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Mothers of children with cleft palate undergoing speech intervention change communicative interaction

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Abstract

Introduction: Natural learning must include language learning relationships that provide natural support for communication and language learning. *Objective:* To find out if including the mother as an active participant during speech therapy sessions would improve the communicative style and mode of the interaction of the mothers with their cleft palate children. *Materials and methods:* Fifty-nine children with cleft palate and their mothers were included in the study group. The patients were divided into two groups randomly. Patients received the same treatment. Twenty-eight of the children were included in the control group. They participated in small working groups comprising the speech pathologist and two children. Thirty-one of the children were included in the experimental group. In this case, the mothers of the children were also included as active participants. The mothers of the patients from the two groups were assessed at the beginning and end of the speech therapy period to find out their style and mode of interaction. Pre- and post-data of the mothers from both groups were compared. *Results:* Eighty-nine per cent of the mothers of the experimental group modified their patterns of interaction. In contrast, only 19% of the mothers of the control group modified their style and mode of interaction. A Fisher exact test demonstrated that the frequency of mothers from the experimental group that modified their style and mode of interaction was significantly greater as compared to the number of mothers from the control group that were able to modify their style and mode of interaction. *Conclusions:* Mothers of children with cleft palate and accompanying language delay modify their communicative style and mode of interaction through active participation in speech therapy. © 2001 Published by Elsevier Science Ireland Ltd. All rights reserved.

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1. Introduction

Language acquisition starts before children produce their first words [1,2]. Mothers and children participate in predictable daily routines and learn to communicate with each other in these contexts. Beginning with reflexive responses, children add

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to and refine their communications to become more conventional and intentional [3,4]. Consequently, speech and language development is strongly influenced by the quantity and quality of the social interactions in which the child participates [4,5].

Cleft palate children with communication disorders have delayed or deviant speech and language development [6]. They initiate communications less frequently, and do not add to or elaborate on a topic during conversation, so, consequently, a negative parent–child interaction pattern may develop as the parent attempts to compensate and maintain the interaction. The parent may become increasingly more direct, asking questions, giving commands, requesting actions, and in other ways controlling the interaction. The parent's responses also become less semantically contingent on the child's comments or interests, often ignoring the child's communicative attempts or failing to talk about the child's interests [7,8].

We have reported previously that cleft palate patients accompanied by their mother during speech intervention had significantly better language skills compared with patients treated without their mother [9].

The purpose of this study was to find out if including the mother as an active participant during speech therapy sessions would improve the communicative style and mode of the interaction of the mothers with their cleft palate children.

2. Patients and methods

2.1. Patients

All patients were recruited from the cleft palate clinic of the Gea González hospital in Mexico City.

To be included in the study group, children had to meet the following criteria: non-syndromic total unilateral or bilateral cleft of the primary and secondary palate. The patients had to be normal otherwise [10–12]; surgical repair according to the surgical routine of our center: surgical repair of the lip and primary palate between 1 and 3 months, and surgical repair of the secondary palate between 6 and 12 months with a minimal incision palatopharyngoplasty [13]; no velopharyngeal insufficiency after palatal closure as shown by videonasopharyngoscopy and multiview videofluoroscopy [14]; absence of postoperative fistulae; chronological age between 3 and 5 years at the time they were selected for the study; normal hearing on conventional puretone audiometry; moderate language delay measured by the SDS Model [15]; and no known neurological deficits or other developmental disabilities.

Fifty-nine children met the criteria and participated in the study. The patients were divided into two groups. The mothers of the patients from the two groups were assessed at the beginning of the study to find out their style and mode of interaction. From the 59 patients, children at roughly the same language level were randomly assigned to either the control group or experimental group. Each of the patients received three, 1 h sessions of speech and language therapy a week for a period of 1 year. Patients were also given the same treatment consisting of playing with toys and storybooks reading accompanied by the following strategies: close, parallel talk, language modeling, and expansion of utterances produced by the children. Twenty-eight of the children were included in the control group. They participated in small working groups comprising the speech pathologist and two children. Thirty-one of the children were included in the experimental group. In these cases, the small working groups were similar except that the mothers of the children were also included as active participants.

