Original Article

Artigo Original

Social skills in dysphonic children

Habilidades sociais em crianças disfônicas

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Keywords

Voice
Voice disorders
Child behavior
Child
Dysphonia

ABSTRACT

Purpose: To obtain and analyze data from the social skills evaluation of dysphonic children. **Methods:** This is a cross-sectional and prospective study. Participants were 38 children enrolled in a public school, ranging in age from 7 to 11 years. They were separated into two groups: Study Group (SG) – 19 dysphonic children; Control Group (CG) – 19 non-dysphonic children. The groups were matched by gender and age range. Children with any history of organic vocal problems, according to the identification and investigation of general and vocal health questionnaire, which was answered by the legal guardian, were excluded. The Multimedia Social Skills Inventoire for Children (MUSSIC) was applied, which consists of 21 social interaction situations represented by photos, having a child as the leading figure. For each situation, the participant should select one out of three behaviors, putting themselves in the place of the main character. Each response corresponds to one out of three types of reaction: assertive, passive and aggressive. Data were statistically analyzed. **Results:** There was no difference between the groups on the social skills evaluation results, that is, SG and CG children presented similar scores regarding assertiveness, aggressiveness and passiveness. Consequently, there was no difference on the subscales of the inventory regarding social skills. As for the SG, there was no relationship between the scores obtained on the MUSSIC and the severity of the voice disorder. **Conclusion:** It is not possible to determine specific behaviors of dysphonic children concerning social skills.

Descritores

Voz
Distúrbios da voz
Comportamento infantil
Criança
Disfonia

RESUMO

Objetivo: Obter e analisar os dados de avaliação das habilidades sociais de crianças disfônicas. **Métodos:** Trata-se de um estudo prospectivo transversal. Participaram 38 crianças, com faixa etária entre 7 e 11 anos, estudantes de uma mesma escola pública, que foram divididas em dois grupos: Grupo Estudo (GE) – 19 crianças disfônicas; Grupo Controle (GE) – 19 crianças não disfônicas. Os grupos foram pareados por gênero e faixa etária. Foram excluídas do grupo estudo crianças com histórico de quaisquer problemas vocais de origem orgânica, de acordo com questionário de identificação e investigação de saúde geral e vocal, respondido pelos responsáveis. Todas as crianças foram submetidas à aplicação do Inventário Multimídia de Habilidades Sociais para Crianças (IMHSC), composto por 21 situações de interação social, representadas por fotos, protagonizadas por uma criança. Diante de cada situação, o participante deveria optar por uma das três possibilidades de atitudes, se estivesse no lugar do protagonista. Cada resposta corresponde a um dos três tipos de reações: assertiva, passiva e agressiva. Os dados foram analisados estatisticamente. **Resultados:** Não houve diferença no resultado da avaliação de habilidades sociais entre os grupos, ou seja, crianças do GE e GC apresentaram escores semelhantes referentes à assertividade, agressividade e passividade. Por consequência, não houve diferença nas subescalas do inventário referentes às habilidades sociais. Quanto ao GE, não houve relação entre os escores obtidos no IMHSC e o grau de alteração vocal. **Conclusão:** Não é possível determinar comportamentos específicos em crianças disfônicas, no que se refere às habilidades sociais.

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Received: 3/6/2012

Accepted: 7/2/2012

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Conflict of interests: None

INTRODUCTION

Childhood dysphonia corresponds to vocal problems that affect children of different age ranges and can be caused by functional or organic factors. Although there are not many controlled epidemiological studies that define the prevalence of such disorder, the estimated variation is somewhere between 8 to 30%[1-3]. Such indexes are considerable, since dysphonia can negatively influence the quality of life of an individual[4].

In the Speech-Language Pathology literature, the description of some behavioral characteristics of children with functional vocal disorders (triggered by vocal use) is common. Studies consider that aggressiveness, impulsivity and hyperactivity are related to dysphonias[5,6]. Others mention that dysphonic children have traces of anxiety, perfectionism and smaller sociability[7,8]. However, a recent study[9] confront these data, concluding that children with nodules are outgoing and that there is no relation between dysphonia and behavioral alterations such as aggressiveness, absence of mind our impulsive problems.

