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LANGUAGE PROBLEM OF A CHILD WITH DOWN'S SYNDROME: A CASE STUDY

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ABSTRACT

Language difficulties are the significant problem of a child with Down's syndrome. It was hypothesized, that the child with Down's syndrome would have great difficulty in all areas of language development. The aim of this clinical research was a case study to find out language problems in a child with Down's syndrome. A three year ten months old boy with Down's syndrome was assessed on a set of checklists ICP Speech, Language and Motor Development at the Institute of Clinical Psychology, University of Karachi, Pakistan from June 2009 to September 2009 (12 weeks). It was found that he had severe problem in both areas of language development (i.e. receptive and expressive language). It included thirteen months of receptive language development and nine months of expressive language development which indicated a lower score than his age. It is recommended that the problems of speech and language in children with Down's syndrome should be treated through the speech and language therapy services. In addition, speech and language therapist should empower parents and communities to overcome these problems.

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INTRODUCTION

Language is the system that exchanges thoughts into meaningful symbolic way of communication through speech, writing, or gesture. Brain organizes the thoughts in the left hemisphere, and forwards in sequence according to the rules of grammar. The speech sounds that a native speaker uses while speaking and how they are produced with the combination of speech sounds are called (phonology), the study of language, i.e., meaning of words is called (semantics), how words are formed (morphology), grammatical aspects that deal with word order are called (syntax), and the use of language in context that determine who says what to whom in which circumstances is called (pragmatics) (Silverman, 1984).

A child with a language disorder is the one whose use of language on a phonological morphonological, syntactic, semantic, or pragmatic level of oral speech is not as highly developed, or mature as that of most other children at that age. Such children may be delayed in their acquisition of the ability both to understand and to use language (Vinson, 1999).

Buckley and Bird (2001) found that children with Down's syndrome have significant delays in speech and language skills which affect their progress during their primary school years. It has been found that children with Down's syndrome have great difficulties in interacting with peers. Thomas (2007) explained that infants, toddlers, and children with Down's syndrome have anatomical (structural) and physiological (functional) differences in the mouth and throat areas that make it more difficult for them to make precise movements. This affects feeding cup drinking, chewing and

swallowing solid food, and speech. Some anatomical differences that are seen include a small and narrow upper jaw and a high palatal arch. Physiological difference that are seen include low muscles tone, and weak oral facial muscles a combination of anatomical and physiological difficulties result in open mouth posture and tongue protrusion. Many children with Down's syndrome have hypersensitive or hyposensitive reactions to touch around the mouth. Learning to speak requires sensory feedback from the oral area, so difficulty with sensory feedback affects learning to speak. Fowler (1995) stated that children with Down's syndrome have consistently been shown to have unexplainable delays in their acquisition of language, especially in the area of syntax. Mash and Wolfe (2002) stated that Down's syndrome resulting from a chromosomal defect which is a developmental abnormality that is characterized by mental retardation. According to Stratford (1989) Down's syndrome occurs in all parts of the world. It is not restricted to any one race, culture, social class, or historical period. A chromosome is a package of genetic material found in the center (nucleus) of every cell (Adeyokunnu, 1982). Human cells normally contain 23 pairs of chromosomes, half of which are inherited from each parent. Each chromosome pair is designated by a number, except for the sex chromosomes, which are designated by X and Y. Down's syndrome is one of most common cause of mental sub-normality. It accounts to more than 30% of total genetic causes.If a child with Down's syndrome is developmentally at a slower rate than a normal child, he or she will be slow both in learning to comprehend speech and in speaking. Language development will be delayed on all levels, i.e., phonological, morphonological, syntactic, semantic, and pragmatic. For example, a 6-year-old child with an I.Q. of 50 probably has language similar to that of a 3-year-old. This is one of the first conditions that

speech-language pathologist considers when evaluating a child who is slow in developing speech and language. Children with Down's syndrome experience significant impairments in communication across a range of skills including articulation, morphology, syntax, and semantics while both receptive and expressive language are specifically impaired, the expressive language of children with Down's syndrome lags further behind their receptive capabilities affecting interactions with family, peers, and community members (Miller, 1998; Rosin, Swift, Bless and Vetter,1988). Kumin (2002) stated that most children with Down's syndrome are able to understand much more than they can express. As a result, test scores for receptive language are higher than for expressive language. This is known as the receptive-expressive gap. Smith and Gammon (1983) have found that hundreds of children with Down's syndrome, each one had his / her own strengths and weaknesses, and certainly their own personality. In one of the case studies it was reported that the child's mother was worried about her child's speech and language problems which the child couldn't express.

