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Follow-up of Children with Development Language Delay: A Preliminary Report

Sung-Hui Tseng Bai-Jia Yang and Chi-Ren Pan

Developmental language delay is one of the most common developmental problem found in preschool children. There is increasing evidence showing that early language delay is associated with later learning and behavior problems, and the language problem may also persist into later childhood. We followed 33 cases who had been diagnosed as language delay, at least 5 years ago, by questionnaire. If the children had no neurological symptom and sign except language delay, the prognosis for achieving ADL independence and average performance in school works is good. All of the children who had neurological deficit have residual language problems, and more than half of the children without neurological deficit exhibit residual language problems.

Key words: Language delay, language development

INTRODUCTION

Individual variations exist among normal children in the rate of acquiring the many skills necessary for life. This is also true for language acquisition. Many people think delayed talking in children is just a normal variation. But there are also many persons who favor the point of view of Blager [1] that talking is normal, and not talking is not. In the Diagnostic and Statistical Manual of Mental Disorders, Revised ed3 (DSM-III-R)[2], a marked impairment of expressive language that is not associated with mental retardation or a neurological condition is categorized as a disorder. Indeed, anyone with language handicap experiences a great deal of suffering. But will early language delay shadows upon the development of a growing child? Currently available reports [1,3,4,5,6] suggest that early language

problem tends to persist for a number of years, and is associated with behavior and learning problems.

The prevalence of early language delay reviewed by Silva [5] rates from 3 to 15%. Most of the studies focused on three-year-old children.

We have met many children with early language delay in our clinic, but we have never explored the outcome of these children. In fact, there are no such reports in this country. Our purpose is to conduct a longitudinal survey about the later development of children with developmental language delay. In this preliminary report, we try to find out how are these children are doing as they enter school, and how their language status is now.

MATERIALS AND METHODS

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From 1980 to 1986, we had about 140 young children coming to our clinic due to language delay, but only 120 cases had available addresses. We sent questionnaires to the parents of these 120 cases last summer. 35 questionnaires were returned, but two were excluded because they did not answer the questions clearly enough and we could not make further contact with them. The available follow-up rate is 23.6% (33/140).

These children all had received careful physical and neurological examinations when they came to our OPD and inquiries were made on their developmental history. The way the children interacted with their parents and the environment was also our focus during the examinations. We searched thoroughly for any factor that could lead to the delay of language development. Children with suspected emotional, behavioral, or hearing problems were referred to specialists for further evaluation and intervention. All of these children had also been referred to speech therapists for further language evaluation. However, not every case had a formal language test, hence we were unable to provide quantitative data about these children's language abilities. But according to our OPD records, most of the children whose language problems were not associated with any neurological deficit or mental retardation showed better comprehensive language relative to expressive language, and their expressive language was altogether all very limited. The clinical criteria we used for defining language delay was no-word-combination at two-year-old. Rescorla [7] designed a vocabulary list for use as a screening tool for the identification of language delay in two-year-old children. Excellent sensitivity and specificity were found with a criterion of fewer than 50 words or no-word-combinations at two years old.

The content of the questionnaire can be divided into five parts. Part one asks about

the child's independence on the following tasks: feeding, dressing, bathing, doing homework, staying home when requested by the parents, going to school, making up one's room, and buying things. If the child can do the task by himself or herself, one point is given to a maximum of 8 points. In part two, the parents are asked to evaluate the child's present language status whether it is normal or still abnormal, and they are to indicate the present language problem. In part three, the parents are asked to indicate what kind of class their children are attending. We want to know whether the child is attending special educational class or regular class. In part four, we ask about the academic achievement of the children in the regular class, and we separate the results into average, above average, and below average. In part five, we ask the parents to compare the child's ability in sport, drawing, music, and reading with the siblings or age-matched children as better, equal or worse.

The 33 cases are separated into two groups for comparison. Group A consists of children whose language delay is not associated with any neurological condition or mental retardation. Group B then consists of children whose language delay is associated with neurological condition (eg. cerebral palsy, mental retardation, or behavior/emotional problems, such as autism). We have excluded those with hearing handicap from this study because the effect of hearing impairment upon language/speech development is well known.

RESULTS

There are 17 children in group A with 12 boys and 5 girls, and 16 children in group B with 12 boys and 4 girls (see table 1). The sex ratio in group A and B are 2.4:1 and 3:1, respectively. Males seem to have a preponderance in language problems. Other studies

also reported about twice as many boys as girls suffering from language delay [3].