Therefore, the relation between behavioral alterations and the start or maintenance of dysphonias remains uncertain.

Moreover, it is hard to determine whether the behavioral aspect is the trigger of the vocal alteration or the consequence of this problem, due to the possible social restriction that dysphonia can cause.

The controversies of knowledge in this field can bring consequences to the evaluation, conduct and treatment planning for the cases of childhood dysphonia. They can also instigate judgments which are hasty and without adequate theoretical foundation about the patients, concerning personality or even family matters. On the other hand, the speech-language pathologist's work can be limited due to the negligence of other alterations (such as behavioral/social skills alterations) which can be implicit, and may even negatively influence the therapeutic evolution.

In psychology, there is a field that deals with the study of the Social Skills. Such skills correspond to the different kinds of social behaviors present on the individuals' repertoire at the moment in which they deal adequately with the demands of interpersonal situations[10]. It is a set of behaviors to attend determined interpersonal demand, which is required in the many social situations to which an individual is exposed. Therefore, the concept of "Social Skills" goes beyond what is understood as "good manners" and is related to the construction of healthy and productive interpersonal relationships[11].

It is during childhood that individuals begin to acquire relationship skills and competencies, and the success or failure in this area are indicators for the child's development. They can have, as positive results, better acceptance by the classmates, self-esteem and academic achievement. On the contrary, they can be rejected by their counterparts, present depression or low academic performance. The skills refer to attitudes related to self-control, following rules or to the relationship with their counterparts, such as being able to calm down, waiting for their turn to speak, offering help or paying attention, which allows a good relationship of children with their classmates, parents and teachers[12].

To evaluate the social skills in children, an instrument was elaborated, which can be used as a reliable data collection source, since it has been validated for the Brazilian infant population. It is called The Multimedia Social Skills Inventory for Children (MUSSIC)[13], and allows to investigate and reflect about how children react in front of the demands of a situation. The reactions are classified in three types: skillful reactions or assertiveness, in which the child is able to attend the demands of the environment with attitudes that contribute for his/her social skill; non-skillful passive reactions or passiveness, characterized by retreat, grief and anxiety; and finally, the active non-skillful reactions or aggressiveness, represented by more aggressive attitudes, authoritarianism or coercion.

The MUSSIC evaluation method is widely used in the Social Skills area and allows better knowledge of children's profiles, providing valuable information about the main characteristics of dysphonic children in relation to the social skills repertoire. With the method, it is possible to indicate whether dysphonic children are more likely to present aggressive, assertive or passive behaviors. The present study intends to contribute to new reflections on the matter, promoting knowledge of the dysphonic child's social skills and enabling the improvement of the speech-language pathology's practice with this population, attending the specific needs of each patient. Given the above, the purpose of this study was to obtain and analyze the data of social skills evaluation in dysphonic children.

METHODS

The study was approved by the Ethics Committee of Universidade Estadual do Centro-Oeste (UNICENTRO), under process number 062/2010. To perform the activities at the school, the researcher obtained authorization of the institution's principal. The research followed all the ethical demands according to the CONEP resolution 196/96. All legal guardians signed the Informed Consent Form.

This is a descriptive, cross-sectional study. In the final sample, 38 children ranging in age from 7 to 11 years (mean of 8 years) participated, 19 of them being dysphonic children part of the study group (SG) and 19 non-dysphonic children part of the control group (CG). The SG was composed of children who presented vocal alteration at the moment of the evaluation and the CG by children with adapted vocal quality at the same moment. Children with neurological disorders, psychological disorders, or other health problems that could negatively influence voice production and behavioral aspects were excluded. These issues were investigated through inquiry with the parents.

Preliminary procedures

In order to compose the final sample, preliminary procedures were performed. Initially, vocal screening was performed in all the children aged between 7 and 12 years from a public

city school located downtown in the city of Irati (PR), Brazil. The school was selected for counting with a large number of children enrolled in the age range intended by the researchers.

