# SPEECH DELAY IN FILIPINO CHILDREN
## A Clinical Profile

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*The researchers examined the etiology that led to speech delay among 111 children who were brought to the Philippine Children's Medical Center because of speech delay. Mental Retardation, Developmental Disorder, and Hearing Impairment were found to be the main cause of speech delay.*

### Introduction

Disorders of speech and language development are the commonest single reason for referral to a Child Development Center, with a peak age of presentation between the 2nd and 3rd birthdays (Hall, 1985). Rapin in 1988 cited that "besides delay in the acquisition of motor milestones, inadequate development of speech is the most common sign of disorder of cerebral function in toddlers and preschool children." When should one be concerned about inadequate language development? Rapin (1988) has suggested the following: "Any infant who does not engage in responsive cooing and babbling, who has not learned to point to what he wants at about 1 year of age, who does not have a vocabulary of at least 10 meaningful words by age 18 months, who has not started to use meaningful phrases by age 24 months, whose speech is unintelligible out of context to his parents at age 2 years and to strangers at 3 years, who does not use language communicatively and talks to himself rather than to express wants or comment on what is happening, and who does not understand what his parents say to him is at risk." Any of these complaints should trigger investigation and usually a referral or intervention. She further stated that the 4 main items to consider in the differential diagnosis were 1) hearing impairment, 2) mental deficiency, 3) dysphasia, and 4) autism. The other disorders to consider but which present a less difficult differential diagnosis are dysarthria, elective mutism and structural abnormalities of the mouth and larynx.

To date, there are no publications on local epidemiologic studies addressing this problem. At the Neurodevelopmental Section of the Philippine Children's Medical Center, there have been 200 children evaluated from June 1987 to September 1989; in 111 of these, or 55%, speech delay was the presenting complaint.

The objective of this retrospective paper is to describe the clinical characteristics of these speech delayed children, with emphasis on their language, behavior, and development.

### Patients And Methods

*Inclusion Criteria:* All children referred to the Neurodevelopmental Section for speech delay from June 1987 to September 1989 were included in the study.

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*Methods:* The clinical records of these children were reviewed. All patients had undergone general medical and neurodevelopmental examinations, as well as audiological, neuropsychological, and language evaluations. When indicated, psychiatric evaluations were also conducted. Electrodiagnostic tests included electro- encephalography and Brainstem Auditory Evoked Responses.

Neuropsychological tests done (in any combination) included: the *Leiter International Performance Scale*—a pure performance test of intelligence; the *Denver Developmental Screening Test*—a screening instrument assessing gross motor, fine motor, language, and personal-social development; the *Vineland Social Maturity Scale*—a measure of adaptive behavior, including self-help skills; pertinent subtests of the *Merill-Palmer Scale of Mental Tests; Stanford-Binet Intelligence Scale, Form LM;* and the *McCarthy Scales.* In addition, a structured observation of each child's behavior was conducted.

Language development was more extensively assessed by using Margaret Byrne's *Appraisal of Child Language Abilities.*

Statistical analyses were done using chi square and Fischer's Exact Tests.

## Results and Discussion

There were 111 children evaluated at the NDS for speech delay. Their ages ranged from 2 to 13 years, with a mean age of 4.6 years. The majority (74%) were males, with a male to female ratio of 2.8:1.0.

In the course of the review, it was gleaned that these children fell into one of the following etiologic categories:

Mental Retardation = 67%

Developmental Expressive Language Disorder = 19%

Pervasive Developmental Disorder = 16%

Hearing Impairment = 2%

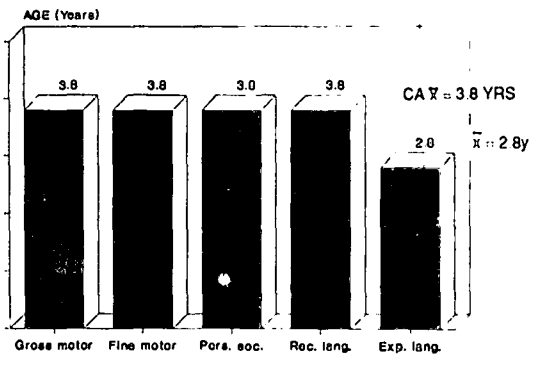
The group with hearing impairment was excluded from the analysis since this was composed of only 2 children.

