

RECEPTIVE VOCABULARY TESTING IN CEREBRAL PALSIED POPULATION

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**A DISSERTATION SUBMITTED IN PART FULFILMENT FOR THE DEGREE
OF MASTER OF SCIENCE (SPEECH & HEARING) TO THE UNIVERSITY
OF MYSORE.**

ALL INDIA INSTITUTE OF SPEECH AND HEARING: MYSORE - 570 006

MY TEACHER

- My source of knowledge
- My guiding light
- An epithet of endurance

6

All those lovable children who have an
able mind trapped in a disabled body

CERTIFICATE

This is to certify that the Dissertation entitled: "Receptive vocabulary testing in cerebral palsied population" is the bonafide work on part fulfilment for the Degree of Master of Science (Speech and Hearing) of the student with Reg. NO.M8907.

Mysore

1991



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DECLARATION

I hereby declare that this Dissertation entitled: "Receptive vocabulary testing in cerebral palsied population" is the result of my own study under the guidance of Mrs. Manjula, R, Lecturer, All India Institute of Speech and Hearing, Mysore, and has not been submitted earlier at any University for any other Diploma or Degree.

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supervision and guidance.

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Mrs. Manjula R
GUIDE

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ACKNOWLEDGEMENT

I extend my profound gratitude to-Mrs.Manjula Ma'am for having had had patience in -"abundance" to sit through the ordeal of correcting my written work legible/illegible/otherwise (h)umptean number of times. Kudos Ma'am, you score 11 out of 10 on my Patience Rating scale. If not for your constant reminders and the 'behind-the-back' sessions.(Thank God minus the stick), I would have still been thinking of a topic for my dissertation.

- Dr.(Miss) S.Nikam, Director, AIISH, Mysore for granting me permission to carry out my study.
- Dr.P.Karanth, Prof. and HOD. Speech Pathology Dept, AIISH, Mysore for allowing me to carry out this study.
- My cutie-pies my subjects - for being guinea pigs, of my study. Thanx for letting my dissertation see the light of the day.
- Mrs.Krishnaswamy, Principal, Spastic Society of India, Bangalore for allowing me to conduct my study.
- Dr.Prabha Gante and Ms.Jayshree, Speech Therapists at Spastic Society of India, Bangalore - if not for your invaluable cooperation in providing the case records and in selection of subjects my data-collection in Bangalore would have been a pipe dream.
- Sreedevi N, for giving me permission to use her test.
- My loving parents for their MASSIVE financial and moral support throughout.
- The two cute lil' possessions I will cherish for ever are my dearest Sow and Bon. Thanx a million for being there when I needed you gals the most. My thanx to dear Ash for alleviation the tension which I had throughout by reminding me that they were enough and more days to complete the dissertation.
- Dear Appu, Sucha, Priya, Raji, Mythra you girls at times really put me in "In Vivo and in Vitro situations" and used "Flooding" technique to the maximum to bring about progressive mental relaxation.
- Dearest Akka for giving the FINAL TOUCH and SHAPES to my work. I thanQ for allowing me to "pundafy" in between the Q and getting my typing done before time.

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INTRODUCTION

There is nothing more elemental in all existences than communication - it is the very essence of life. All creatures great and small, even the tiny amoeba are connected in an endless web and flow of messages. But it is in humans that we see its ultimate expression in the marvelous vehicles of language, (Van Hattum, 1980).

According to Kent, 1981, language constitutes both a set of symbols (codes) and set of procedures (rules). These combine to form words. These symbols must be arranged in particular ways so that the intent of the person communicating would be fulfilled. Although there are various ways of using language, the sending and receiving of spoken messages are the most frequent and important way of sharing our minds and relating to each other.

Each one of us has an individual way of speaking. Even children too enjoy this. By this time a child is around four years old, he tries to speak with his elders and other grown-ups, by making use of the adult system. Here though he tries to pick out words from the adult system, he uses it in his own way. The child also has liking towards certain words and enjoys changing the form of a phrase or making sentences and even asking questions.

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INTRODUCTION

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Each one of us has an individual way of speaking. Even children too enjoy this. By the time a child is around four years old, he tries to speak with his elders and other grown-ups, by making use of the adult system. Here though he tries to pick out words from the adult system, he uses it in his own way. The child also has liking towards certain words and enjoys changing the form of a phrase or making sentences and even asking questions.

When we say, vocabulary, it is a part of the language system. This includes words which assists the child to move on from the much easier concrete thoughts to the difficult abstract thought. These words are basic to the learning process.

In general, educators (vix. Teachers) state that vocabulary is necessary in achieving academic and social skills. According to them, the vocabulary size of the child should be equivalent to the scores on the mental tests. This is one of the aspects of language development.

Johnson (1967), Kliare (1973) noted that the child's performance in academic subjects depended a lot on how the child associates and forms words.

When we consider a child, regardless of whether he is in school or not, he is often exposed to an array of words. These words can be gathered through different modes - listening, speaking, reading matter, writing etc. This way, the vocabulary content increases. Dale (1980) points out that words are the names we give to experiences.

He further explained that vocabulary acts as a key for concept development. Learning of meaningful word indicates that there is permanent learning, taking place in the child's system.

Several aspects concerning child language have been taken up for research over the past fifteen years. These areas include-syntax, semantics, pragmatics, to name a few. Each, in its own way, has been the researchers new themes which can be considered for research work.

The more we get to know about the developmental pattern or acquisition of semantic skills, we will be in a better position to understand the pattern in developmental disordered eases.

But unfortunately, the field work in the area of semantics is very limited. The simplest way, one can follow, to study vocabulary is by counting the number of words present in a child's repertoire. This can give us an idea regarding the number of words that is usually seen at a particular age.

When we say vocabulary, we should specify as to whether it is active vocabulary we are referring to (ie words the child actively use) or the passive one(i.e. words which the child knows but does not himself use).

There are quite a few questions which arise in studying vocabulary. To begin with, how can one be sure that the child does indeed know the vocabulary being assessed? Does the child include the word in his vocabulary or exclude it?

There are arguments both ways. These are a few of the reasons that vocabulary development as a field has not been looked into by researchers. It is very difficult to make firm decisions. Our main problem as a clinician; is trying to select procedures that will give the most reliable and useful information about a given child's stock of words. Despite these problems, speech pathologists and educators have begun to show interest in the area of language development, especially the size of vocabulary. There is a rising awareness that vocabulary testing is a crucial measure in language assessment.

Having discussed about vocabulary in general, let us now look at the language acquisition pattern of a cerebral palsied child. Authors like Byrne (1959), Hood and Perlstein (1956) have conducted studies, where the language development in cerebral palsied population was evaluated and comparisons were made between this group and the normal children. There was a definite delay pattern observed in the clinical population.

Love (1964) administered a battery of receptive and expressive oral language tests. Findings showed that the usual deviant behaviour with respect to language skills was not present. According to him, speech and language problems

in the cerebral palsied child depend on factors viz. intelligence and motor skills rather than language processing.

The language delay in the cerebral palsied population may be due to the deprivation of early sensory stimulation, which limits the individuals ability to gain information from the environment.

This ability is hampered in all modes of perception. It is known that for normal perceptual development all the sensory systems should be intact. But in case of a cerebral palsied individual, usually there are associated sensory problems. Hence it is often difficult to estimate the effect of these problems on the linguistic development.

It is quite disheartening that due to various ~~existing~~ associated problems of the cerebral palsied individuals, researchers often find it an upheaval task to assess the child on any test battery. Due to this, there is very limited literature on this population, in any aspect of language skills.

In the present study, therefore, an attempt has been made to try and assess the receptive vocabulary in the cerebral palsied population. This may in turn, assist the clinician in planning therapy program by getting an idea about the receptive vocabulary level. This can also used as a screening measures.

For this study, Kannada speaking cerebral palsied children belong to the age group of 3-15 years were chosen. The Kannada picture vocabulary test (Sreedevi, 1988) was administered.

The raw data thus obtained was subjected to suitable statistical analysis to gain some idea about the receptive vocabulary levels of the cerebral palsied child.

REVIEW OF LITERATURE

Amongst the stages of child development the pattern of language development, has since the beginning been an area of increasing interest. This may be because of the complex structure of language and also because of the fact that the trend in language has often intrigued quite a few researchers.

Attempts have been made to try and answer. Most but not all the unanswered queries in this area.

It is often discussed as to whether there is any difference between the phonological acquisition pattern of the normals versus the speech and hearing handicapped. Before highlighting these lucid features it is important to focus on the normal child language development and related issues.