The researchers screened 277 children, recording vocal samples in a notebook, with a unidirectional microphone positioned at 45º. The following samples were collected: emission of the sustained vowel /a/, sequential speech (counting numbers from 1 to 10) and a stretch of spontaneous speech (question: "What do you like to do for fun?"). The samples collected were randomly recorded in a CD, in individual folders containing the recordings of the sustained vowel, sequential speech and spontaneous speech of each child. Then, the CD was forwarded to be evaluated by a voice specialist with approximately seven years of experience with auditory-perceptive evaluation. The evaluation was performed in a quiet room, by placing the CD in a notebook with appropriate headphones for the task. The professional was informed that the content was children's voices and was told to listen to the set of samples of each child, as many times as necessary, and indicate whether the voice was, overall, adapted or altered. In the presence of vocal alteration, the predominant vocal type (rough, breathy or strained) and the overall severity of the alteration presented by the child (mild, moderate or intense) were defined.

It is important to mention that the voices which were considered adapted had socially acceptable quality, did not interfere in speech intelligibility and presented adequate pitch, loudness, modulation and projection for the speaker's gender and age[14]. In this sense, the particularities of the voices were taken into consideration, since the literature points the possibility of mild deviations of the vocal quality in this age range due to the physiological process of the laryngeal development[14].

According to the evaluations, 21 dysphonic children were identified. Two were excluded from the sample – one for moving to another city e the other for not bringing the identification questionnaire answered by the parents. The children considered dysphonic had new speech samples collected after a period of 15 days in order to confirm the vocal alteration. Such samples, which corresponded exactly to the same tasks requested in the first evaluation were reevaluated by the same rater. In this moment, all the evaluations remained unaltered. Therefore, the SG final sample was composed by 19 dysphonic children, 11 girls and eight boys aged between 7 and 11 years.

Data collection

After accessing the information of vocal screening, the steps of the research itself began. The children were divided into the groups already cited, SG and CG. The selection of children of the control group, that is, children with adapted voices (256 children), was done randomly, by raffle, respecting the pairing with the SG children according to age and gender. Therefore, the CG was also formed by 19 children, 11 girls and eight boys, ranging in age from 7 to 11 years. We opted for the selection of the same number of children from the SG (19) and for the paring, so that the sample was as uniform as possible, as the literature points out that the social skills levels of children can vary according to age and gender[15].

After the subdivision of the groups, the parents received, through the school, a questionnaire elaborated by the researchers, approaching semi-structured questions on the child's general health and on the gathering of possible inadequate vocal habits presented by them. The questions regarding vocal health had the purpose of verifying if the child, for some reason, could be excluded from the research due to the selection criteria. Questions involving possible neurological, hearing, respiratory disorders and previous surgeries were asked. However, none of the legal guardians reported history indicating vocal alterations of essentially organic etiology (all denied any health problems and previous surgeries). In addition to questions about general health, the parents were questioned about the possible inadequate vocal habits presented by the children, in order to establish some relations with the results regarding social skills.

Once the questionnaire was filled in and received back, the selected children were submitted to an evaluation of the social skills. The instrument used for this evaluation is called Multimedia Social Skills Inventory for Children (MUSSIC)[13], destined for children from 7 to 12 years of age, widely used in research of behavioral evaluation in Brazil.

The MUSSIC comprises 21 social interaction situations, represented by photos, where the leading role is played by children. The instrument offers the possibility of using two versions: computerized or printed. It can be applied individually or in groups. In this research, we used the printed version with its pages scanned and transmitted to the students using a multimedia projector to facilitate the appliance for groups up to four children, but it was also used for individual application. During the data collection, the children remained in a school classroom, previously prepared, and did not communicate among themselves. They could only ask questions to the researcher in case of clarifications about the presented situation were needed.

Before each situation, the participant should choose one of the three attitude options, as if they were in the character's place, and take note on an answering sheet. It was emphasized that there were no right or wrong answers. Each possibility of answer corresponded to one of the three types of reactions: assertive (which demonstrates assertiveness, empathy, appropriate expression of positive or negative feelings, civility, etc.), passive (demonstrates avoidance or escape instead of coping with the situation) and aggressive (which demonstrated aggressiveness, negativism, irony, authoritarianism, etc.).

