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ACTIVE PARTICIPATION OF MOTHERS DURING SPEECH THERAPY IMPROVED LANGUAGE DEVELOPMENT OF CHILDREN WITH CLEFT PALATE

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Abstract. Whole language intervention uses the principles of natural language learning, which consider language not as an independent system but as a system intimately related to other cognitive and social abilities. This paper compares the outcome of speech therapy given in different settings to two groups of children with cleft palate. Those in the first group were treated by the speech pathologist alone (control group), whereas those in the second group were treated by the speech pathologist but were also accompanied by their mothers (experimental group). The purpose of this study was to find out if including the mother as an active participant in speech therapy sessions would improve the language development of children with cleft palate who also had additional language delays. Both groups were evaluated before and after treatment to evaluate the advance of each group. The patients accompanied by their mothers had significantly better language skills compared with patients treated without their mothers. The results support the statement that language development is related to mother-child mode of daily life interaction in children with cleft palate.

Key words: cleft palate, language, speech therapy.

From over 20 years of research we have learned that children start to acquire language before they 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 reflex responses, children add to and refine their communication skills to become more conventional and intentional (6, 18). Consequently, speech and language development are strongly influenced by the quantity and quality of the social interactions in which the child participates (4, 18).

Children with communication disorders have delayed or deviant speech and language development (10). 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 also becomes less semantically contingent on the child's comments or interests, often ignoring the child's attempts to communicate or failing to talk about the child's interests (9, 11).

The purpose of this study was to find out if including the mother as an active participant during speech therapy sessions would improve the language development of children with cleft palate and additional language delays.

PATIENTS AND METHODS

Patients

All patients were recruited from the cleft palate clinic of the Hospital Gea González in Mexico City. To be included in the study group children had to meet the following criteria: total unilateral cleft of the primary or secondary palate not associated with any other congenital anomalies (3, 7); cleft palate width classified as grade I or II according to the separation of the borders of the cleft at the secondary palate (19); surgical repair according to the surgical routine of our centre including: surgical repair of the lip and primary palate between 1–3 months, and surgical repair of the secondary palate between 12–18 months with a push-back palatoplasty and simultaneous posterior pillars pharyngoplasty (15, 19, 20); no velopharyngeal insufficiency after surgical correction as shown by clinical assessment, videonasopharyngoscopy, and multi-view video fluoroscopy (5, 16, 19); absence of postoperative fistulae; chronological age between 3–5 years at the time they were selected for the study; normal hearing on conventional pure-tone audiometry; moderate language delay measured by standardised test score on the Battery of Evaluations of

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Table I. *Levels of play: group 1 (without mothers –control group)*

Case No.	Level of play		
	At the onset of speech therapy	After speech therapy	Advanced
1	1	2	1
2	2	2	0
3	2	3	1
4	2	3	1
5	1	2	1
6	2	2	0
7	2	3	1
8	2	3	1
9	2	2	0
10	1	2	1
11	2	3	1
12	2	3	1
13	2	3	1
14	1	2	1
15	2	3	1
16	2	3	1
17	2	2	0
18	1	2	1
19	2	3	1
20	1	2	1

Levels of play: 1 relational; 2 symbolic; 3 imaginative.

Spanish Language (BELE) (14); and no known neurological deficits or other developmental disabilities.

Forty-one children met the criteria and participated in the study. The patients were divided into two groups. The two groups were assessed at the beginning of the study to find out the developmental level in language. From the 41 patients, children at roughly the same language level were randomly assigned to either the control group or the experimental group. Each of the patients received three, one-hour sessions of speech and language therapy a week for a period of one year. Patients were also given the same treatment consisting of play with toys accompanied by the following strategies: parallel talk, language modelling, and expansion of utterances produced by the children. Twenty of the children were included in the control group. They participated in small working groups comprising the speech pathologist and two children. Twenty-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.

The resulting experimental and control groups were similar in age, play (21), and language ability (14). The different levels of language and play according to the scores used in this study are described later.

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

Language performance in the BELE was also similar in the two groups with all participants scoring in the moderately impaired range for their age (17). BELE includes seven scales: comprehension; elicited and supervised production; definitions; riddles; narration; articulation; and routes. These scales assess three different aspects of language ability: form; content; and use of language.