Child language development: The phonological perspectives

It is observed that young children have to learn whole range of production activities in the process of learning language from the external world. This learning consists of a combined contribution of laryngeal and articulatory gestures, necessary for production of sounds. Maturation of these systems are important and also accommodation to the sound patterns of the specific language spoken to the child.

Hence, phonological development in the young child involves the interaction of physical maturation and social experience.

In the phonological development sequence of the speech sounds are acquired according to their complexity. During the first six months of life, the voluntary vocal behaviour can be distinguished into three stages, viz, the phonation stage, cooing stage and the expansion stage (Ingram, 1974).

Between the age six to ten months, canonical babbling begins to be produced, which comprises a deep qualitative change in the infants production in the first year. In this year, the influence of adult language is experienced auditorily. In the last babbling stage viz, variegated babbling, the child prepares the phonetic ground for his or her first attempts at adult words. Here the development of consonants is still widely indistinguishable across language (Ingram, 1974).

The sounds which occur most commonly in a child's babbling are likely to be the sounds which he/she uses in the early words. Van Hattum (1980). Both words and babble are characterized at this time by a high number of monosyllables, stops and open syllables. Use of consonants increases with knowledge of adult language and relatively extensive use of labials, which is characteristic of early words. The core of phonological development occurs during the next two or three years when the child experiences an increasing growth of word knowledge and highlights on the acquisition of syntax.

Studies on vocabulary and its development:

Leonard and Fay, 1979; Golden and Meadow, 1976, Ingram, 1974, the early studies of child's lexical development were primarily in terms of quantitative aspects, such as age of acquisition of first words, size of the vocabulary along with increasing age levels.

Vocabulary size was first determined by Smith (1926). This study is still referred to, in determinism, the adequacy of a child's vocabulary size for his particular age. He considered comprehension and use as two factors in finding out whether and how a child acquires a particular word.

Smith (1926) concluded that children's vocabulary at the age of 1.6 years is approximately 22 words and by the age of 1.9 years it reaches approximately 118 words. Nelson (1973) on the other hand suggests that children aged 1.8 years acquires approximately 50 words.

This shows that the vocabulary size increased with advanced age levels.

Bloom (1973) distinguished two types of words seen in studies of early word use. One being? substantive words, refers to particular persons or objects or classes of persons or objects. The other set is of relational concepts. These may involve reflexive relations of a single object itself.

describing either objects existence or disappearance of relational concerning action or location. The child's early vocabulary usually contains fewer relational words than substantive words.

Studies carried out show increasing evidence in child's lexical usage ie make the reasons as to why and how the child acquires the words in the lexicon, more clearer. For eg. when children name objects in their environment, their intention is not to inform the listener of the objects name (Ninio and Bruner (1978) but rather to gain (Halleday, 1975) or direct (Bruner, 1975) the attention of the listener. The above mentioned authors thus concluded that childrens select lexical items for use which represent that situational element which is least certain from the listeners (and child's) point of view.

It is observed that young children tend to avoid using certain adult forms of words (Leonard and Fay, 1979). The child selects those items which belong to or rather fit into his production systems and makes no attempts is trying other lexical items ie. the complex word structure is neglected. This selection mode varies according to the different age levels. As the child grows up, he gradually tries to fit in words which belong to his vocabulary systems.

Another aspect of child's speech which is of great concern to the researchers is the behaviour of immediate repetition of a particular or all of an adult's utterance. This is most often before two years of age but differs from child to child. Lieven (1973) noted this in the speech of a child's imitative utterances compared to her spontaneous ones. This goes to prove that imitation does play an important role in lexical acquisition.

Bloom, Hood and Lightbrown (1974) stated that imitation of a particular item ceases to occur once the spontaneous usage of lexical item increases.

After having covered some of the aspects of the language acquisition, it is also necessary to look into one of the basic queries in the field. The aspect being, the relationship between comprehension and production of words of course, there have been refuting or rather contradictory views on which precedes the other one or which functions follows the other.

Several investigations have been carried out in this area. Goldin-Meadow et al.(1976) noted that children comprehended a greater number of words than they produced. Ingram (1974) reported that complete comprehension is not

required for production. However, the particular degree and type of comprehension needed by language disordered children is not known.

But the prevailing view is that the children's word comprehension exceeds word production. According to Huttenlocher (1974), it is more difficult for word retrieval on the basis of an encounter with an object than to retrieve object information on the basis of a word.

More recently Benedict (1978) stated that young children acquired the ability to comprehend words prior to the ability to produce words. However it is not reported whether the words acquired in production and those comprehended earlier in the course of development were the same.

Schwartz and Folger (1977) noted similarities in the type of words the children (ie normals and language disordered children) avoided were viz. words containing voiceless bilabials/palatals, fricatives and affricates. These sounds are those usually avoided by normal children according to Ferguson and Farwell (1975).

Despite the limited evidence, it thus can be summarised, that the phonological factors may act as contributing factors in the acquisition of lexical items ie. with reference to language disordered children, it can be said that they are more word-oriented rather than prosody.

Morley (1972) stated that these children are silent most of the time and make very little attempt to use voice or sounds. Once the child begins acquiring the single words, the vocal communication starts.

Morley (1972) and Snyders (1978) reported that language disordered children rely and primarily indulge in nonverbal means to express their needs.

Vocabulary Testing and Related Issues:

Most of the formal and informal assessments tools meant for testing the children are concerned with or concentrate more on lexicon and semantic relations.

In testing semantic comprehension, the standardised tests include PPVT and FRPVT scale which include the broadest age range. But then the draw back lies in the fact that these tests tap only the comprehension of noun and verb forms.

Other tests like 'The test for auditory comprehension of language' (Elizabeth Carrow-Wood Folk, 1973). Vocabulary subtest of the assessment of childrens language comprehension (ACLIC) (Giddan and stark (1972), and the Boehm Test of basic concepts (Belm, 1970) examine a wider range of semantic concepts but are more restricted in the age groups for which they are applicable. Apart from these, there are some non-standardised procedures for assessing semantics which have been mentioned in the literature, such as the Basic Concept Inventory.

The standardised intelligence tests have items on vocabulary, naming or definition items.

A few tests on semantic formulations have been developed as part of research protocols with specific groups of language impaired children for eg. Nations (1972) Vocabulary Usage Test, which is an expressive adaptation of PPVT. This was first developed for use with cleft palate cases.

Similarly the Environmental Language Inventory (ELI) (McDonald and Nickols, 1974). This has also been administered to other groups of children.

Some of the other tests for measuring lexical items are type or token ratio (Johnson, Darley and Spriesterbach (1963). It is advisable that the best way to assess the semantic relations in a child's speech is by analysing his/her spontaneous speech sample.

A child's communication ability is best elicited ie. maximum number of responses are obtained when stimuli are presented in the form of short, single words, which are relatively concrete and picturable. This is so, because the child finds it easy to express concrete forms much better than abstract forms. For eg. PPVT (Dunn, 1965)

includes noun and a few verb forms, ignoring the comprehension aspect of any of the adjectives, adverbs or prepositions word types. These are found to be difficult in terms of comprehension with the language disordered children, but at the same time, it is easier for them to indicate noun forms in the tests.

Beckwith and Thomson (1976) selected a large number of vocabulary items for testing the vocabulary comprehension amongst children aged 17 to 30 months. The technique used slides of real objects for testing the receptive vocabulary.

Results showed that reception develops in a similar manner like production, in that simple nouns are the easiest ones, followed by verbs which are more deficient and locatives and modifiers which are most deficient. No significant effects of sex and social status are seen.

Goldin and Mendow (1976) reported that in the course of vocabulary building, by around two years of age generally comprehension precedes production and this discrepancy is greater for verb elements than nouns.

Benedict (1978) studied the earliest phase of vocabulary growth and found comprehension production ratio to be around 5:1, with a 5 month gap between comprehension and

production at the 50 word level. His study indicated that comprehension precedes production for lexical development.

Dale (1976) carried out a long term in depth study "The words we know: A Rational Inventory (1973)" - into a useful 45,000 word list of student's knowledge of words within grade levels. This is a major contribution to the field of vocabulary development.

In India, a study on vocabulary was carried out by Gururaj Rao (1969). The investigation was to find out Kannada vocabulary content of 3 1/2 year old childrens. Results showed that children whose parents had higher educational qualifications and highly monthly income demonstrated a higher vocabulary scores when compared with children* whose parents were of middle or low socio-economic status. The above mentioned studies emphasised or rather tried to conform that comprehension precedes expression.