Figure 1 shows the distribution of age of these cases at initial visit and at follow-up period. Most of the children who came to our OPD were between two to four years old and were eight to twelve year-old elementary students during the time of investigation.

Figure 2 shows the distribution of total ADL score. Most children in group A got 6-8 points (76%) while only 25% of group B got 6-8 points. Most of the children in group B(75%) scored 1-4 points from this list of ADL activities. When we separate the ADL score into greater or equal to 6 and less than 6, and use chi-square for statistical analysis, group A has significantly more children getting 6 points than group B ($p<0.01$) (see table 2). Getting higher scores from this list of ADL activities clearly indicates the greater degree of independence in ADL. The result implicates

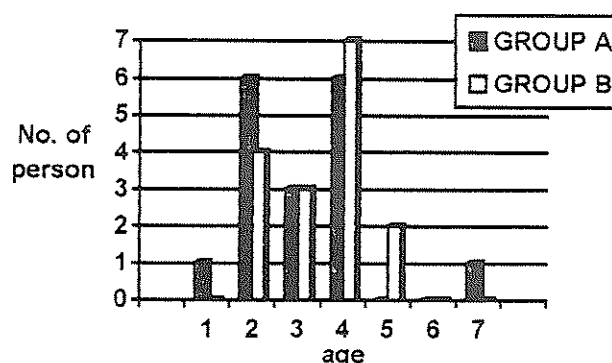


Fig 1a. The distribution of age at initial examination

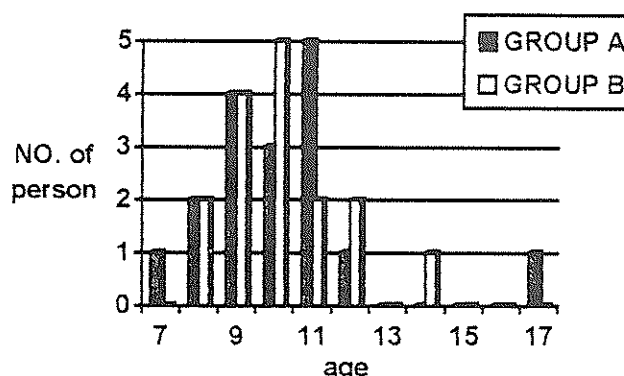


Fig 1b. The distribution of age at follow-up

Table 1. Sexual distribution of children with developmental language delay in both groups

group	boys	girls	ratio (M:F)	total
A	12	5	2.4:1	17
B	12	4	3:1	16
total	24	9		33

group A: speech delay without neurological or mental disorder

group B: speech delay with neurological or mental disorder

Table 2. The comparison of ADL scores in both groups
(The maximum score for ADL is 8)

group	ADL score ≥ 6	ADL score < 6	total
A	13(76.47%)	4(23.53%)	17(100%)
B	4(25%)	12(75%)	16(100%)

$\chi^2=8.742$, $P<0.01$

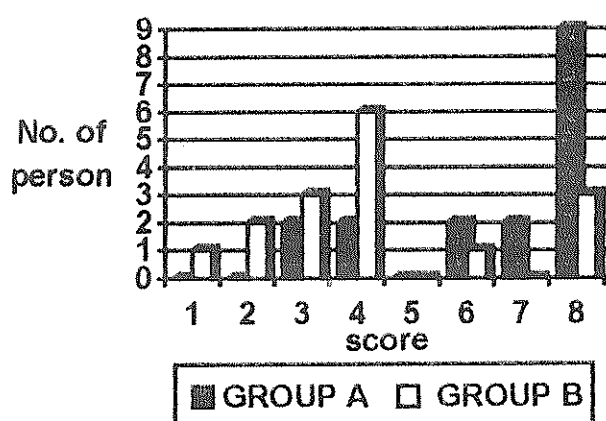


Fig 2. Distribution of ADL score in both groups

Table 3. The present language status in both groups

group	abnormal (%)	normal (%)
A	10(58.82)	7(41.18)
B	16(100)	0(0)

that children with early language delay but no associated neurological deficit or mental retardation will be more ADL-independent than children whose early language delay is associated with neurological deficit or mental retardation.