Both groups included children ranging in age from 3 to 4 years, 8 months. The mean age of the experimental group was 3 years, 7 months (range 3–4 years, 5 months). The age of the control group ranged from 3 to 4 years, 8 months with a mean age of 3 years, 8 months.

Linguistic performance was also similar in both groups. All the participants were evaluated according with the SDS Model [15] and scored in the moderately impaired range for their age.

The SDS Model presents a way for thinking about language and its use and integrates the knowledge of structure, content, and use of language within discourse patterns, and contexts of use, such as routine events or story books. The Model is a valuable tool for conducting naturalistic observation and descriptive assessment. It presents a detailed description of three contexts (situational, discourse, and semantic) in 10 levels of cognitive and linguistic organization.

The SDS Model provides age norms for each level of development based on typically developing children in the United States. To assure that these age norms were appropriate to the Mexican population, the researchers administered the play and story-telling tasks to 25 typically developing children between 1 and 6 years of age in a daycare center and in a preschool. The results indicated that the age levels described in the SDS Model corresponded with the performance of Mexican children.

The child's profile for the Situational, Discourse, and Semantic aspects of language was obtained by subtracting the assigned level obtained from the assessment from the expected level established by the SDS age norms. This resulted in a number score, ranging from 0 to 4, that represented the number of levels of discrepancy or delay. For analysis, a score reflecting a delay (i.e. a discrepancy of one to four levels) was classified as 'delayed'.

Both groups included mothers ranging in age from 22 to 34 years. The mean age of the mothers from the experimental group was 26 years (range 22–32 years). The age of the mothers from the control group ranged from 23 to 34 years, with a mean age of 27 years.

The socio-economic status of the mothers was classified according to the five-category scale of the social service of the Hospital Gea González at México City. All the mothers that participated in the study were classified ranging in the categories 2–4. Only one mother of the control group was classified in the category number 1.

2.2. Methods

The intervention consisted of symbolic play activities, including representation of everyday events, including meal time, bed time, or bath time, and non-familiar topics such as astronauts [16,17]. A 1 h session, three times a week, was provided to both groups of patients. The materials available for the children were dolls and doll accessories such as dishes, furniture, clothing, and bath items. Cars and car accessories such as a filling station, buildings, a carpet with roads and other objects were also used.

2.3. Setting

The children were placed into small working groups to provide opportunities for peer interactions and socialization. There were two different kinds of settings: two children and the speech pathologist (control group), two children, the speech pathologist, and the mothers (experimental group). Only two children were placed in each working group to maximize individual opportunities for adult modeling, parallel talk, expansions, and other intervention prompts.

2.4. Mothers' behaviors

To evaluate the patterns of parent–child interaction, the mothers who participated in both groups were videotaped interacting with their child during free play. The videorecording was made prior to the first session. This procedure was repeated at the end of the study 12 months later. Each parent–child dyad was videotaped for 40 min. A 10 min segment was then selected that represented the best interactions. That is, a segment where both parent and child were participating in the play and where a high level of verbal interaction occurred. The 10 min of interaction were transcribed verbatim, including child utterances, mother utterances, gestures and other verbal and non-verbal communications. Notations were also made regarding the content, including the toys and how they were used, and behaviors occurring at the moment of communication. The mother and child interactions were then analyzed according to the following categories of behavior: semantic contingency and mode of interaction [18].

2.5. Semantic contingency

Each mother's turn was rated as either NC (non-contingent) or C (contingent). The mother's utterances were considered semantically contingent when they were related to the focus of interest of the child, that is the child's actions or utterances that appear prior to the mother's response.