Procurement of Standard Language Sample:

In order to evaluate the language development and status we need to obtain* a sample of an individual's speech that will tend itself to the comprehensive analysis. Various investigations like (McCarthy, 1930? Davis, 1937; Templin, 1957, Winitz, 1959; Miller, 1961; Spriesterbech, Darling and Morris, 1962) and others were of the opinion that atleast 50 utterances must be elicited from each child

to be tested. This sample will enable the tester to compare him with his peers of like age and sex with respect to at least three dimensions of language ie length of response, structural complexity and size of vocabulary used. This led to a lot of controversies as to how reliable the results were or it was obtained from analysis of 50 responses. Nice (1925) first suggested the use of mean length of response to measure linguistic achievement. According to him, thirty such sentences could show a child's stage of speech development.

Darley and Moll (1960) studied speech samples of seven different sizes - 5, 10, 15, 20, 25, 35, 50 responses collected from each of 150 five-year old children. It was found that the scores remained same for a group of subjects with respect to the means of mean length of response and structural complexity. This was regardless of the number of responses, wherein the fewer the number of responses obtained, the greater the variability of scores.

The studies conclude that the performance of children over a range of speech tasks remained same for items concerning mean length of response and structural complexity.

Estimates of size of recognition vocabulary:

Several authors have conducted studies to estimate the number of words known by children. But the basic weakness

of word lists is seen in tests such as Thomdike and Dolchs, where the semantic variations and the multiple meanings of many words are not taken into consideration.

Another investigator, a pioneer in the field of vocabulary is Smith (1926). Her study revealed that the number of words known by childrens increases as age increases.

Construction of vocabulary tests are often faced with innumerable problems. These include deciding the types of responses viz. saying a word in response to a picture, pointing to a picture in response to the aural stimulus of the word, selecting the correct synonym in a multiple choice situation, defining the word, using the word in a sentence, giving an illustration of the meaning of the word etc.

He must also select the basis of his sampling? including the size of the dictionary providing, the population of words and the manner of choosing the words ie. whether it was on the basis of their position on the page or their appearance at given intervals in the total distribution of words or their demonstrated known difficulty as determined through a Pilot study (Sreedevi.N, 1988).

This goes to prove that when constructing a test ie. assessing the vocabulary aspect, the constructor has to note down quite a few important points and take care of them.

Some of the existing vocabulary tests are:

1. Full range picture vocabulary test
Ammons and Ammons (1948) - two years to adults.
2. Seashore-Eckerson English Recognition Vocabulary -
School age children.
3. Bangs Tests (1958)
4. Peabody picture vocabulary test - Dunn (1965) two to
eighteen years.
5. KPVT - Screening Kannada Picture Vocabulary Test -
Sreedevi.N(1988) three to six years.

A brief description of test materials mentioned above is given below:

Full range picture vocabulary test (FRPVT):

This test was developed by Ammons and Ammons (1948). This test measures verbal comprehension of single words from 2 years, through adult levels. Test materials consists of 16 picture plates with each plate containing 4 cartoons-like black-and-white line drawings. These are two forms. A and B each having eighty-five words listed in the order of chronological age. One additional plate includes the administration and scoring procedures. Answer sheets for each test form contain space for recording the scores. obtained on each plate.

The test is carried out in the following manner. The examiner speaks a word and the subject has to point out to the picture/s which indicates what the word means. This test requires that the subject should have adequate vision, but can be adopted for administration to motorically involved or hearing impaired persons if they are able to read.

Basal and ceiling levels are obtained for each test plate by passing or failing three consecutive point levels. The total raw score gets converted into mental age or adult percentile rating, if the subject is over sixteen years five months.

2. The seashore-Eckerson English Recognition Vocabulary Test:

This test has been designed for school age children and can be self administered by subjects who have moderate reading skills. The test booklet consists of three sets of words i.e. 173 general terms or basic vocabulary a supplementary test, of 40 proper nouns, geographical locations and rare words and 46 derivation terms. Each test word is followed by 4 alternative words or sets of words from which the subject tested is to select the one which is the test word synonym or is related to the test word with the closest meaning.

3. Bangs (1958) has designed a battery of psychometric tests to delineate the assets and liabilities of children with speech and language problems. It is composed of a few well known standard tests as well as subtests items selected from a variety of sources. The four factors tackled by the test items are-

- a) Language (ideation, comprehension, and usage)
- b) Memory attention (visual and auditory)
- c) Visual motor perceptual skills
- d) Social maturity.

Test items which assess the comprehension of oral language are presented with oral instruction but do not require an oral response. The test items are selected from Ammons Full Range Picture Vocabulary Test.

4. Peabody Picture Vocabulary Test:

This test was developed by Dunn (1965) to measure 'hearing vocabulary'. The purpose of this test is to measure single word receptive vocabulary. The age range is 2-3 years to 18.5 years.

Test materials consists of 150 test plates* They are arranged in order of increasing complexity. There are 4 black and white pictures on each plate. When administering the test, a test word is spoken by the clinician and the child

has to indicate which picture represents the word spoken by either pointing to the picture; or by saying the number of the card or by eye blink ie for a yes or no response.

This test has two forms. Each one has its own set of norm tables. A base and ceiling levels are established and the number of correct responses constitutes the raw scores. These can be converted into mental age, IQ, Standard score etc. Test administration takes approximately 15 minutes.

Heriot et al. (1973) modified PPVT to develop a measure of reading achievement. This could be used with communication impaired children. The target words appeared in print instead of their usual form. He stated that PPVT was useful in estimating reading comprehension.

Wilks (1975) reported that PPVT had greater reliability for a hearing impaired population than for the normal hearing population which was used for standardisation.

This test is a useful tool for measuring oral receptive vocabulary for a hearing impaired population and the progress can be measured periodically using alternate forms.

Previous investigators have stated that performance on PPVT may tend to vary depending on the socio-economic background.

Meline (1981) indicate the PPVT performance fails to show any significant relationship to socio-economic status.

The test is used and has been widely accepted due to factors viz. the ease and speed of administration and scoring too.

This is inclined as a basic item in many test batteries. But the only limitation of this test is that it is a culturally biased test and can be used as a measure of receptive vocabulary.

Kannada Screening Picture Vocabulary Test: (Sreedevi.N, 1988)

She constructed a screening picture vocabulary test for the age group of 3 to 6 years. This helps in screening the vocabulary age of language disordered children.

This test consists of 30 picture plates with each plate containing 4 black and white drawings. The test plates are arranged in order to difficulty. The response is through pointing to the correct picture. It is quick and easy measure. This can be used to identify children with comprehension deficiencies and may be an aid in therapy planning for these children. This test supports the view that vocabulary increases as a function of age.

So far we have discussed few of the tests which assess the vocabulary item. Having gone through the list, it appears that amongst the tests PPVT is the best suited for any group of children. Till now, the vocabulary development amongst normal children and related topics were looked into. Therefore, one often wonders as to what the pattern would be like in a language disordered child.

A few studies have been quoted in the following paragraphs.

Studies on vocabulary of language impaired children:

Grisword and Comming's (1974) studied the vocabulary of 19 deaf preschool children and it is reported that the average expressive vocabulary is small compared to that of hearing children of the same age group.

This comparison did not prove that there is a one-to-one relationship between vocabulary and chronological age. There are other factors viz. length of time spent in pre-school training, amount of communication carried out at home, which effect vocabulary size.

Ishisawa et al (1978) examined vocabularies in the age group of 2-6 years deaf children. He used 100 pictures cards and compared the results with that of 3 year old normal children. The authors found that -

a) With increasing age; vocabulary size increased but then the loss of hearing should be minimum.

But in the study, discrepancy was observed in the results of the test administered. This was in terms of number of correct responses obtained in cases of children of same age with same degree of hearing loss.

b) Words which had higher percentage of correct answer in 3 year old normal children had a higher percentage in deaf children too.

c) Percentage of correct answers to words was higher in 3 year old normal children.

Bishop (1979) tried to compare language disordered children aged 6.3 years to 13.1 years with control children aged 3.9 years to 13.2 years. For this, he used the PPVT. He also used an experimental test for reception of grammar (TROG) (Bishop (1979)). The majority of language disordered children including those classified as having expressive disorders, performed below age levels on both tests, with girls doing more poorly than boys.