Case History

A three year and ten months old boy with Down's syndrome, belongs to an Urdu speaking family and is the only single child living with his mother in Karachi city. His mother reported that he didn't take any kind of special education service as his mother is a working woman and drops her child in the day care centre. His mother brought him at the Institute of Clinical Psychology, University of Karachi for Speech and Language Therapy. This investigation is a case study that involved only observation

and assessment by using a set of checklists, i.e., the ICP Speech and Language Development Checklist.

Medical History

While taking medical history the child's mother reported that he had eye infection which was treated for a long time. He has received influenza vaccine and treatment for skin rashes. In the past, the family had tried mineral oil and Lactulose to treat chronic constipation, but was now trying catnip and fennel in a glycerin base. Constipation has been a significant issue since solid food was introduced, and had been associated with rectal bleeding. Screening with a Cardiogram, vision and Bera test (hearing) had been administered for screening at age 3 years which suggested normal results. His oral facial examination and use of his voice for verbalizing also revealed normal functioning for production of sound as well as he could chew and suck the food easily.

METHOD

Sample

A three year ten months old boy with Down's syndrome was selected on the basis of demographic information (the format for it was taken from the textbook of assessment namely "Assessment in Speech-Language Pathology" which is a resource manual written by Shipley & McAfee (1992).

Measures

A set of checklists (ICP Speech, Language and Motor Development) is consisted of speech-language and motor skills but the investigator selected only one major area of language, receptive language and expressive language

as the requirement of data. These checklists allow children's skills in each area to be evaluated, activities to be targeted at the right level, and provide a record of progress. The checklists cover development in each skill area which is started from the age of 6 months to 6 years. It contains 286 items which assess the performance in language development (receptive, expressive, syntax, semantic, morphologic and pragmatic) of children with Down's syndrome regarding the child's speech. During the assessment, his mother informed that he began sitting, standing and walking very late while his hearing according to Bera test was normal. Oral Facial Evaluation form was also used to assess the structure and function of mouth for speech and feeding, in addition to evaluating the production of speech sounds. His speech comprised of significant impairments in communication across a range of skills including articulation, morphology, syntax, and semantics and both receptive and expressive language are specifically impaired, the expressive language lags further behind his receptive capabilities affecting interactions with family, peers, and community members.

Procedure

The child was observed for three hours per week, for 12 weeks. Within the 36 hours (total) of observation, his patterns of communication and social interactions in a variety of activities were recorded by taking field notes. Based on observations of typically developing preschoolers, the investigator generated a list of potential controlling stimuli that were not vocal in nature and corresponding communicative responses. Investigator selected three appropriate targets: saying "Give me an apple" when organizing flash cards out of three, "Show your eyes" when standing

in front of the mirror, and "Close the door" when someone closes the door. Different materials (e.g., toys) were used for the assessment of generalization.

RESULT

After the observations it was found that many of the abilities and problems of the child pertained to interpersonal communications and the use of language. The finding of oral motor function seemed to be normal except for the tongue movement as he could not touch right, left, up and down. Further observation and information from the mother revealed that he appeared very social and frank with every one especially with the investigator when she forwarded her hand for hand shake he didn't feel any hesitation in reciprocating the gesture. During the assessment process of receptive language he was unable to identify pictures of common objects, animals, and characters responding to questions (such as, "Where is it"?) he was also unable to follow simple verbal directions as he used gestures for his demands from many people (mother, other home members and the investigator).In addition to these abilities, he appeared to have an understanding of social appropriateness of actions by using different patterns of communication which were observed to be by the use of hand gestures. He often relied on gestures to facilitate understanding speech and as observed, his mother often had to use hand signals in asking questions to help him comprehend what was said. For example, in a situation, such as when the investigator arrived and greeted him by saying "Hello", by using only the verbatim (not given anygestures or body language) it was observed that he found it appropriate to greet her with a big hug but he couldn't understand unless the investigator put her hand out to shake. He had significant problems in comprehending multiple forms of