2.6. Mode of interaction

Each mother's turn was rated as either D (directive) or N (nurturant). A directive mode of interaction was one in which the mother initiated the topic and either produced an imperative (sit down) requests for attention (look at this), request for known information (what is this?), or showed interaction asymmetry by producing multiple utterances with no opportunity for child initiations. A nurturant mode was one in which the mother requested unknown information (do you think the baby is hungry?), produced comments or expressions (she drank all of her milk!), provided appropriate information according to the child's level of play (child: 'baby sleep' adult: 'shhh! She's sleeping', 'nite nite baby'), and showed interaction symmetry by watching and waiting, giving time and prompts for interaction.

It is necessary to point out that even though the parents of the control group were not involved in the therapy sessions, they received the same indications about linguistic stimulation at home. Thus, the only difference between the mothers of both groups was that mothers of the experimental group were included in the therapy sessions and had the interaction model of the speech therapist during sessions.

2.7. Reliability

A double-blind procedure was used whereby all analysis of mother behaviors were independently conducted by two speech pathologists who were trained in the rating scales and procedures. The style and mode of interaction of the mothers were classified in each case before and after the follow-up period, and a concordance value was obtained. Results showed a 96% agreement in classification for both mother and child behaviors at pre-test, and a 95% level of agreement at post-test. In the small percentage of cases in which there were disagreements, the observations were discussed until a consensus was reached.

3. Results

3.1. Semantic contingency and mode of interaction

Mothers were classified as either contingent-nurturant or non-contingent-directive. To be classified as contingent-nurturant, at least 75% of the mothers' behaviors had to be rated as both C and N. Only one mother met these criteria at the beginning of the study.

Post-test analysis revealed that at the end of the year, 89% of the mothers of the experimental group had modified their patterns of interaction and were classified as contingent-nurturant. The remaining 11% made limited changes with the majority of the behaviors remaining non-contingent and directive (Table 1).

In contrast, only 19% of the mothers of the control group modified their style and mode of interaction. The rest of the mothers preserved their non-contingent and directive interaction (Table 2).

A Fisher's exact test demonstrated that the frequency of mothers from the experimental group that modified their style and mode of interaction was significantly greater as compared to the number of mothers from the control group that were able to modify their style and mode of interaction.

It is interesting to note that only two children in the experimental group showed limited gains in language ability. Both of these children had mothers who failed to make changes in their style of interaction, remaining non-contingent and directive.

4. Discussion

The results of this study show that mothers of children with cleft palate and accompanying language delay modify their communicative style and mode of interaction through active participation in speech therapy. Furthermore, the results suggest that mothers participating actively in speech therapy sessions are more likely to modify their communicative style and mode of interaction, as compared to mothers that only receive advice and instruction when their children attend speech therapy.

Eighty-nine per cent of the mothers participating in the speech intervention modified their style and mode of interaction. It is probable that once the mothers learned the strategies for talking about the child's interest (semantic contingency), and for interacting in a nurturing manner, they use these strategies in other contexts throughout the day. It is likely that the strategies were generalized to the interactions during meals, bath-time, shopping, and other events, so they may use the language facilitation strategies as a natural part of all interactions. In a previous communication [19] we reported that participation of the mothers

Table 1
Communicative style and mode of interaction: experimental group (active participation)[a]

Patient No.	Age	Style and mode of interaction at the onset	Style and mode of interaction at the end	Modification
1	28	NC–D	C–N	Yes
2	27	NC–D	C–N	Yes
3	30	NC–D	C–N	Yes
4	26	NC–D	C–N	Yes
5	24	NC–D	C–N	Yes
6	32	NC–D	C–N	Yes
7	22	NC–D	NC–D	No
8	25	NC–D	C–N	Yes
9	29	NC–D	C–N	Yes
10	25	NC–D	C–N	Yes
11	27	NC–D	C–N	Yes
12	29	NC–D	C–N	Yes
13	22	NC–D	C–N	Yes
14	24	NC–D	C–N	Yes
15	29	NC–D	NC–D	No
16	25	NC–D	C–N	Yes
17	31	NC–D	C–N	Yes
18	27	NC–D	C–N	Yes
19	26	NC–D	C–N	Yes
20	28	NC–D	C–N	Yes
21	25	NC–D	C–N	Yes
22	30	NC–D	NC–D	No
23	26	NC–D	C–N	Yes
24	25	NC–D	C–N	Yes
25	23	NC–D	C–N	Yes
26	27	NC–D	C–N	Yes
27	22	NC–D	C–D	No
28	24	NC–D	C–N	Yes
29	31	NC–D	C–N	Yes
30	27	NC–D	C–N	Yes
31	29	NC–D	C–N	Yes
	$X = 26.6$	100%		89%