Prior and Halt (1979) compared autistic children with retarded and normal control groups. For this verbal compre-

hension task was measured using PPVT. These three groups were matched for their mental age. Results proved that normals scored better than mentally retarded children who in turn scored better than autistic children.

Leonard et al. (1983) used a picture naming task to test word-finding problems in language impaired children. Here, the subjects were shown 64 pictures of objects and asked to name each as rapidly as possible.

The main findings of the test:

- a) Pictures of objects having commonly occurring names were named much faster than the ones with relatively lesser known names.
- b) Language impaired children fared poorer than their chronological age, normal peers but were much better compared to their language age peers.
- c) The effects of frequency of occurrence on naming time were comparable for all three groups of children.

These studies prove on the whole that there is a definite difference in the pattern of language development between normals and the language impaired children.

So far the various aspects of language have been looked into and vocabulary development has been discussed taking the

normal children and the language disordered children in the whole.

It is now necessary to specifically describe the pattern of vocabulary development amongst the cerebral palsied individuals.

Studies on vocabulary of cerebral palsied children:

A review of the description of oral communication ability of very young cerebral palsied children will show that as a group, they are delayed in language usage in all dimensions. It is seen that the ages when first words are used meaningfully, development of usable words etc. show a delayed acquisition (Arwin, 1979).

In the 1950s descriptions of the communication ability of cerebral palsied children were only on the oral language performance. These reports do not take into consideration that neuromotor disorders limits not only the ability to produce oral language but also their ability to respond in ways which reflects their comprehension of language.

It is most unfortunate that cerebral palsied children have not been regular subjects or have not been considered for the amount of research work that has been carried out

in the field of language and its disorders over the past years. There are issues which need to be looked into.

Limited studies have been conducted on the cerebral palsied population. A few of them are stated below.

Myers (1965) reported differences in the performance of dyskinetic children as compared to children with spasticity on subtests of the ITPA. Subtests which represent automatic-sequential types of activities.

McCurry and Irwin (1953) conducted a study concerning presence of words in the speech of spastics, athetoids and tension athetoid children from 1 to 12 years of age.

It was found that there were no statistical differences and chronological age was also an important factor to be considered which interpreting the performance.

The cerebral palsied children used about twice as many approximations as correct pronunciations.

McCurry and Irwin (1953) did a comparison of the vocabulary of use and understanding of 91 C.P. children from 5 to 17 years of age was studied. The PPVT was used to measure vocabulary of understanding. Sex differences between the means of vocabularies of use and understanding were not present. The difference between age means for the two vocabularies was significant in favour of understanding vocabulary (Irwin,1972).

The effects of type, extent and degree of C.P. on the vocabularies of use and of understanding was investigated upon. In this study, the relation of vocabulary achievement by C.P. children to their speech and language ratings by speech therapist was also considered by Irwin (1972). PPVT was administered.

There was no significant difference between the scores of two vocabularies of spastics and athetoid children. But difference was seen in terms of vocabulary of understanding. No significant difference was seen amongst quadriplegics, hemiplegics/paraplegics on either vocabulary. However, superiority of vocabulary of understanding amongst these groups was found to be significant.

There are indications that no common type of language disorders are associated with CP compared to other groups of children when hearing and intellectual levels are normal.

Need for the study:

As one can see, some aspects related to vocabulary development and the deviancy pattern if any amongst the various types of C.P. population have been discussed in this chapter.

One major drawback, lies in the unfamiliarity of the test items of PPVT by our C.P. population. Usually the items in most of the tests appear complex and new to the normal subjects. If the same tests are used with the C.P. children the tester might be at a disadvantage because he might misinterpret the responses. Or report poor performance in this groups of children.

The cerebral palsied children who usually present associated problems might contribute to the poor performance of the child on the test and above all it is possible that these items remain unfamiliar to the child because of limited exposure in real life circumstances. The motor impediments in such children prevent them from exposure to events and materials in the surroundings as normal peers.

These drawbacks have often led researchers to shy away from studying the speech and language characteristics in the C.P. population. In this study an attempt is made to study the receptive vocabulary of a group of cerebral palsied children from 3 to 15 years group.

So having chosen the group, it was necessary that a comparatively easy-to-administer test be used which would be comprehensible for this population. Thus, an equivalent of PPVT ie the administration of KPVT (Sreedevi.N,1988) was

decided upon. A simple test, this is standardised on the Indian children. This test was used as it facilitates elicitation of appropriate responses for this population. Suitable modifications in the test are made which includes - change in stimulus cards variability of response elicitation modes.

The response of the C.P. children of different types and degrees of neuromuscular involvement and different ages are recorded on suitable score sheets and the raw data will be subjected to statistical analysis to draw inferences.

METHODOLOGY

The aim of the present study was to assess the receptive vocabulary amongst the cerebral palsied population. For the study, the Kannada picture vocabulary test (KPVT) (Appendix-A) was used.

Most of the vocabulary studies have been carried out on the normal children and a few of the language disordered children, inclusive of the cerebral palsied population. This may be attributed to the fact that the researchers face many pitfalls and problems such as assessing these children. These children have many associated problems Viz. restricted visual acuity, hearing loss, mental retardation etc. These variables may hamper and affect scores. As a result, not many of the researchers venture into taking such studies in this area.

In order to obtain quick impression of the receptive language level of the cerebral palsied children, the KPVT was found useful. This will also serve as a useful test for the clinician in planning the therapy program for C.P. children.

The KPVT was chosen because of its simplicity and familiarity. The test is based on a vocabulary scoring by Karnataka State Directorate of Education. The test consists

of 30 picture cards with 4 pictures on each card. One among the four forms the key picture and other 3 are distractors. Pictures in the original test are on cards, but for the present study to enable the cerebral palsied child to comfortably see the pictures and point to them, these pictures were drawn on charts of 35cm X 42cm size. They would be placed on the communication boards of cerebral palsied children easily.

The picture vocabulary charts were presented one after the other in order of increasing complexity by placing them on the communication board. The therapist sat face to face with the child. This could facilitate communication between the two.

The aims of the present study were:

- To screen the receptive vocabulary of various sub-types of cerebral palsied children from the age of 3-15 years.
- To look for developmental trends in receptive vocabulary in the cerebral palsied children.
- To evaluate if there were any differences in the receptive vocabulary levels of spastics, athetoids and mixed groups of these children.
- To evaluate if there were any differences in the receptive vocabulary levels of mild, moderate and severe sub-groups of the main three groups.

Subject selection for the test:

For this particular study, cerebral palsied children from Spastic Society of India, Bangalore were selected. Since the test chosen was in Kanada, it was easier to get Kannada speaking cerebral palsied subjects at this school.

Sample size: Forty-five cerebral palsied children belonging to spastic, athetoid and mixed types with varying degrees of neuromuscular involvement were selected for the study.

Criteria for selection of subjects:

The children selected were from the age group of 3-15 years. All of these children had near normal IQ as per the case records and Developmental Schedule Test (Bharath Raj) Care was also taken to see that these children had no visual, auditory or other sensory problems. The information regarding severity of the involvement was obtained from medical records of these children.

Different subgroups and their distribution:

The subjects belonged to the categories of mild, moderate and severe types of involvement.

I. Distribution of cases according to age, type of cerebral palsy, severity are depicted in the table below:

Test Administration:

To begin with, the child was made to feel comfortable while the tester built rapport by casually conversing with the child. Following this, instructions were given to the child viz. 'I will show you some pictures now. You should look at all the pictures carefully and point out, to the one which I will ask for'.

Procedure:

Testing was done in an individualised setting in order to avoid any kind of distraction. The charts were placed in order of increasing complexity and each one was shown to the child one by one. The elicited responses of each cerebral palsied child was recorded on response sheet (Appendix-B). The encourage the child in trying his best he/shewas provided with regular verbal reinforcements such as 'Good', 'Welldone' etc. These proved to be effective in eliciting the correct response. Whenever the child was unable to point to the right picture, the subject was given encouragement to look at the four pictures, carefully and then point out. No time limit was set and considerable amount of time was given for each chart, so that the subject could make his/her own right selection.

The responses were elicited in various ways. Since the children tested, differed from each other in terms of severity, the response mode had to be changed for each child.

These included direct selection method wherein the child with mild involvement or better dexterity could directly point out to the pictures named by the tester.

The other mode used with the children belonging to the severe category, was, the eye blink indicating a 'yes' or 'no' response or even a head nod. Here the tester would point to the picture one by one ie. from left to right, column wise.