greetings (e.g., waving, and shaking hands), that could be used in place of an affectionate greeting (e.g., hug). During the assessment of receptive language, problems were also observed in receptive communications as he couldn't perform one step commands, like when the investigator instructed him to "Give the spoon" he could not perform it. He often experienced difficulties in understanding questions, his mother oftenhad to repeat questions. She felt that he could communicate and had communicative intent, but that he didn't understand the rules of communication because they were different at home, at school, and in the communication. He was assessed with individual tutoring sessions by applying the language development checklist that focused primarily on receptive language behaviors the results were at thirteen months of development for receptive language skills whereas it was at nine months of development for expressive language which indicated below than normal development. The speech sounds that he could produce were as follows /m/, /p/, /d/, /a/, /o/, /e/.

It is important to be cautious in generalizing the findings of any single case study, that may be the representative of the population of children with Down's syndrome in general. This is a case study, in which the patterns of communications were observed in a single setting and the subject was not around people with whom he interacted on a daily basis. Because the observation was limited to a single environment where the activities were very limited, therefore the researcher feels that she was unable to observe communications in a variety of settings for comparison. Other variables, such as intelligence and personality may be related to social abilities and should be examined in future studies.

Conclusion

Given that this study is a single participant project with its setting limited to a single subject in a clinical setup (and other associated limitations), most findings are inconclusive in that they may or may not apply to most children with Down's syndrome.

As the speech and communication skills of children with Down's syndrome may differ from that of their "normal" counterparts. These children have difficulties with speech production, problems with grammar, intelligibility and greater use of signs and short "telegraphic" utterances. For communication a partner is required, and the amount of interpersonal communication appeared to be affected by the social abilities of other people around the child.

Recommendations

There are several ways parents and teachers can help children use language appropriately in social situations. Some general suggestions are provided to help children develop skills in receptive and expressive areas of language. Although suggestions are geared primarily for preschool children, they can be modified for use with other children as well.

Treatment

Oral Motor Exercises

By practicing non-speech movements (sucking, blowing, chewing, biting, tongue waggles, etc), the child can be encouraged to watch, imitate, and gradually become a little braver. Vocalization is quickly added, and these vocalizations are turned into meaningful vocabulary as soon as possible,

and at the syllable level if possible, even if the vocabulary is only "hi", "no", "bye" and "boo!" at first.This means helping the child to hear and say sounds, syllables, words, and longer utterances (Riper, 1978).

Language Therapy

1. Teaching Comprehension skills:

In this situation, the student is initially asked to choose from two or more alternatives as a response to a command like "Show me the keys". The response is typically pointing to the correct alternative. Generally, a reward is presented, material or verbal praise on correct response.

2. Teaching how to follow instructions:

Rather than just teaching the person to point a specific object students are taught to follow instructions such as 'Come here', 'Sit down', and 'Stand up' etc. Rewards again are arbitrary and situation is highly teacher controlled. This strategy has some value while dealing with individuals who show a complete lack of social interaction. This can also be used while teaching following two term constructions such as 'noun + verb' in many combinations.

3. Imitation training:

This strategy is generally used effectively in the initial teaching of expressive speech or signing. Modeling is used by the teacher with the student being physically prompted in the first instance. With practice, the child may learn to imitate novel responses and this makes the strategy very valuable.

4. Teaching expressive skills:

The most frequently used procedure for teaching expressive skills is to show the student an object, picture or event and say "Look here, what's this?" (Naming) or "What's the man doing?" (Describing). If the child responds correctly he is rewarded. If incorrect, prompt is provided and rewarded.The above four strategies, suggest that children are made to either imitate, name or describe the objects, events or people. However, it must be remembered that "Teaching the individual to imitate, to name or to describe will not necessarily lead to using the vocabulary and syntax, which the child acquired for other purposes".

Moreover, in the aforementioned strategies the child is a passive participant, who reacts only when asked. It may be recalled that communication is the way in which a person acts according to his / her environment and changes it in a way he/she requires, i.e., the child may ask for what he / she wants, says no, maintains social interaction, questions and so on. Keeping this perspective, it is not very difficult to notice that the routine teaching situations are not allowing the child to be an active participant and hence require modifications (Kumin, Goodman and Councill, 1991).

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