Table 3 shows the number and percentage of cases who have normal developed language and those who still have abnormal language as considered by the parents. Present language problem is significantly more in group B than in group A ($p < 0.01$). However, there is more than half of the children in group A still having residual language problems according to the statements of parents. The problems they have mentioned include stuttering, phonological problem and poor oral expressive ability. Fischel [1] reported that 39% of a sample of 26 children diagnosed as having specific expressive language delay at 24-38 months old showed no improvement when retested 5 months later; 26% showed mild improvement;

and about one third were in the normal range at post test. Scarborough [6] presented 4 cases with early language delay. These cases had been followed from 2 1/2 year old to 8 year-old. The language delayed children each initially showed severe and broad impairment in syntactic, phonological and lexical production. Their deficits became milder and more selective, and normal or near normal language was exhibited by age 60 months. And 3 more years later, three of the four children showed severe reading disability. In the introduction of this paper, the author's review of previous literature showed that 28% to 75% of children whose preschool language was impaired exhibited residual language/speech problem. In 1983, Silva [5] investigated the stability of language delay in 853 children in the Dunedin group. The children had language assessment at 3 year-old and 5 year-old, based on Reynell Scales, and at age seven based on Illinois Test of Psycholinguistic Abilities. 3% of the sample were found to score low at any two of the assessment and 2% of the sample gained a low score at all three assessment. General language delay (i.e. delay in both comprehension and expression) was more stable than specific language delay. Our result is compatible with Scarborough's review, but standardized language assessment is required to confirm the finding.

The academic performance of the 33 children is shown in Table 4. Most of the children in group A (71%) get average or above average grades in regular class, while most of the children in group B (81%) either get below average grades in regular class or study in special class. The result clearly indicates group A children are superior to group B children in academic performance.

Next, we analyze the parents' evaluation of the 33 cases' abilities in sport, music, drawing and reading. We only count the number of fields that the child is said to be less tal-

Table 4. The number of children studying in special class and regular class in both groups

group	special class (%)	regular class		
		below average	average or above	total(%)
A	3(17.65)	2	12	14(82.35)
B	8(50.0)	5	3	8(50.0)

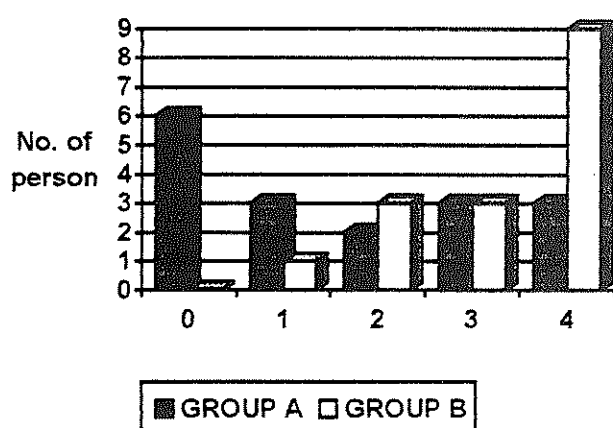


Fig 3. The distribution of the number of children showing less talents in none, one, two, three, or all of the fields (i.e. music, drawing, sport, reading).

Note: The horizontal numbers represent the number of fields that the children are less talented.

ented in than the siblings or age-matched children, and the result is presented in figure 3. In group A, there are 6 children who have no less talented ability, 3 with one less talented ability, 2 with two less talented abilities, 3 children with three less talented abilities and 9 children who are less talented in all four abilities. The distribution shows that group A children not only do better in school work, they also seem to have better abilities in mu-

sic, sport, drawing and reading than group B children.

A summary of the 33 children in ADL score, school performance, present language status, and performance in other fields of talents is shown in table 5. Our analysis showed significant correlation between ADL scores and school performance ($P < 0.01$) which implies that for most of the children who could get 6 or more points from our ADL list, regardless whether the child belongs to group A or B, he also could obtain average or above average grade in school work. No significant relationship is found between present language status and school performance in group A but is found when the 33 cases are analyzed together.

DISCUSSION

In this preliminary study, we compare the later development of two groups of children with early language delay: but one group's symptom was associated with neurological deficits (e.g. CP) or mental retardation (i.e. group B), and the other group whose early language delay couldn't be attributed to neurological deficit or intellectual handicap (i.e. group A). But there are more factors that have been found to contribute to the symptom. The explored factors include lower socio-

Table 5.