### *I. Developmental Expressive Language Delay*

1. Twenty-one out of the 111 children (19%) met the diagnostic criteria set forth in the Diagnostic and Statistical Manual III—Revised (DSM III-R). The disorder is characterized by marked impairment in expressive language development which is not due to Mental Retardation, Pervasive Developmental Disorder, hearing impairment, or a neurologic disorder. This would fall under the subgroup of Expressive Disorders with normal comprehension in Allen and Rapin's Classification of Dysphasic Syndromes. This group will henceforth be referred to as DELD. Their ages ranged from from 2 to 6.5 years, with a mean age of 3.8 years. Majority were males, with a male to female ratio of 9.5:1.0. Family history was positive for speech delay in 43% of cases. Neurologic examination was remarkable for expressive language delay, and the mean developmental level of expressive language in these children was 2.3 years.

2. Developmental Profile: (Figure 1).
   The developmental profile of DELD cases showed gross motor, fine motor, receptive language, and personal/social abilities to be at par with their chronological ages.

Fig. 1. DELD: Developmental Profile



Cognitive functioning, as assessed by the *Leiter*, ranged from the Average to Very Superior ranges, with a mean IQ of 107 (Average).

3. Language Characteristics: (Table 1)

These children began talking in single words after the age of 2 years. Likewise, there was slow progress made through all the stages of expressive language developement, so that a delay of approximately 1.5 years was evidenced when compared to their chronological ages. At a mean chronological age of 3.8 years, normal children should have a vocabulary of about 250 words, use plurals, and express themselves in 3–4 word sentences. However, at their estimated mean expressive language level of 2.5 years, these children only had about 50 words in their vocabulary and spoke in 2–3 word phrases/sentences. Articulation deficits and the use of jargon were some of the other characteristics observed with this group.

Table 1

*DELD Language Characteristics (N=21)*

| | |
|---|---|
| Late onset of speech | 100% |
| Articulation problems | 44% |
| Unintelligible words | 33% |
| Limited vocabulary | 33% |
| Difficulty naming objects | 18% |
| Others | 5% |

Receptive language, on the other hand, was generally at par with chronological age. At the mean chronological age of 3.8 years, these children could generally obey 2–5 prepositional commands.

4. Behavioral Characteristics:

These children were not socially isolated, and exhibited a keen interest in learning language.

*E. Mental Retardation*

1. Majority (63%; N=70) of the 111 children with speech delay were diagnosed to be Mentally Retarded following the diagnostic criteria set forth in DSM III-R. (Table 2)

Table 2. Mental Retardation

*DSM III-R Diagnostic Criteria:*

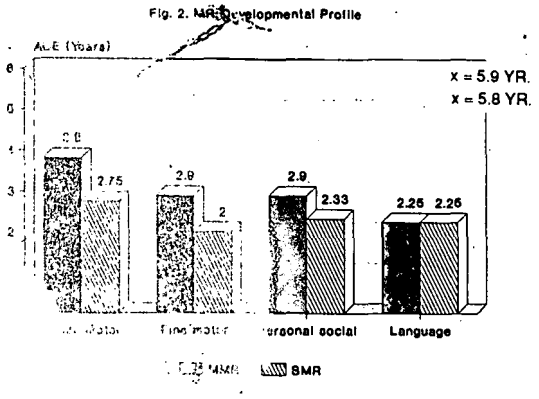
Subaverage General Intellectual Functioning (IQ<70)
Impaired Adaptive functioning
Onset before 18 years

Their ages ranged from 2.5–213 years, with a mean chronological age of 5.8 years. Majority were males, with a male to female ratio of 2.18;1.0. Gestational history (e.g., maternal intake of abortifacient drugs, vaginal bleeding, febrile illness, etc.) was remarkable in 67%. EEG was abnormal in 34% of cases (24/70), 14% of which had clinical seizures. Audiologic evaluation showed the presence of mild sensorineural hearing loss in 1 patient.

These children were further classified as either Mildly to Moderately Retarded (IQ's above 40), or Severely Retarded (IQ's below 40). There were 30 children in the 1st group, and 40 children in the 2nd group.

Twelve percent (12%) of the children had gross neurological abnormalities, and most (77%) of these were found in the Severely Retarded group. 19% (13/70) had physical abnormalities, the most common being microcephaly. Again, majority (84%) of these physical abnormalities were found in the Severely Retarded group.

