/55 (20.0%)	24/55 (43.6%)	20/55 (36.3%)
Item 7	12/55 (21.2%)	22/55 (40.0%)	21/55 (38.2%)
Item 8	10/55 (18.2%)	22/55 (40.0%)	23/55 (41.2%)
Item 9	4/55 (7.3%)	36/55 (65.4%)	15/55 (27.3%)
Item 10	14/55 (25.5%)	26/55 (47.3%)	15/55 (27.3%)
Total score	11/55 (20%)	5/55 (9.0%)	39/55 (70.1%)

Notes: For each item and for the total score, the number and percentage of ratings with equal, lower, or higher scores in CVHI-10-P compared with CVHI-10 are reported.

TABLE 3.
Correlations Between GRB Scores and Both CVHI-10-P and CVHI-10 Single Item and Total Scores

Item	G	R	B
Item 1			
CVHI-10-P	0.18	0.11	0.10
CVHI-10	0.26	0.58	0.21
Item 2			
CVHI-10-P	0.11	0.01	0.06
CVHI-10	0.37*	0.31†	0.03
Item 3			
CVHI-10-P	0.04	0.12	0.10
CVHI-10	0.13	0.13	0.14
Item 4			
CVHI-10-P	0.02	0.22	0.03
CVHI-10	0.11	0.11	0.06
Item 5			
CVHI-10-P	0.18	0.03	0.31†
CVHI-10	0.35*	0.44*	0.36*
Item 6			
CVHI-10-P	0.16	0.01	0.03
CVHI-10	0.18	0.17	0.07
Item 7			
CVHI-10-P	0.008	0.13	0.02
CVHI-10	0.21	0.33†	0.23
Item 8			
CVHI-10-P	0.07	0.14	0.01
CVHI-10	0.43*	0.03	0.09
Item 9			
CVHI-10-P	0.18	0.10	0.08
CVHI-10	0.12	0.22	0.14
Item 10			
CVHI-10-P	0.22	0.36*	0.27†
CVHI-10	0.16	0.39*	0.34†
Total score			
CVHI-10-P	0.23	0.19	0.10
CVHI-10	0.37†	0.34†	0.22

* Significant correlation at $P = 0.001$.

† Significant correlation at $P = 0.05$.

single items and total scores correlations between GRB and CVHI-10-P and CVHI-10 were not significant at the tested level. Fourteen of the 66 correlations were significant. Only three correlations involved the CVHI-10-P: the one between item 5 (“My voice difficulties reduce my school outcome”) and B parameter ($r = 0.31$) and those between item 10 (“People ask me ”what’s wrong with the voice of your child?”) and R ($r = 0.36$) and B ($r = 0.27$) parameters. The remaining 10 significant correlations were between the G parameter and items 2, 5, and 8, the R parameter and items 2, 5, 7, and 10 and between the B parameter and items 5, 7, and 10.

In the group of 51 children who underwent VT, mean, standard deviation, and range scores of the GRB scale improved respectively from 1.15 ± 0.36 (1–2), 1.15 ± 0.41 (0–2), 1.13 ± 0.52 (0–2), to 0.39 ± 0.49 (0–1), 0.45 ± 0.57 (0–2), 0.21 ± 0.46 (0–2). The difference was statistically significant ($P < 0.0001$) for all the parameters. Mean, standard deviation, range scores, and P values for each item and for the total scores

of both CVHI-10 and CVHI-10-P before and after VT are reported in Table 4. A statistically significant reduction for the total scores and for each item in CVHI-10 and CVHI-10-P was found. Significance values were $P = 0.0001$ for all items and total scores of both CVHI-10 and CVHI-10-P with the exception of items 3, 4, 5, and 9 of the CVHI-10-P, presenting P values ranging from $P = 0.025$ to $P = 0.001$.

DISCUSSION

Parents’ version of the CVHI-10, called CVHI-10-P, has been developed. The data from this study support the idea that although a positive correlation between the CVHI-10 and the CVHI-10-P exists, the data gained from one tool are not directly applicable to the other, suggesting that these two tools appraise different aspects of the same clinical picture. In this study all the children belonged to the general case mix of children with voice disorders. The parents had a formal education ranging from 13–24 years. No child was a singer or recruited from a singing population.