Occasionally* the teachers help was sought to supplement to tester's instruction. This was in condition where the rapport could not be effectively developed.

Recording responses:

On the scoring sheets the key words were printed in column for each picture and the following column contained the possible 4 responses.

The picture number whichever was pointed to by the subject was written down in the appropriate space on the individual test record sheet.

Test scoring:

Each correct response was given a score of 1. The total raw score was the number of correct responses ie the maximum score recorded was 30.

Time taken:

Test administration for each child took around 20-25 minutes. The raw scores obtained from the data was subjected to suitable statistical analysis and the results discussed in the following chapters.

RESULTS AND DISCUSSIONS

The test was administered to 45 cerebral palsied children and the raw scores ie the total number of correct responses of each child was tabulated. The maximum raw score that could be obtained on this test was 30.

These raw scores were then subjected to appropriate statistical analysis.

Graph-1 gives the distribution of the CP children, according to the subgroups and the severity of neuromuscular involvement.

Leonard and Fey (1979) stated that the size of the vocabulary increased with age. This was also supported by the study of Sreedevi (1988) on normal children wherein it was observed that the vocabulary level increased on par with age. (Graph 2). As it was difficult to have a representative sample of cerebral palsied children across all age groups; it was difficult to directly compare the performance of all C.P.Children with that of normals. Hence, a comparison of performance of CP vs. normal only across the age groups ie 3-4, 4-5 and 5-6 years. was possible. The graph of the normals and CP children seem to demonstrate the same developmental pattern for vocabulary. One

may notice that between 5-6 years, there is a slight dip in scores for CP children. This could be uninterpretable, as the only drawback was that the other higher age groups could not be studied in greater detail since normative data was not available for age groups beyond 6 years.

Graph 3 represents the raw scores of the groups of CP children which were converted to percentile mean scores. The line graph here indicates that the performance of the group improved with age. However a steep rise is noticed at age 7-8 years which can be attributed to the sampling inconsistency. This occurred as a result of having around 3 subjects in the mild category who scored above 25 in the test. At the same time, it may be noticed that there is a dip in the curve for age range 8-9 years. This can be explained because there is a vast difference between the scores of the 2 subjects of the same age group. One subject belongs to the mild category and the other from the moderate group. As a result the scores are widely deviant.

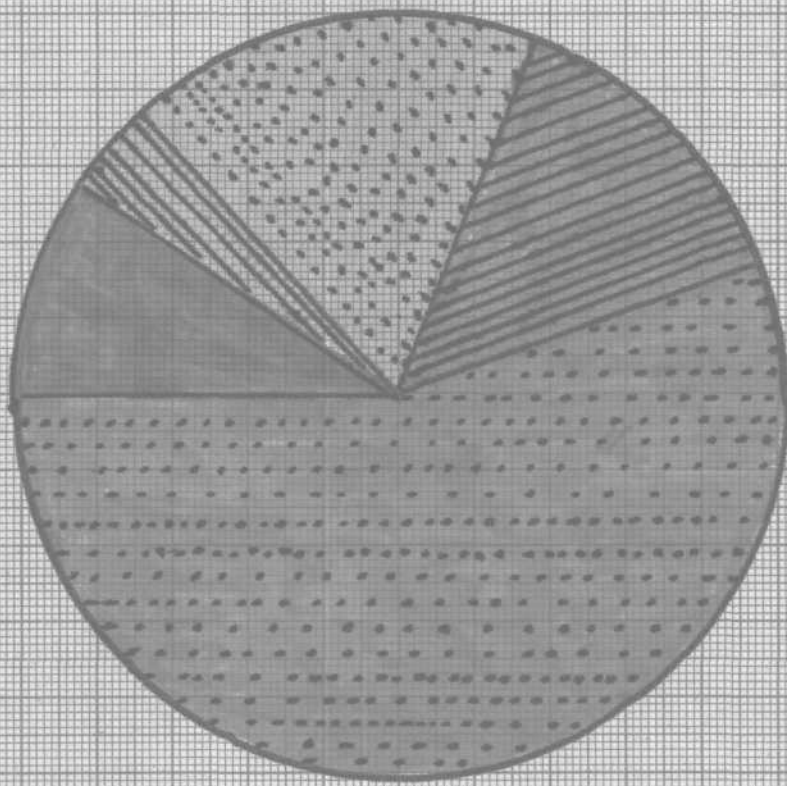
The means and standard deviation of the scores of the group of the children ie spastics, athetoids and mixed were computed and these are represented in Table-1.

Table-1: Mean and S.D. of the three groups.

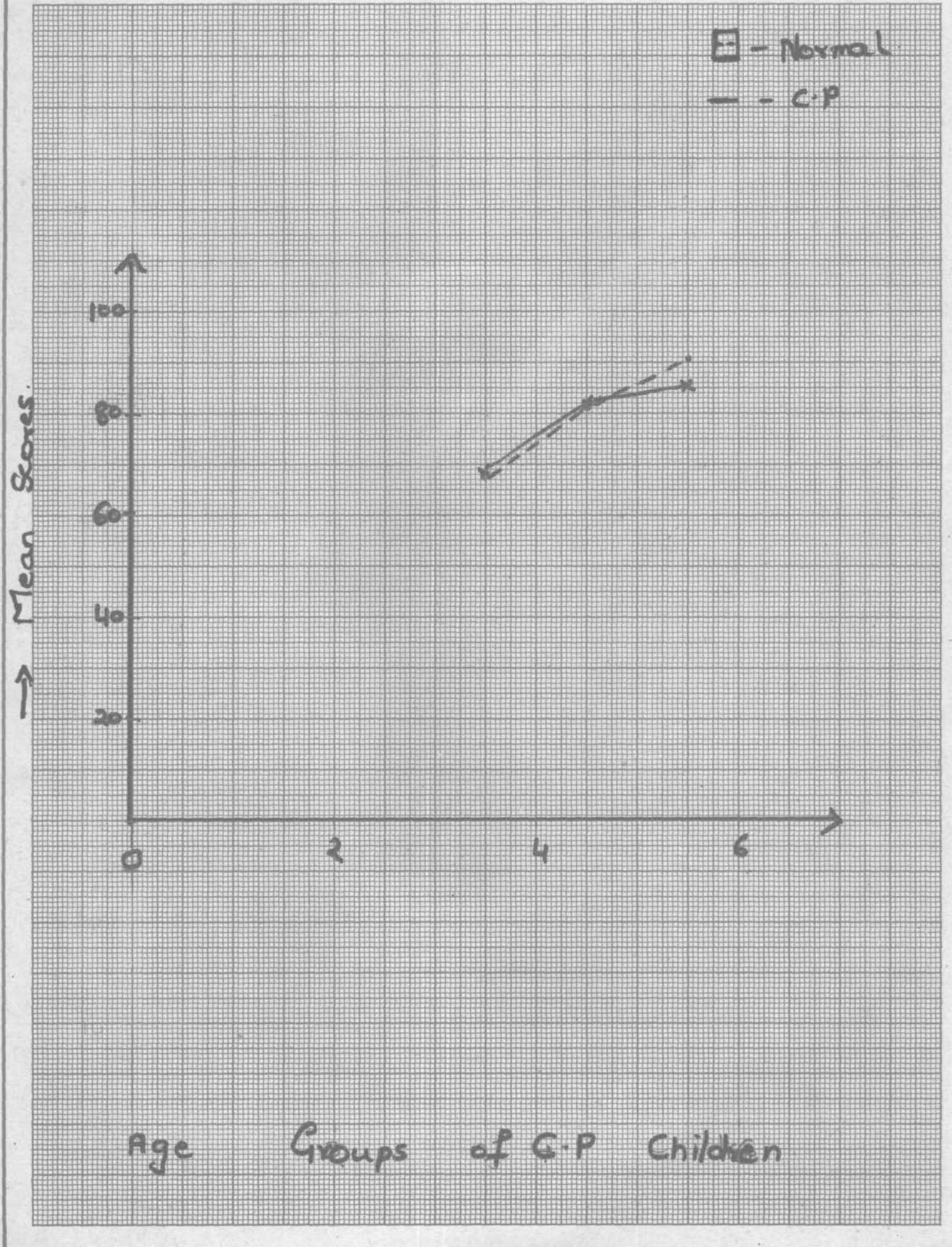
<u>Types of C.P.</u>	<u>Mean</u>	<u>S.D.</u>
Spastics	26.80	3.54
Athetoids	25.9	5.85
Mixed	29.5	0.5

GRAPH 1: Pie Chart - DISTRIBUTION OF CASES.