2. Developmental Profile (Figure 2)



There was a general delay in the various developmental abilities assessed, with greater delays seen in the Severely Retarded group. Their language levels were generally at par with those in the other areas of development evaluated.

3. Language Characteristics: (Table 3)

It has been reported at language development in the Mentally Retarded population is delayed rather than deviant. The rate of language aquisition is typically slowed in proportion to the severity of retardation. Mentally Retarded children are not distinctly different from normal children in their comprehension and use of language, but are slower in developing language skills, and will likely attain a lower level of competence in the use and understanding of language when contrasted with normal children.

Table 3. MR: Language Characteristics
(N = 70)

- Articulation problems
- Limited vocabulary
- Telegraphic sentences
- Stuttering
- Jargon

In the area of expressive language, most of the Mentally Retarded children in this study displayed articulation deficits. In addition, at the mean chronological age of 5.8 years, normal children should be able to define objects by function and use complex syntax. However, the Mildly to Moderately Retarded group, with an estimated expressive language level of 2.5 years, generally could only express themselves in 3 word phrases or sentences. The severely Retarded children, with an estimated expressive language level of 1 year, generally could only say "mama" and "papa" specifically.

In the area of receptive language, 5 8 year old children should be able to follow 3-step commands in correct sequence (e.g., "Wash your hands, then get the milk from the refrigerator and give some to the cat."). However, the Mildly to Moderately Retarded group, with an estimated receptive language level of 2.9 years, generally could only follow single-step instructions. The Severely Retarded group, with an estimated receptive language level of 1.6 years, generally could only follow simple instructions when these were accompanied by gestures.

d. Behavioral Characteristics: (Table 4)

These children were generally able to maintain warm interpersonal relationships with family members and people they were familiar with. Some were a little slow in responding to strangers and many displayed a failure to appreciate the significance of social experiences. A good number showed an eagerness to learn and could respond to purposeful teaching to a certain extent. Those whose level of retardation was more severe manifested characteristics of social isolation.

Table 4. MR: Behavioral Characteristics (N = 70)

| | | |
|---|---|---|
| (+) | Stranger anxiety | 100% |
| (+) | Interest in learning language | 100% |
| (+) | Turning red when called | 98% |
| (+) | Ability to separate | 96% |
| (+) | Eye contact | 85% |
| (+) | Stereotypic behavior | 2% |

*III. Pervasive Developmental Disorder (PDD):*

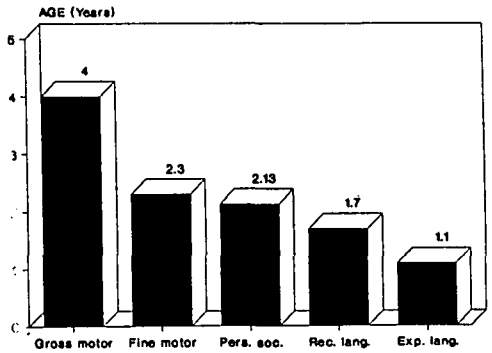
1. There were 18 (16%) children who met the diagnostic criteria for Pervasive Developmental Disorder set forth in the DSM III-R. The core symptoms of this disorder have to do with affect, socialization, and communication.

The ages of the children in this group ranged from 2–6 years, with a mean chronological age of 4.0 years. Majority were males, with a male to female ratio of 2.6:1.0. In 66% of the cases, family history was remarkable for related disorders such as Mental Retardation, Affective Disorders, and Autistic Disorder. Gestational history was likewise remarkable in 78% of cases. Only 1 patient had a neurologic abnormality.

2. Developmental Profile (Figure 3)

Gross motor development was generally at par with the chronological ages of these children. There were, however, significant delays in fine motor, personal-social, and language development, with greatest delays seen in the last.

Fig. 3. PDD: Developmental Profile




3. Language Characteristics

Of the 18 children, 5 (28%) never developed expressive language. At best, they were heard to utter nonsense syllables and to frequently grunt or scream. These children also did not communicate via gestures.

Thirteen of the 18 children (72%) developed some expressive language. In the majority, the first words were "mama" and "papa." Eight of these 13 children stopped talking within 6 months of the onset of expressive language. Half of these talked again within 1 year, but the other half were never heard to speak again. 5 of the 13 were never reported to have stopped talking but their language, up to the time of evaluation, was limited to single words or occasional 2-word phrases.