The CVHI-10-P appeared to be easily applicable in clinical practice and not bothersome for parents of voice-disordered children as all the 55 parents included in the study fully completed the assessment and 51 of them completed it before and after VT. Internal consistency was satisfactory as in the CVHI-10⁴⁴ and in the Italian version of both VHI²¹ and pVHI,⁴¹ suggesting that all items equally contributed to the total score.

The correlation between CVHI-10 and CVHI-10-P was only moderate. This is an important point as it suggests that children’s and parents’ versions of the same tool reflect different perspectives of the same problem. In most of the cases, the CVHI-10 total score was higher than the CVHI-10-P total score, indicating that children perceive their voice handicap more severely than their parents do, once the questions have been properly asked and when the child can express his or her written self-assessment independently.

For both CVHI-10-P and CVHI-10, items with highest scores were item 6 (“I feel I have to strain to produce my voice”) and item 7 (“My voice is not light”), whereas items with lowest scores were item 3 (“My voice difficulties prevent me to stay with people”), and item 4 (“I feel left out of conversations because of my voice”). This finding suggests voice-disordered children and their parents perceive the perceptual areas of voice handicap are more strongly than the functional areas. Similar findings have been found in adult voice-disordered patients in different countries, as the P subscale of the VHI has been found to be generally scored higher than the (F) or the (E) subscales.¹⁷ Therefore, we might speculate that in both adults and children, the way the voice sounds is felt as more disabling than the functional limitations related to the voice. Single items showing stronger positive correlations were items 2 (“People have difficulty understanding me in a noisy room”) and 6 (“I feel I have to strain to produce my voice”). This finding suggests that functional limitations are perceived similarly in children and their parents.

When comparing the number of cases in which the scores differ in the CVHI-10 and in the CVHI-10-P, it came out that

TABLE 4.
Mean Standard Deviation and Range for Each Item and Total Scores of Both the CVHI-10 and the CVHI-10-P Before and After Voice Therapy

Item No.	CVHI-10 Before Therapy	CVHI-10 After Therapy	P Value	CVHI-10-P Before Therapy	CVHI-10-P After Therapy	P Value
Item 1	0.75 ± 0.63 (0–2)	0.33 ± 0.52 (0–2)	0.0001	0.65 ± 0.72 (0–3)	0.14 ± 0.35 (0–1)	0.0001
Item 2	1.18 ± 0.89 (0–3)	0.41 ± 0.57 (0–2)	0.0001	0.59 ± 0.80 (0–3)	0.16 ± 0.37 (0–1)	0.0001
Item 3	0.41 ± 0.67 (0–3)	0.04 ± 0.19 (0–1)	0.0001	0.16 ± 0.38 (0–1)	0.00 ± 0.00 (0–0)	0.005
Item 4	0.49 ± 0.70 (0–3)	0.14 ± 0.35 (0–1)	0.0001	0.14 ± 0.40 (0–2)	0.04 ± 0.20 (0–1)	0.025
Item 5	0.65 ± 0.77 (0–3)	0.31 ± 0.55 (0–2)	0.0001	0.55 ± 0.81 (0–3)	0.25 ± 0.52 (0–2)	0.002
Item 6	1.37 ± 0.99 (0–3)	0.59 ± 0.64 (0–3)	0.0001	1.18 ± 0.93 (0–3)	0.45 ± 0.58 (0–2)	0.0001
Item 7	1.18 ± 0.74 (0–3)	0.53 ± 0.61 (0–2)	0.0001	1.02 ± 0.86 (0–3)	0.43 ± 0.50 (0–1)	0.0001
Item 8	0.82 ± 0.77 (0–3)	0.18 ± 0.39 (0–1)	0.0001	0.59 ± 0.78 (0–3)	0.16 ± 0.37 (0–1)	0.0001
Item 9	0.51 ± 0.78 (0–3)	0.06 ± 0.24 (0–1)	0.0001	0.22 ± 0.58 (0–3)	0.06 ± 0.31 (0–2)	0.005
Item 10	0.73 ± 0.75 (0–3)	0.25 ± 0.48 (0–2)	0.0001	0.80 ± 0.90 (0–3)	0.43 ± 0.73 (0–3)	0.001
Total score	8.10 ± 4.24 (0–19)	2.84 ± 2.60 (0–10)	0.0001	5.84 ± 4.38 (0–19)	2.04 ± 2.43 (0–9)	0.0001