- Mild Spasies
- ▨ Mod. Spasies
- ▩ Mild Athetoids
- ▧ Mod. Athetoids
- Mixed

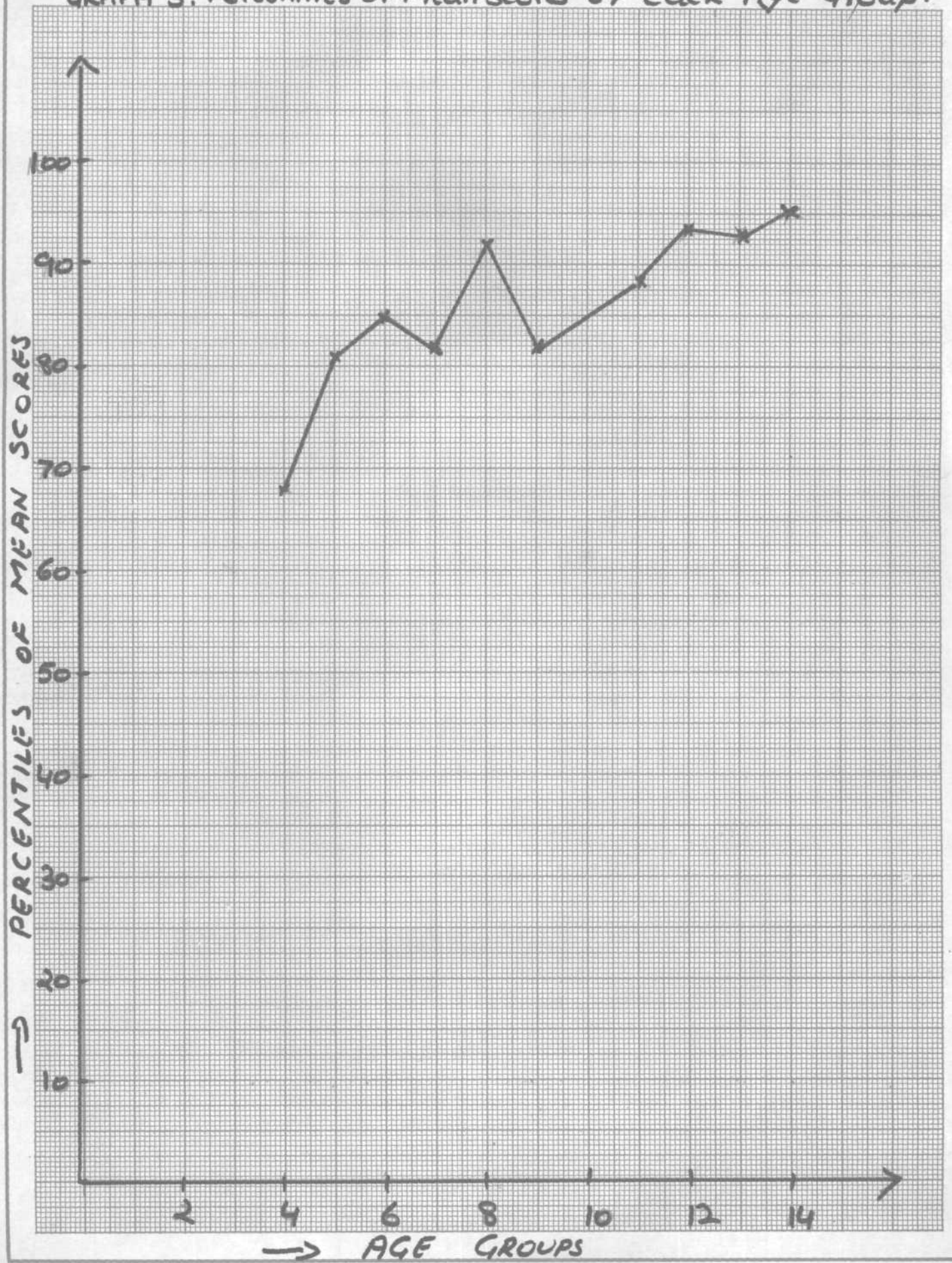


Graph 2: Comparison of data between C.P & normal children

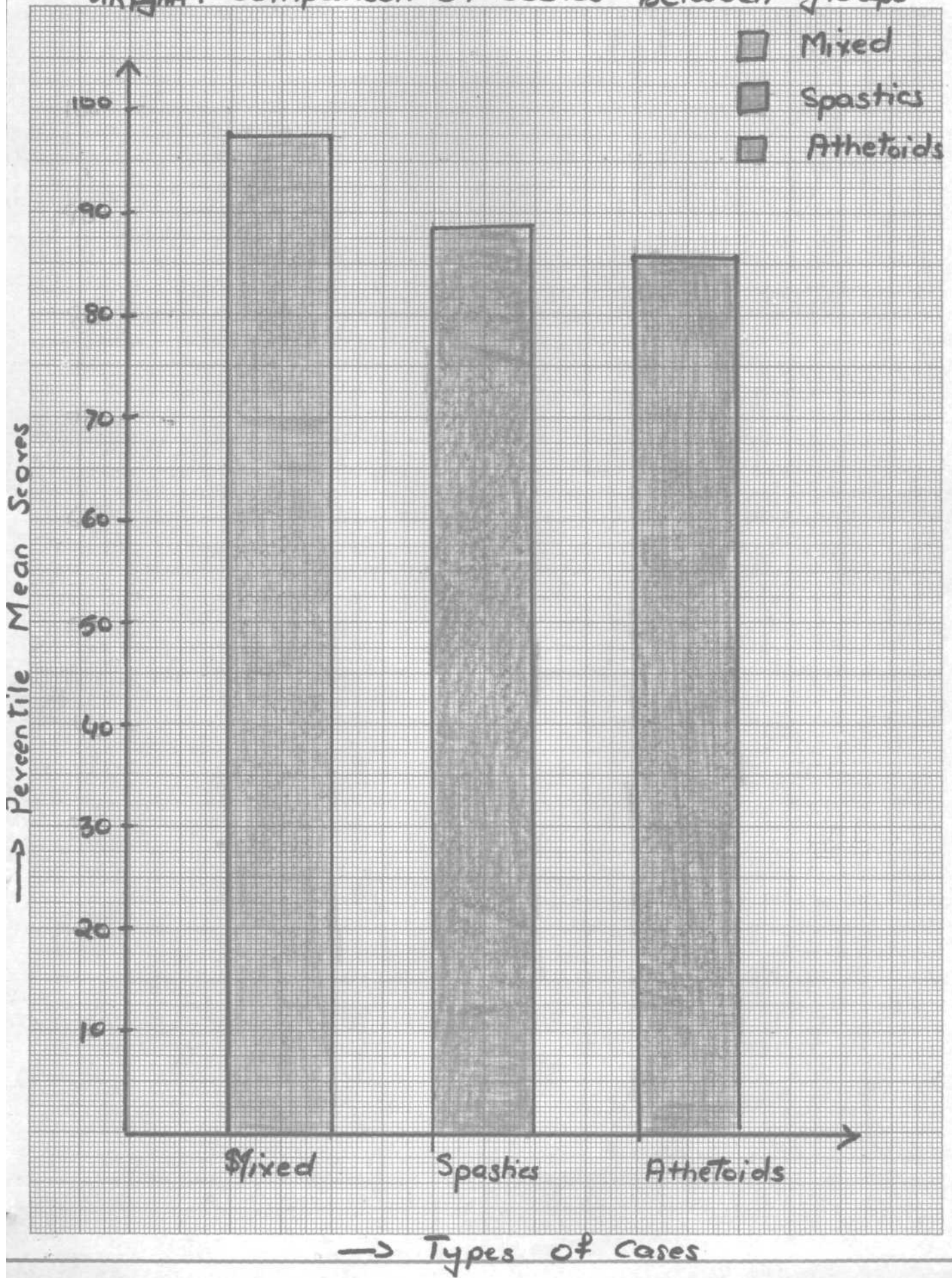


Age Groups of C.P Children

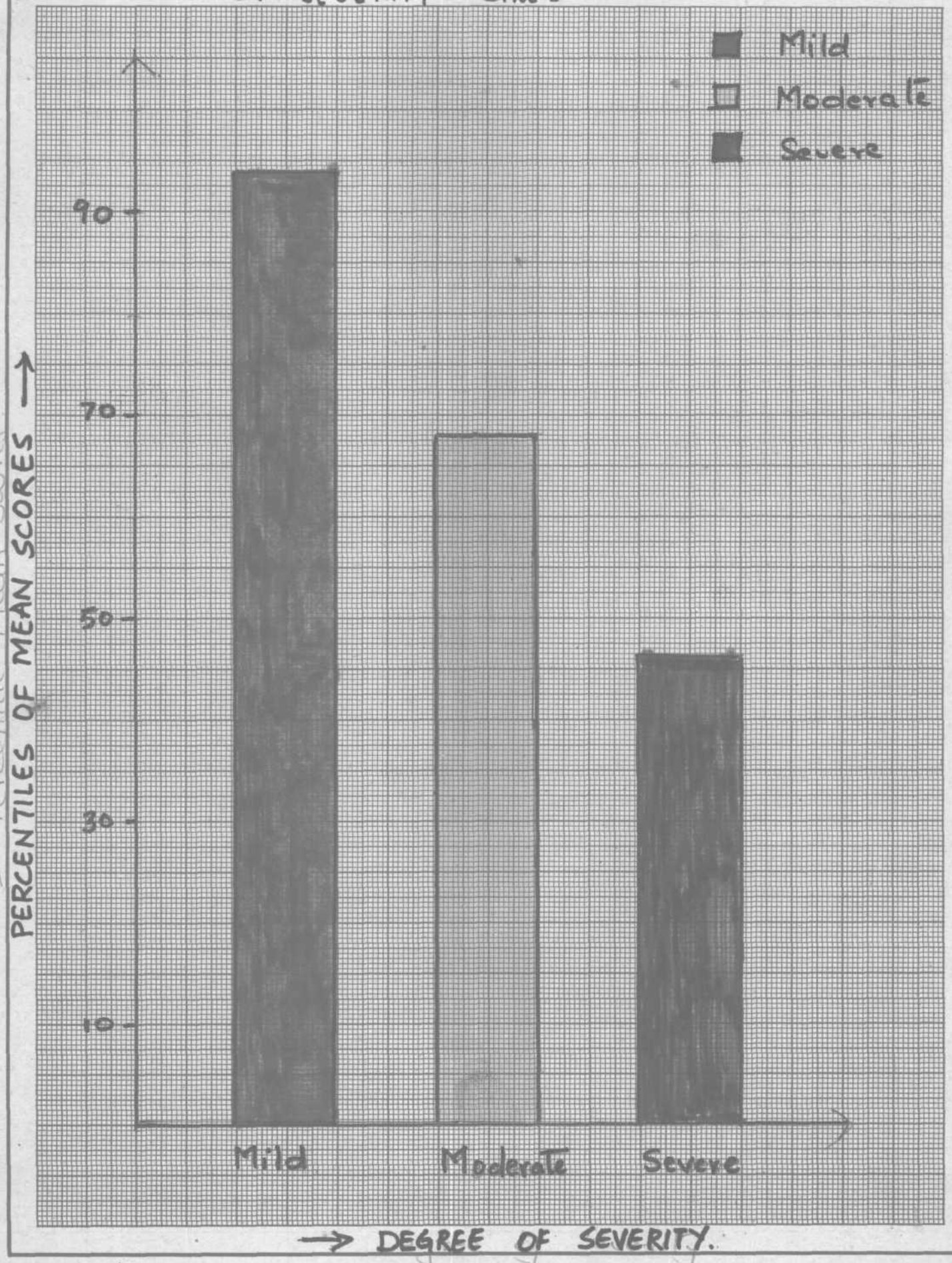
GRAPH 3: Percentiles of Mean Scores of Each Age Group.



RIGHT: Comparison of scores between groups



GRAPH 5: VOCABULARY LEVEL IN DIFFERENT DEGREES OF SEVERITY CASES.



Graph 4 conforms to the reading of Table-1 wherein the bar diagram shows that mixed group score the highest, followed by spastics and athetoids respectively who score the low scores. This supports the study of Myers (1965) wherein the performance of spastics were reportedly much better than athetoids.

This can be a useful hint for us while planning an intervention program for the CP children. In other words depending upon the type of CP, the clinician may expect a better or poor performance in a particular type of cerebral palsy.

However, McCurry and Irwin (1953) stated that there is no statistical difference between the CP of different types, but stressed on importance of the age factor in this clinical population. Therefore the above mentioned finding might not hold good for the CP population as other concerned variables which might possibly affect the performance should also be looked into.

Graph 5 depicts the vocabulary level depending on the severity of cases, it is known that the severity of disorder tends to affect the scores positively. This finding is confirmed in the graph where it is clear that the milder the severity, the higher the scores.

With the available raw score data of CP individuals percentile ranks for the different age groups ie. from 3-15 years were computed and there were as follows:

Table: Percentile ranks for the various age groups:

Table-2a: 3-11 years

<u>Scores</u>	<u>Percentile Ranks(PR)</u>
25	75
16	25

Table-2b: 4-4.11 years

<u>scores</u>	<u>PR</u>
26	75
23	25

Table-2c: 5-5.11 years

<u>Scores</u>	<u>PR</u>
28	91.7
27	66.6
26	41.6
24	25
21	8.3

Table-2d: 6-6.11 years

<u>Scores</u>	<u>PR</u>
28	90
27	60
26	30
15	10

Table-2e: 7-7.11 years

<u>Scores</u>	<u>PR</u>
29	83.4
27	33.3

Table-2f: 8-8.11 years

<u>Scores</u>	<u>PR</u>
30	83.4
19	50

Table-g: 10-10.11 years

<u>Scores</u>	<u>PR</u>
30	85.7
29	50
26	21.5
14	7.2

Table-h: 11-11.11 years

<u>Scores</u>	<u>PR</u>
29	66.66
27	7

Table-2i: 12-12.11 years

<u>Scores</u>	<u>PR</u>
30	78.5
29	42.8
28	21.4
27	7.14

Table-2j: 13-13.11 years

<u>scores</u>	<u>PR</u>
30	80
29	30

Table-2k: 14-14.11 years

<u>Scores</u>	<u>PR</u>
30	83.4
29	33.3