Methods

The intervention consisted of symbolic play activities, including representation of both every-day events, including bath-time, meal-time, or bed-time, and non-familiar events such as a fire man and astronauts (12, 13). One hour sessions, three times a week were provided to both groups of patients. The materials available for the children were dolls and doll accessories such as dishes, furniture, clothing, bath items, and so on. Cars and car accessories such as a filling station, a carpet with roads, buildings, and other objects were also used.

Setting

The children were placed in small working groups to provide opportunities for peer interactions and socialisation. 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 maximise individual opportunities for adult modelling, parallel talk, expansions, and other intervention prompts.

Behaviour

To evaluate the patients, all children were videotaped interacting with a trained speech pathologist during free play. The videorecording was made before the first session. This procedure was repeated at the end of the study 12 months later. Each speech pathologist and child was videotaped for 40 minutes. The 40 minutes were transcribed verbatim, including the child's utterances, gestures, and other verbal and non-verbal forms of communication. Notations were also made regarding the content, including the toys and how they were used and the behaviour at the moment of communication. The transcribed segments of the videotaped interactions were analysed for children using one measure of play and one measure of language performance. The measure of play was an adaptation of Westby's play scale (21), using a three-level classification. Level 1 was relational play, defined as non-symbolic actions with toys, including banging, manipulating, or putting toys inside other objects. Level 2 was symbolic play, defined as using

Table II. *Levels of play: group 2 (with mothers–experimental group)*

Case No.	Level of play		
	At the onset of speech therapy	After speech therapy	Advanced
1	1	2	1
2	2	2	0
3	1	2	1
4	2	3	1
5	2	3	1
6	1	2	1
7	2	2	0
8	1	2	1
9	2	3	1
10	1	2	1
11	1	2	1
12	1	2	1
13	2	2	0
14	2	2	0
15	1	2	1
16	1	2	1
17	2	3	1
18	1	2	1
19	2	2	0
20	2	3	1
21	1	3	2

Levels of play: 1 relational; 2 symbolic; 3 imaginative.

Table III. *Language levels before and after treatment: group 1 (without mothers–control group)*

Case No.	Linguistic level		
	At the onset of speech therapy	After speech therapy	Advanced
1	2	4	2
2	1	2	1
3	1	3	2
4	3	3	0
5	2	3	1
6	1	2	1
7	1	2	1
8	3	3	0
9	2	4	2
10	1	3	2
11	3	3	0
12	3	4	1
13	1	2	1
14	2	4	2
15	1	2	1
16	1	3	2
17	1	2	1
18	3	4	1
19	1	3	2
20	1	2	1

Linguistic levels: 1 prelinguistic; 2 single word; 3 first word combination; 4 simple sentences; 5 complex sentences.

objects to represent events, including feeding, bathing, or putting dolls to sleep when the child was in that role. Level 3 was imaginative play, defined as assigning roles to the dolls and objects, talking to and for the dolls as if they were performing the actions.

The measure of language performance was an adaptation of Bloom and Lahey's communicative categories using a five level classification (1). Level 1 is prelinguistic or no use of words; level 2 is the use of one word utterances; level 3 is the semantic combination of words such as agent-action (baby sleep), or action-object (drink milk); level 4 is the use of simple sentences that communicate one idea (the baby is sleeping); level 5 is the use of complex sentences that coordinate multiple ideas (be quiet so the baby can sleep). Each child was assigned to a level where 60% or more of the utterances were classified.

For each child, the preintervention language (five level classification) and play (three level classification) ratings were subtracted from the postintervention ratings to yield a gain score for language and for play.

Reliability

A double-blind procedure was used whereby all analyses of children's behaviour were independently conducted by two speech pathologists who were trained in the rating scales and procedures. Language performance and level of play were classified in each case before and after the follow-up period and a concordance value was obtained. Results showed a 95% agreement in classification for both child behaviour before the test, and a 94% level of agreement after the test. In the small percentage of cases in which there were disagreements, the observations were discussed until a consensus was reached.