Notes: P values of Wilcoxon test comparing scores before and after voice therapy are reported.

item 1 (“People have difficulty hearing me because of my voice”) and item 2 (“People have difficulty understanding me in a noisy room”) presented CVHI-10 scores higher than in CVHI-10-P in almost 50% of the cases. Item 3 (“My voice difficulties prevent me to stay with people”), item 4 (“I feel left out of conversations because of my voice,”) and item 9 (“My voice makes me feel inferior to other children or other boys”) presented the same values in about 60% of the cases, whereas item 5 (“My voice difficulties reduce my school outcome”), item 6 (“I feel I have to strain to produce my voice”), and item 7 (“My voice is not light”) presented scores lower in CVHI-10 than in CVHI-10-P in 20–25% of the cases.

Correlations between CVHI-10-P and perceptual parameters were not statistically significant for the vast majority of the items, whereas in about one-third of the possible correlations, a moderate correlation between CVHI-10 and GRB parameters was found. These data seem to suggest that children focus on the auditory perceptual aspects of their voice more than their parents do. Similar data were previously found in the development of the CVHI-10.⁴⁴ We might therefore speculate that while a relationship between CVHI-10 and dysphonia severity exists, CVHI-10-P mainly relies on factors different from the auditory-perceptual assessment of dysphonia severity. Future studies are needed to detect the factors that impact on CVHI-10-P as these could play a role in increasing parents’ awareness of their children’s voice disorders and therefore increase their compliance to VT programs.

In a large group of children who successfully underwent VT, the CVHI-10-P showed significant reduction in its scores, as well as for the CVHI-10 scores. This finding may be useful in all the cases for which the CVHI-10 is not applicable, as in children who are unable to read or otherwise cannot complete the form.

There are several limitations in this study. First, the number of recruited patients is limited. Second, the test-retest reliability was not addressed. Finally, the sample of the study included children with voice disorders ranging in severity from slight to moderate, whereas there were no children with severe

dysphonia. Future studies on a larger sample of voice-disordered children with severe problems such as tracheal stenosis are necessary.

CONCLUSIONS

CVHI-10-P seems to be a valid tool to assess parent’s severity of their child’s voice handicap. The use of the CVHI-10-P may provide an indication of specific treatment techniques that will benefit the child and educate the parent in contributing to the child’s improvement. The application of both CVHI-10 and CVHI-10-P is recommended in clinical practice, although further studies are needed to understand the possible role of the CVHI-10-P in clinical and outcome research.

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APPENDIX 1.**Italian Version and English Translation of the Children's Voice Handicap Index-10 (CVHI-10)**

1	People have difficulty hearing me because of my voice <i>La gente ha difficoltà a sentirmi a causa della mia voce</i>	Never <i>Mai</i>	Sometimes <i>Qualche Volta</i>	Many times <i>Molte Volte</i>	Always <i>Sempre</i>
2	People have difficulty understanding me in a noisy room <i>La gente ha difficoltà a capirmi in una stanza rumorosa</i>	Never <i>Mai</i>	Sometimes <i>Qualche Volta</i>	Many times <i>Molte Volte</i>	Always <i>Sempre</i>
3	My voice difficulties prevent me to stay with people <i>Le difficoltà della mia voce mi impediscono di stare con la gente</i>	Never <i>Mai</i>	Sometimes <i>Qualche Volta</i>	Many times <i>Molte Volte</i>	Always <i>Sempre</i>
4	I feel left out of conversations because of my voice <i>Mi sento escluso/a dalle conversazioni a causa della mia voce</i>	Never <i>Mai</i>	Sometimes <i>Qualche Volta</i>	Many times <i>Molte Volte</i>	Always <i>Sempre</i>
5	My voice difficulties reduce my school outcome <i>Le difficoltà della mia voce riducono i miei risultati a scuola</i>	Never <i>Mai</i>	Sometimes <i>Qualche Volta</i>	Many times <i>Molte Volte</i>	Always <i>Sempre</i>
6	I feel I have to strain to produce voice <i>Sento che devo fare sforzo per fare uscire la voce</i>	Never <i>Mai</i>	Sometimes <i>Qualche Volta</i>	Many times <i>Molte Volte</i>	Always <i>Sempre</i>
7	My voice is not light <i>La mia voce non è chiara</i>	Never <i>Mai</i>	Sometimes <i>Qualche Volta</i>	Many times <i>Molte Volte</i>	Always <i>Sempre</i>
8	My voice problem upsets me <i>Il mio problema di voce mi disturba</i>	Never <i>Mai</i>	Sometimes <i>Qualche Volta</i>	Many times <i>Molte Volte</i>	Always <i>Sempre</i>
9	My voice makes me feel inferior to other children or other boys <i>La mia voce mi fa sentire inferiore agli altri bambini o agli altri ragazzi</i>	Never <i>Mai</i>	Sometimes <i>Qualche Volta</i>	Many times <i>Molte Volte</i>	Always <i>Sempre</i>
10	People ask me "what's wrong with your voice?" <i>La gente mi chiede "cosa c'è che non va nella tua voce?"</i>	Never <i>Mai</i>	Sometimes <i>Qualche Volta</i>	Many times <i>Molte Volte</i>	Always <i>Sempre</i>
Score: _____		0	1	2	3