With reference to Tables-2f and 2g, the children in the age range of 8-8.11 years and 10-10.11 years despite having different scores, have a percentile rank of 50. This kind of discrepancy can be due to the inadequate sampling in each age group. Beyond the age of 11 years, performance of the children in terms of percentile ranks is below average. This states that these children might be lagging behind in terms of receptive vocabulary development, because their receptive vocabulary level is not on par with chronological age. Thus, the clinician has to administer various detailed tests to get an idea of their level of functioning.

The readings in Table 2(a) and 2(k) can be looked into, whenever this test is administered to the CP population. Thus,

the clinician can to some extent get an idea as to what level the child being evaluated has.

Much more of in depth research can be carried out in the area of CP ie the normative data for vocabulary can be collected for age groups beyond 6 years. Thus, this data can be compared with the same of CP population belonging to these age groups. A developmental pattern for vocabulary can be studied which in turn might help the clinician in chalking out therapy program.

Overall performance of the C.P children:

On comparison of raw scores of normals as against CP population, it is seen that the children have performed quite well despite their motor disability and other associated problems.

This could be because of the therapeutic intervention the children might be undergoing. In the present study, the children were from a special school wherein an interdisciplinary approach was used. This helped in overall enhancement of speech and language stimulation of the child. Thus, it could be contributing factor for the good performance of the children.

The other possible reason for the good performance could be due to the fact that this test tried to assess the receptive vocabulary. Here, the subjects just had to point out to pictures without having to verbally express which would otherwise have been a difficult task to carry out. This conforms the study of Benedict (1978) wherein, he stated that reception level develops much earlier than expression level in normals. A similar trend may be inferred in CP individuals as indicated in the study.

To conclude this test can be used as an easy and quick screening measure. The test administration for each individual takes around 15 minutes. Hence it is less time consuming easy to administer and acts as a baseline or reference for diagnostic or therapeutic evaluation.

Limitations of the test:

1. It can be administered to Kannada speaking cerebral palsy children.
2. A few of the pictures appeared to be con-fusing for the children for eg. chart No.25 where the keyword is No.2 (ಲವಂಗ) (clove/klov/), and on card 29 (ತಿಶುಲ) (thrishula)

SUMMARY AND CONCLUSIONS

This study was carried out to assess the receptive vocabulary level of a group of CP individuals.