[a] 89% modified communicative style and mode of interaction. 11% unchanged (non-contingent, directive).

Table 2
Communicative style and mode of interaction: control group (not included in intervention)[a]

Patient No.	Age	Style and mode of interaction at the onset	Style and mode of interaction at the end	Modification
1	28	NC–D	NC–D	No
2	24	NC–D	NC–D	No
3	31	NC–D	C–N	Yes
4	26	NC–D	NC–D	No
5	24	NC–D	NC–D	No
6	32	NC–D	C–N	Yes
7	23	NC–D	NC–D	No
8	26	NC–D	NC–D	No
9	29	NC–D	NC–D	No
10	27	NC–D	NC–D	No
11	25	NC–D	NC–D	No
12	33	NC–D	NC–D	No
13	23	NC–D	NC–D	No
14	28	NC–D	NC–D	No
15	34	NC–D	NC–D	No
16	27	NC–D	NC–D	No
17	31	NC–D	NC–D	No
18	27	NC–D	C–N	Yes
19	26	NC–D	NC–D	No
20	29	NC–D	NC–D	No
21	25	NC–D	NC–D	No
22	30	NC–D	NC–D	No
23	24	NC–D	NC–D	No
24	25	NC–D	NC–D	No
25	24	NC–D	C–N	Yes
26	27	NC–D	NC–D	No
27	25	NC–D	NC–D	No
28	30	NC–D	C–N	Yes
	$X = 27$	100%		19%

[a] 19% modified communicative style and mode of interaction. 81% unchanged (non-contingent, directive). Fisher exact test $P < 0.001$.

resulted in significantly greater gains in language of their cleft palate children. Bruner [2] and McDonald [7] indicated that children become communicative to the degree to which they can act upon and negotiate with their important adults and peers. Consequently, for children to communicate successfully, they need to engage habitually with partners whose styles allow the children to learn to communicate naturally and receive an appropriate social model from the adults. This move to a social view of the child is further supported by a strong emerging movement, social constructivism, which views a child as developing within socially embedded cultures, for example, a mother–child dyad.

It should be pointed out that during the participation of the mothers in the speech intervention sessions, the importance of using the strategies in a particular context was emphasized. Norris and Damico [17] stated that language use always occurs in a context and that context is critical to the creation of meaning. The more repeatable and predictable a context is, the more it facilitates language learning. Children first grasp language in daily routines that have consistency and order, such as eating, bathing, or dressing. As their world expands, they come to understand new events by integrating them with previous knowledge and experience. Language learning is an

active constructive process rather than a passive constructive process. Each individual must 'create' knowledge through interactions with the physical and social environment. Communicative style and mode of interaction of mothers with their children is one of the most important elements for enhancing language development within appropriate contexts and in a naturalistic environment. Early intervention for children with delayed language must actively engage not only the children but their social environment, including the relationships and play contexts that provide natural support for communication and language learning [7].

Speech pathologists often use a model of service delivery in which they provide individual treatment with no peer of parent participation. However, it seems that children can learn to interact and communicate in each interpersonal contact. We propose that attempts to foster social and communication development must not be limited to direct clinical and educational activities but must pervade the child's natural partnerships.

In this study, mothers made excellent improvements in their communicative style and mode of interaction with their children when they were included as active participants and had the opportunity to learn and to use the facilitative strategies. We therefore recommend that both parents should be encouraged to participate actively during the speech intervention sessions and, most importantly, to use the strategies naturally during everyday activities.

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