As MUSSIC cannot be attached here due to the rules for its use, it is possible to exemplify one of the 21 situations imposed for the children during the test: "Yasmin is looking for her only pencil, because she needs it very much. At the same time, Renato asks to borrow her pencil. What will Yasmin do?" Reaction 1: She lends the pencil and thinks "*Oh boy, I shouldn't have lent it. Will he give it back*?" Reaction 2: She says "*I can't let you borrow it now, I'm using it. When I'm done I'll let you have it*". Reaction 3: She says *"Where is yours? You have one, right? Well, I'm not going to let you borrow mine!*" MUSSIC is destined, preferably to psychologists, but it contains resources that can be used by other health and education professionals. Therefore, other professionals can apply MUSSIC.

The children's answers were analyzed and then, scores for the protocol's three sub-items (aggressiveness, assertiveness and passiveness) were established in each of the subscales. The subscale "Empathy and Civility" refers to the ability of expressing positive feelings of solidarity and partnership or of social politeness. The subscale "Coping Assertiveness" refers to the abilities of affirmation, defense of rights and self-esteem, with potential risk of an undesirable reaction from the speaker. The subscale "Self-control" refers to the abilities involving emotional control before frustration or negative or undesirable reactions from classmates. The subscale "Participation" refers to the abilities of involvement and commitment with the social context, even when the environmental demands are not directly addressed. There is also a subscale called "Non-factors", for items that do not fit in the subscales previously cited[13].

There is a specific calculation suggested by the instrument itself, and the results were compared between the SG and CG. The data was charted and statistically analyzed. The Mann-Whitney U and the Kruskall-Wallis tests were used with the significance level of 0.05 or 95%.

RESULTS

Of all children of the SG, 17 presented predominantly rough voices and two presented predominantly breathy voices. Moreover, 11 presented mild dysphonia and eight presented moderate dysphonia. Still regarding the characterization of the sample, the data regarding the occurrence of inadequate vocal habits reported the parents of the children of the SG and CG groups were obtained (Table 1).

Regarding the social skills, we observed that dysphonic and non-dysphonic children present similar scores in the subitems of the MUSSIC protocol (assertiveness, aggresiveness and passiveness), with no differences among them (Table 2). Consequently, none of the subscales refering to the skills (empathy and civility, coping assertiveness, selfcontrol, participation, and non-factors) presented differences among the SG and the CG (Table 3). Such findings indicated that dysphonic and non dysphonic children have similar behaviors and social skills.

Regarding the comparison between the mean scores obtained in MUSSIC for the SG children, with the variables regarding gender and the severity of the dysphonia, no differences were observed (Table 4). These data indicate that both boys and girls, with different severity of vocal alteration, present similar indexes of social skills.

Finally, we sought to understand the relationship between the mean number of inadequate vocal habits referred by the parents and the scores of aggressiveness, passiveness and assertiveness obtained by the children in MUSSIC. There were no differences, indicating that the vocal behavior seems not to be directly related to the social skills (Table 5).

DISCUSSION

Due to the importance of speech-language pathology treatment with dysphonic children, this study aimed to investigate the possible relation between vocal problems in children and the social skills in childhood. Therefore, the idea was to bring the possibility of a new vision for these patients, releasing them from imposed stereotypes, such as attributions of anxiety and

Table 1. Characterization of the children regarding inappropriate vocal habits

Inappropriate habits	Control Group		Study Group	
	n	%	n	%
Yelling	8	42.1	11	57.8
Speaking for long periods	8	42.1	11	57.8
Trying to speak louder than noise or than others	5	26.3	9	47.3
Imitating sounds, character's or other people's voices	6	31.5	5	26.3
Speaking too loudly	7	36.8	7	36.8
Singing constantly, even while others are talking	2	10.5	1	5.2
Straining the voice	4	21	2	10.5
Startling others with yells	5	26.3	4	21
Singing with strain	0	0	2	10.5
Calling attention in groups with the voice	4	21	4	21

Table 2. Results obtained by the children regarding aggressive, passive and assertive reactions in MUSSIC

Scores	Group	Mean	SD	Mann-Whitney U	Z	p-value
Aggressiveness	SG	1.58	2.65	175	-0.18	0.86
	CG	1.79	2.82			
Passiveness	SG	5.16	2.73	128.5	-1.54	0.12
	CG	3.89	1.94			
Assertiveness	SG	13.84	4.78	139.5	-1.2	0.23
	CG	15.32	4.27			