APPENDIX 2.**Italian Version and English Translation of the Children's Voice Handicap Index-10 for Parents (CVHI-10-P)**

1	People have difficulty hearing my child because of his voice <i>La gente ha difficoltà a sentire il mio bambino a causa della sua voce</i>	Never <i>Mai</i>	Sometimes <i>Qualche Volta</i>	Many times <i>Molte Volte</i>	Always <i>Sempre</i>
2	People have difficulty understanding my child in a noisy room <i>La gente ha difficoltà a capire il mio bambino in una stanza rumorosa</i>	Never <i>Mai</i>	Sometimes <i>Qualche Volta</i>	Many times <i>Molte Volte</i>	Always <i>Sempre</i>
3	The voice difficulties of my child prevent him to stay with people <i>Le difficoltà della voce del mio bambino gli impediscono di stare con la gente</i>	Never <i>Mai</i>	Sometimes <i>Qualche Volta</i>	Many times <i>Molte Volte</i>	Always <i>Sempre</i>
4	My child feels left out of conversations because of his voice <i>Il mio bambino si sente escluso dalle conversazioni a causa della sua voce</i>	Never <i>Mai</i>	Sometimes <i>Qualche Volta</i>	Many Times <i>Molte Volte</i>	Always <i>Sempre</i>
5	The voice difficulties of my child reduce his school outcome <i>Le difficoltà della voce del mio bambino riducono i suoi risultati a scuola</i>	Never <i>Mai</i>	Sometimes <i>Qualche Volta</i>	Many times <i>Molte Volte</i>	Always <i>Sempre</i>
6	My child feels he has to strain to produce voice <i>Il mio bambino sente che deve fare sforzo per far uscire la voce</i>	Never <i>Mai</i>	Sometimes <i>Qualche Volta</i>	Many times <i>Molte Volte</i>	Always <i>Sempre</i>
7	The voice of my child is not light <i>La voce del mio bambino non è chiara</i>	Never <i>Mai</i>	Sometimes <i>Qualche Volta</i>	Many times <i>Molte Volte</i>	Always <i>Sempre</i>
8	The voice problem of my child upsets him <i>Il problema di voce del mio bambino lo disturba</i>	Never <i>Mai</i>	Sometimes <i>Qualche Volta</i>	Many times <i>Molte Volte</i>	Always <i>Sempre</i>
9	The voice of my child makes him feel inferior to other children or other boys <i>La voce del mio bambino lo fa sentire inferiore agli altri bambini o agli altri ragazzi</i>	Never <i>Mai</i>	Sometimes <i>Qualche Volta</i>	Many times <i>Molte Volte</i>	Always <i>Sempre</i>
10	People ask me "what's wrong with the voice of your child?" <i>La gente mi chiede "cosa c'è che non va nella voce del tuo bambino?"</i>	Never <i>Mai</i>	Sometimes <i>Qualche Volta</i>	Many times <i>Molte Volte</i>	Always <i>Sempre</i>
Score: _____		0	1	2	3