These PDD children showed characteristics in communication that were deviant, apart from being delayed. At a mean chronological age of 4 years, normal children should have over 250 words in their vocabulary, speak in 3–4 word sentences, and use complex syntax when recounting stories. At their estimated expressive language level of 1.1 year, these children would, at best, utter only 2 other words besides "mama" and "papa." In addition, those who could utter words or phrases were generally unable to use them functionally or socially. Echolalia was present in about 1/3 of the cases. Even their non-verbal communication skills were generally impaired. Only 22% (4/18) used gestures to indicate their needs.

These children also displayed delays in comprehension of the spoken word. At their mean chronological age of 4 years, they should have been able to respond to commands involving 2 objects/2 actions, and obey 5 prepositional commands. However, at their estimated receptive language level of 1.7 years, they generally could only respond to simple instructions accompanied by gestures.

4. Behavioral Characteristics (Table 5)

All 18 patients exhibited behavioral characteristcs, in varying degrees, which reflected an impairment in reciprocal social interaction and a markedly restricted repertoire of activities and interests.

Table 5. PDD: Behavioral Characteristics

| | |
|---|---|
| Fleeting/no eye contact | 100% |
| No stranger anxiety | 94% |
| No interest in learning language | 94% |
| Not turning when called | 94% |
| (+) Stereotypic behavior | 78% |
| (+) Self-injurious behavior | 22% |

*Mental Retardation Vs. Pervasive Developmental Disorder*

Mental Retardation and Pervasive Developmental Disorder often co-exist and at times it may be difficult to determine if the case is predominantly one or the other. In this study, we tried to determine if there were behavioral characteristics and other features we could use as indices to distinguish between the two disorders. This we did by subjecting our data to statistical analysis.

Stranger anxiety, turning when called, interest in learning language, and sustained eye-contact were the behaviors found more frequently in the

Mentally Retarded group, especially among those functioning in the Mildly to Moderately Retarded range. The difference was statistically significant at the .05 level.

Other features that were found statistically significant at the .001 level were the following:

1. Family history which was positive for related disorders was found more frequently in the PDD group.
2. Stereotypic and self-stimulatory behaviors were present to a greater degree in the PDD group.
3. Parents of PDD children reported first feeling concerned when their children were of a younger age than those of Mentally Retarded ones.

## Summary

There were 111 children presenting with speech delay seen at the Neurodevelopmental Section of the Philippine Children's Medical Center from June 1987 to September 1989. Their ages ranged from 2–13 years, with a mean age of 4.6 years. Majority were males, with a male to female ratio of 2.8:1.

The most common etiology of speech delay in our study population was Mental Retardation, which was found in 63% of cases. The other etiologies found were Developmental Expressive Language Disorder, Pervasive Developmental Disorder, and Hearing Impairment.

Certain language and behavioral characteristics can help distinguish among the various etiologies. Expressive language delay in an otherwise normal child points to a Developmental Expressive Language Disorder. Speech delay in the presence of behavioral characteristics which indicate some social isolation makes one lean more towards Pervasive Developmental Disorder. Speech delay in a child who is generally developmentally delayed but who is capable of establishing meaningful relationships would make one consider Mild to Moderate Mental Retardation as an etiology.

## References

Accardo, P., & Capute, A. (1979). Language assessment. In P. Accardo, & A. Capute. *The Pediatrician and the Developmentally Delayed Child*. Baltimore: University Pack Press.

Hall, D.M.B. & Jolly, H. (1984). Disorders of communication. In D. Hall, & H. Jolly. *The Child with a Handicap*. Oxford: Blachwill Scientific Publications.

Rapin, Isabelle. (1988). Disorders of higher cerebral function in preschool children. *AJDC*, 142: 1178–1182.

Spitzus, R.L. & Williams, J.B. (Eds.). (1987). *Diagnostic and Statistical Manual of Mental Disorders* (3rd Edition—Revised). Washington, DC: American Psychiatric Association.

Vetters, D.K. (1980). Speech and language disorders. In S. Gabel & M. Erickson. *Child Development and Developmental Disabilities*. Boston: Little, Brown and Company.