Mann-Whitney U Test ($p<0.05$)

Note: SG = study group; CG = control group; SD = standard deviation

Table 3. Results regarding the MUSSIC subscales

Scores of the reaction subscales	Group	Mean	SD	p-value
Aggressive empathy and civility	SG	0.53	0.9	>0.05
	CG	0.63	1.16	
Passive empathy and civility	SG	1.63	1.54	>0.05
	CG	0.74	0.87	
Assertive empathy and civility	SG	5.84	2.09	>0.05
	CG	6.63	1.86	
Aggressive coping assertiveness	SG	0.37	0.68	>0.05
	CG	0.63	1.07	
Passive coping assertiveness	SG	2	1.11	>0.05
	CG	1.63	1.01	
Assertive coping assertiveness	SG	2.63	1.42	>0.05
	CG	2.68	1.29	
Aggressive self-control	SG	0.63	0.9	>0.05
	CG	0.32	0.75	
Passive self-control	SG	0.89	0.88	>0.05
	CG	0.74	1.05	
Assertive self-control	SG	2.47	1.26	>0.05
	CG	3	1.25	
Aggressive participation	SG	0.37	0.68	>0.05
	CG	0.11	0.32	
Passive participation	SG	0.32	0.58	>0.05
	CG	0.21	0.42	
Assertive participation	SG	2.26	0.93	>0.05
	CG	2.63	0.6	
Aggressive non-factors	SG	0.21	0.42	>0.05
	CG	0.11	0.32	
Passive non-factors	SG	0.63	0.6	>0.05
	CG	0.89	0.57	
Assertive non-factors	SG	1.21	0.63	>0.05
	CG	1	0.58	

* Significant values (p<0.05) – Mann-Whitney Test U
Note: SG = study group; CG = control group; SD = standard deviation

Table 4. Relation between the scores obtained in MUSSIC and the variables regarding gender and the dysphonia severity in the Study Group (SG)

Score	Gender			Dysphonia severity		
	Gender	Mean	p-value	Dysphonia severity	Mean	p-value
Aggressiveness score	Female	0.91	0.06	Mild	1.9	0.59
	Male	2.75		Moderate	1.22	
Passiveness score	Female	4.05	0.22	Mild	4.9	0.74
	Male	5.19		Moderate	5.44	
Assertiveness score	Female	15.68	0.10	Mild	13.4	0.96
	Male	13.06		Moderate	14.33	

Teste U de Mann-Whitney (p<0,05)

aggressiveness to their personality. From the reformulation of these concepts, different forms of intervention can be thought, such as using the fields of psychology, taking into consideration the important prevalence of childhood dysphonia found in several studies[1-3] on the matter.

Other relations have already been studied regarding social

Table 5. Relation between the number of inadequate vocal habits referred by the parents and the results regarding the social skills of the dysphonic children (SG)

Number of inadequate habits	Aggressiveness	Passiveness	Assertiveness
0 to 1	1.56	4.81	14.63
2 to 4	1.43	4.71	14.29
5 or more	2.38	3.63	15
X^2	1.2	1.47	0.16
p-value	0.55	0.48	0.92

Kruskall-Wallis test ($p < 0.05$)

skills. For example, the association between problems in such abilities and learning difficulties are already known[15,16]. Also, the relations between intellectual deficits and behavior or social skills problems have already been defined[17]. However, information about behavioral characteristics in children with vocal disorders is still fragile and little known.

Regarding the frequency of each of the habits asked to the parents (Table 1), it became clear that children with healthy voices also presented a large number of inadequate vocal habits. This data corroborates results of a study that investigated vocal habits of schoolchildren and their parents[18].

The first important finding of this study concerns the similarity between dysphonic and non-dysphonic children regarding assertive, passive and aggressive reactions in their daily routine (Table 2). The child takes an assertive stance when, for example, exposes his/her ideas and is not coerced, or when offers help to a classmate. A passive attitude is configured when the child tries to dodge situations, is afraid to say what he/she thinks or even of presenting defensive arguments. Aggressive attitudes are represented when the child reacts impulsively, ironically, mocks classmates or does not want to cooperate in a group[11].