ADL score	academic performance	present language status	preformance in other fields	Group A (n=17)	Group B (n=16)
≥ 6	average or above	normal	●	5	0
			▲	2	0
	below average or in special class	still abnormal	●	1	0
			▲	3	2
			■	1	1
< 6	below average or in special class	still abnormal	▲	0	1
			■	1	0
	below average or in special class	still abnormal	▲	0	1
			■	4	11

●: all equally or more talented
 ▲: ≤ 2 fields less talented
 ■: > 2 fields less talented

economics status, low birth weight, lower maternal general mental ability, educational and training in child development, and deprived childhood experience and learning. But these variables account for not more than 11% of the variance of the language measures in Silva's study [8]. This information tells of the complexity of the intrinsic nature of language development. These factors are not included in this study, but other factors may have influence on the later development of children with early language delay. Differenced in the severity or type of early language impairment may have different outcome. More generalized delay or more severe delay tends to have less favorable outcome. In this study, we also have not put this point into consideration. In our future reports, we would study the devel-

opment of different subtypes of language deficits. The finding should be more specific and informative. The information about the 33 children's present language status, as well as their abilities in sport, reading, music and drawing are from the parents' statements only. No formal testings were used for further verification. This may leave the results with a lot of bias. However, our objective in this preliminary report is to collect as many information as possible from these children with early language delay in order to understand their later development. We will use formal tests for language, reading etc. in our further study.

In this study, our criteria for defining language delay is no word combination on two-year-old. This criteria is rather rough, but our examining procedure is definitely very careful.

We don't favor the use of formal language testing for the assessment of toddler's language ability because from our clinical experience, it is not practical. We hope to develop a more simple check list resembling Rescola's [7] suitable for Chinese children. In view of the consequence of early language delay upon later development, a reliable and time-saving procedure would help a lot in the screening of toddlers with language delay so that the best opportunity for intervention would not be missed.

What is the best age at which language delay should be identified? Most of the studies about language delay is conducted on 3-year-old children. Marcotte's study [9] on speech lateralization in deaf population suggested the presence of a developmental critical period for cerebral lateralization during which exposure to adequate environmental stimulation may be needed to activate left hemispheric dominance for speech. The critical period the author suggested is before 3 year-old. The dilemma is that early identification may cause too much false positive cases, while waiting may just delay the child from the best opportunity to give intervention. If there is an assessment which procedure can limit false positive results, we advocate early identification. This may minimize the sequela of early language delay on later development.

The ADL list and scoring method are designed by the authors based on our daily observations and experiences. Although it has not been validated before we used it in our questionnaire, but we did find out from the returned questionnaires that for those children, whether in group A or group B, whose academic performance were average or above average, and whose performances in other abilities were mostly better than or equal to age-matched children, their ADL scores were all around 6 to 8 points. We speculate that if this list is used in an age-matched (to our

cases) general population, the ADL score will fall into the range of 6 to 8 points.

In this study, we didn't make comparison with normal children (i.e. children without early language delay). The normal children will probably score better in our questionnaire than our group A children.

From this preliminary report, 70.5% of the children with early language delay, not associated to neurologic deficits or intelligence handicaps, have developed normally in terms of ADL independence and school work. However, the probability for achieving age-matched ADL independence and average performance in school work is rather slim for children whose language delay is associated with neurologic problem or mental retardation.

However, there are more than half of the children with specific language delay still having residual language problems, after these years of follow-up. But the follow up rate in this study is only 23.6% (33/140). Further investigation should be carried on in the future for the outcome in children with speech delay.

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語言發展遲緩兒童之長期追蹤調查—初步報告

曾頌惠 楊百嘉 潘繼仁

本研究是以問卷調查 120 例於民國 68 年至 75 年間，因語言發展遲緩前來本院復健科接受診察的兒童。實際上，共有 140 例這樣的兒童，但其中只有 120 例有完整的地址資料。目的是為了探討這些兒童就學後的語言發展狀況，日常生活自我照顧能力及學校中學業及各項能力（包括運動、畫圖、音樂、閱讀）之表現。

有效的回收問卷共 33 份。我們依據原始的診斷將 33 位兒童分為 A、B 兩組來探討比較。A 組為只有語言發展遲緩而無明顯神經症狀或智能障礙者，共 17 人。B 組的兒童除有語言發展遲緩另併有神經症狀或智能障礙，共 16 人。A、B 兩組的就診年齡多為 2～4 歲，調查時的年齡則多是 8

～12 歲的國小學童。

語言方面的發展，A 組有 7 人（41%）語言發展已正常，10 人（59%）仍有語言問題，如咬音不清、口吃、表達不良。B 組 16 人皆仍有語言問題。在日常生活自我照顧的能力方面，A 組中有 13 人具有符合其年齡的自我照顧的能力；B 組中則只有 4 人有此能力。而兩組兒童在學業成績，以及在音樂、畫圖、體育及閱讀方面的表現，相較之下，A 組的表現皆優於 B 組。

由本研究得知，大部分語言發展遲緩但無合併神經症狀或智能障礙的兒童，在學習能力，自我照顧的能力上皆有正常的發展。但是這樣的兒童超過一半以上仍有語言方面的問題。