RESULTS

Tables I and II show the number of children in the control (speech pathologist, and the two children only), and experimental (two children, the speech pathologist, and the mothers) conditions who gained zero, 1 (a change from relational to symbolic or symbolic to imaginative), compared with 2 (a change from relational

Table IV. *Language levels before and after treatment: group 2 (with mothers–experimental group)*

Case No.	Linguistic level		
	At the onset of speech therapy	After speech therapy	Advanced
1	1	3	2
2	1	4	3
3	2	4	2
4	1	4	3
5	2	4	2
6	1	3	2
7	3	5	2
8	1	4	3
9	2	5	3
10	3	5	2
11	1	3	2
12	3	5	2
13	2	5	3
14	1	4	3
15	3	5	2
16	1	3	2
17	1	4	3
18	2	4	2
19	1	4	3
20	3	5	2
21	1	3	2

Linguistic levels: 1 prelinguistic; 2 single word; 3 first word combination; 4 simple sentences; 5 complex sentences.

to imaginative) levels of play behaviour. The profiles showed that the number of children gaining 1 or 2 levels were comparable between the groups. When these gain scores were compared using Fisher's exact test, the results indicated no significant difference between groups ($p > 0.05$).

Tables III and IV show the number of children in the control and experimental conditions who gained zero, 1, 2, or 3 condition levels of language performance. The profiles showed that of the children in the experimental group, eight made three levels of gain and 11 made two levels of gain. In comparison, 0, and eight of the control group made three and two levels of change, respectively. Most (12) of the control subjects made two or one levels of change, while only two in the experimental group made limited changes.

When these gain scores were compared using Fisher's exact test, the results showed significant differences between the groups ($p < 0.05$).

DISCUSSION

The results of this study show that children with cleft palate and accompanying language delay make quantitative and qualitative gains in both play and language development through participation in play therapy. Quantitatively, 32 (78%) of the patients advanced at least one level of play after the period of treatment. Qualitatively, all the children show an improvement in cognitive and communicative behaviour after the therapy period, even in cases in which the level of the scale had not been modified. Westby (21) described the development of the symbolic play scale. According to the types of behaviour described in this scale, the children studied in this paper show the following: extends the symbolism beyond her/himself to include other actors or receivers of actions; pretends at activities of others; represents events experienced or observed less often; relates several events to one another in sequence; and engages in more associative play with each other. Nonetheless, the active participation of mothers in this intervention does not result in advantages for increasing play behaviour compared with interactions with a therapist. When the gain scores from the control group (speech pathologist, and the two children only) and the experimental group (two children, the speech pathologist, and the mothers) were compared, the results indicated no significant difference between groups. These results indicate that any exposure to models of play, even limited to three hours a week, may be sufficient to stimulate more advanced levels of play. It is also possible that the scale used was not sufficiently sensitive to changes in play, because there were only three categories of rating, indicating fairly large developmental changes. A five-category play scale may have yielded greater differences.

Participation of the mothers resulted in significantly greater gains in language in 90% of the children changing by more than two levels of complexity. 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 used these strategies in other contexts throughout the day. It is likely that the strategies were generalised to the interactions during meals, bath-time, shopping, and other events, so while mothers may not have taken extra time during their day to play, resulting in no advantages in play performance, they may have used the language facilitation strategies as a natural part of all interactions. Bruner (2) and MacDonald (10) 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 model socially on the adults. This move to a social view of the child is further supported by a strong emerging movement, social constructivism, that views a child as developing within socially embedded cultures (for example, parent–child, teacher–child, and clinician–child).

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 emphasised. Norris and Damico (13) 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, bed-time, 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 one. Each individual must "create" knowledge through interactions with the physical and social environment.

Speech pathologists often use a model of service delivery in which they provide individual treatment with no peer or parent participation. However, MacDonald (10) reported that children can learn to interact and communicate in each interpersonal contact. It has also been proposed 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, children made excellent gains in language when mothers were active participants and had an opportunity to learn and to use the facilitative strategies. We therefore suggest that both parents should be encouraged to participate actively during the speech intervention sessions and most importantly, to use the strategies in other contexts. Communication is the universal tool that families have to build relationships with children.

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