The means obtained in the three reaction contained in MUSSIC for both groups (Table 2) are similar to the means presented by the control group of another study, which compared the social skills of children with Down syndrome and children with typical development (CG)[17]. It is noteworthy that the most prevalent attitude, in both groups was the assertive, demonstrating that the participating children usually act adequately before the demands of interpersonal situations. Such findings disagree with studies the pointed behavioral alterations in dysphonic children[5-8].

There was a tendency, in the decades from 1960 to 1980, for the development of psychological studies with dysphonic children[5,7,8]. They all found data that included signs of anxiety, hyperactivity, difficulty to face stressful situations, emotional disorders, antisocial feelings and, above all, aggressiveness. It is believed that the incompatibility between old and present studies can by justified by sociocultural and demographic differences and by the population characteristics over time. Moreover, the use of different evaluation methods of the behavioral aspects may have influenced the results obtained.

In the 1990's, certain modifications began in what was believed about behavioral characteristics in childhood dysphonia. This is because a study about the personalities of children diagnosed with vocal nodules[19] showed that this group did not present traces of aggressiveness. Still, difficulties in affection and cognitive aspects were observed, which could handicap the communication skills, consequently leading to incorrect vocal use and development of dysphonia.

Finally, a recent and important international study was performed in an attempt to elucidate a possible relationship between childhood dysphonia and determined behavioral characteristics[9]. Such research was performed with 26 children with vocal nodules, ranging in age from 4 to 12 years. The authors applied a protocol entitled The Childhood Behavior Checklist (CBCL/4-18), which approaches matters of childhood behavior, and that should be answered by the children's parents, after they had observed their children for a period of six months. There were differences between the children with and without vocal nodules, and dysphonic children were more sociable during games or at school, being characterized as chatty and/or outgoing. These data were confirmed by a national study[20], in which, through reports of the parents, the authors concluded that the dysphonic children are more chatty and outgoing.

The present study did not corroborate the negative behavior characteristics of aggressiveness and passiveness expressed in older studies[5,7,8], mainly because, in addition to the main results, all the MUSSIC subscales indicate similarity between the groups (Table 3). However, we cannot infer about the relation of our study with the current research mentioned above, since extroversion does not necessarily indicate assertiveness. However, it is possible to consider that the safety regarding communication and sociability (extroversion) is an important aspect for children to express a skillful or assertive reaction.

Regarding the specific analysis of the dysphonic children group, we observed that the indexes of assertiveness, passiveness and aggressiveness had no relation with the severity of the dysphonia (Table 4). This finding denied our initial hypothesis that the progression of the vocal alteration could influence the social skills of dysphonic children. Hence, we consider important the performance of further studies, preferably longitudinal, that can perform the follow up of the children for a longer period of time, in order to observe the latter consequences of childhood dysphonia in adolescence and even in the adult life. For now, what we can infer is that the severity of the vocal alteration did not influence the behavior and/or the social skills of the dysphonic children.

In terms of the relation done between the indexes of MUSSIC and gender in the group of dysphonic children (Table 4), we did not observe differences in any of the types of reactions. However, though the difference occurred between genders, it is probably more related to the very personality differences between boys and girls, in general[12]. A study[12], also based on the field of Social Skills, pointed out that externalizing and aggressive behaviors are more seen in boys, with reports from mothers and teachers indicating that they are more impatient, fight more and are more disobedient.

As we associate the mean number of inadequate vocal habits referred by the parents to results on the children's social skills

(Table 5), we also obtained similarities between the groups. This information can demystify the idea that children who are more abusive are the ones with more aggressive behaviors.

We finalize this discussion acknowledging that the behavioral and social skills characteristics depend on many factors. Several conditions contribute to learning social skills in childhood, such as individual factors (temper, sensory capacity), family, the many environments that the child attends and the socioeconomic condition[13] (controlled here by collecting data in a single public school of the central area of the city). Depending on the environment and on the stimuli that children receive, their attitude can be repressed or reinforced. This way, we suggest that further research about the social skills in dysphonic children seek to control a larger number of variables so that the findings are increasingly more precise and reliable.

CONCLUSION

From the analysis of the results, it can be concluded that dysphonic and non-dysphonic children present similar social skills. Therefore, it is not possible to attribute specific behaviors related to social skills to dysphonic children.

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