For this study, the screening Kannada picture vocabulary test (sreedevi, 1988) was administered.

The test consisted of 30 picture cards and each card contained 4 black and white drawings. The cards were replaced by charts which suited the CP population as these could be placed on communication boards.

The responses expected of the subject were either direct pointing to the picture required to be identified or a headnod 'yes', or 'no' response or an eye blink etc.

45 CP children were administered the test. Out of this, 31 were spastics, 10 were athetoids and 4 belonged to the mixed category. The age group chosen was from 3 to 15 years. These children differed in severity of neuromuscular involvement.

The data of each group was statistically analysed. Mean and standard deviation were obtained and the percentile ranks for different age groups were calculated.

The results indicated that -

- In general, the receptive vocabulary scores of the CP individuals improved with age.
- The performance of CP individuals in the age range of 3-4, 4-5 and 5-6 years was similar to that of the normal peers.
- The receptive vocabulary scores of the mixed group of CP was better than that of spastics, which in turn was better than that of athetoid type of CP.
- The receptive vocabulary scores of mild category of CP was better than the moderate which in turn better than the severe category of CP individuals.
- Percentile ranks for CP individuals from 3-15 years with one year interval was computed and this is represented in Table 2a-2k.

The present test can be used as a screening measure for assessing receptive vocabulary of CP individuals.

Recommendations for further research.

1. It would be interesting to know the CP children expressive performance in this vocabulary test and to compare the receptive and expressive performance scores.

BIBLIOGRAPHY

- Ammons and Ammons (1948): Cited in "Appraisal of language development and language disorders" in "Diagnosis methods in speech pathology" 3d. by Johnson, Darley and Sprcsterbach, Hampen Row publishers. New York, 1963.
- Bangs (1975): Cited in "Language disorders in children" in "Diagnosis and evaluation in speech pathology" Ed. by Emerick and Halten; Prentice Hall Inc, New Jersey, 1979.
- Beckwith and Thompson, S.L.(1976): "Recognition of verbal levels of pictured objects and events by 17-30 month old infants", JSHR, 19, 690-99, 1976.
- Bishop, D.V.M. (1979): Cited in "KPVT Screening Kannada Picture Vocabulary Test" by Sreedevi, An unpublished Dissertation submitted as part fulfilment of Masters Degree (Speech and Hearing) to the University of Mysore, 1988.
- Bloom (1973): Cited in Benedicts "In early lexical development" by Benedicts, J.Child Lang. 6, 183-200, 1979.
- Bloom, Hood and Lightbrown (1974): Cited in "Speech and Language Advances in Basic Research and Practice" Ed.by Lass, Vol.2, Academic Press Inc, London, 1979.
- Boehm (1971): "Boehm test of basic concepts in Language disorders in children" by Mecham and Willbrand, C C Thomas, Illinois, 1979.
- Bruner (1975): "The ontogenesis of speech acts", J.of child Lang. 2, 1-19, 1975.
- Byrne, M. (1959): "speech and Language Development of Athetoid and Spastic Children", JSHR, 24, 231-240, 1959.
- Dale (1976): "Language development structure and function in communication disorders: An introduction" by R.V.Hattum, Holt Rinehart and Winston Inc, New York, 1980.
- Dale (1980): "Is early pragmatic development measurable"? J. Child.Lang. 7, 1-12, 1980.

(ii)

- Darley and Moll (1960): Cited in "KPVT - A Screening Kannada Picture Vocabulary Test " by Sreedevi, An unpublished dissertation submitted as part fulfilment of Masters degree (Speech and Hearing, University of Mysore, 1988.
- Davis (1937): Cited in "KPVT - A Screening Kannada Picture Vocabulary Test" by sreedevi. An Unpublished Dissertation submitted as part fulfilment of Masters Degree (Speech and Hearing), University of Mysore, 1988.
- Dunn (1965): "PPVT - Pebody Picture Vocabulary Test" in "Diagnosis and Evaluation Speech Pathology" by Emerick and Hatten, Prentice Hall Inc, New Jersey, 1979.
- Elizabeth Carrow-Woodfold (1974): "Carrow elicited language inventory in Language Disorders and Children" by Mecham and Willbrand, C C Thomas, Illinois, 1979.
- Ferguson and Farewell (1975): "Words and sounds in early language acquisition: English initial consonants in the first 50 words". Language, 51, 419-439, 1975.
- Giddan and stark (1972): "Formal assessment and evaluation of language disorder in children" by Mecham and Willbrand, C CThomas Illinois, 1979.
- Golden Meadow et al. (1976): Cited in "Early lexical development" by Benedicts, J.Child Lang. 6, 183-199, 1979.
- Gururaj Rao (1969): "An analysis of the vocabulary content of 3½ years old children in nursery schools in relation to their parents socio economic status" A dissertation (unpublished) submitted in part fulfilment for the Masters Degree in Education, University of Mysore, 1969.
- Heriot et al (1973): "The peabody as a substitute measure of oral reading", Percep.Motor skills, 36,
- Hood,P. and Pearlstein, M. (1980): Cited in "Communication disorders: An introduction" ed. by R.J.Van Hattum, MacMillan Publishers, Mew York, 1999.

(iii)

- Huttenlocher (1974): Cited in "Early lexical development" by Benedict, J. Child Lang. 6, 183-199, 1979.
- Ingram (1974): "Phonological rules in young children", J. Child Lang, Vol.7, 97-196, 1974.
- Irwin, O.C. (1972): "Communication variables of cerebral palsied and mentally retarded children", C.C. Thomas Publishers, Illinois, 1979
- Johnson, D.J. (1967): Cited in "Language disorders in children" by Holland, College Hill Press, S.D. California, 1984.
- Johnson, Darley, and Spriesterbach (1963): "Diagnostic methods in speech pathology", Harper and Row Publishers, New York, 1963.
- Kent, (1981): "The sounds of communication in human communication and its disorders" by Boone, D.R., Prentice Hall Inc, New Jersey, 1987.
- Kline (1973): "Disorder of articulation in communication disorders: An introduction" Vol.2, R.J. Van Hattum MacMillan Publishing Co. New York, 1980.
- Leonard and Fey (1979); Goldin Meadow (1976); Ingram (1974): Cited in "Speech and Language Advances in basic research and practice", Vol.2, Ed. by Lass, Academic Press Inc, New York, 1979
- Leonard and Fey (1979): "Early lexicons of normals and language disordered children: Developmental and training consideration" in "Speech and Language Advances in Basic Research and Practices" Ed. by Lass, Academic Press Inc, New York, 1979.
- Leonard et al. (1983): "Picture naming in Language impaired children", JSHR, 27, 609-15, 1983.
- Lieven (1973): Cited in "Speech and language: Advances in basic research and practice", Vol.2, Ed. by Lass Academic Press Inc, New York, 1979.
- Love Russell, J. (1964): "Oral language behavioural of cerebral palsied children", JSHR, 7, 349-361, 1964

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616-836072
SHA

- McCarthy (1930): Cited in "KPVT - screening Kannada Picture Vocabulary Test" by Sreedevi, An unpublished Dissertation as a part fulfilment of Masters Degree (Speech and Hearing), submitted to the University of Mysore, 1988.
- McCurry and Irwin (1953): Cited in "Communication variables of cerebral palsied and mentally retarded children" ed. by Irwin, C C Thomas, Illinois, 1972.
- McCarthy (1930): Cited in "KPVT - A Screening Kannada Picture Vocabulary Test" An unpublished dissertation submitted as part fulfilment of Masters Degree (Speech and Hearing), University of Mysore, 1988.
- McDonalds and Nickols (1974): Cited in "Diagnosis and evaluation in Speech Pathology" by Emerick and Hatten, Prentice Hall Inc, New Jersey, 1979.
- Meline (1981): "Socio economic status and variability on the PPVT", LSHSS, 22, 90-94, 1981
- Miller (1961): Cited in "KPVT - A Screening Kannada Picture Vocabulary Test" by Sreedevi, An unpublished Dissertation submitted as partfulfilment for Masters Degree (Speech and Hearing) University of Mysore, 1988.
- Morley(1922): "The development and disorders of speech in childhood , London and Edinburgh Churchill Livingstone, 1972.
- Myers (1965): "A study of language disability in cerebral palsied children, JSHR, 8, 129-136, 1965.
- Nations (1972): "Vocabulary usage test in diagnosis and evaluation in speech pathology" by Emrick and Hatten, Prentice Hall Inc, New Jersey, 1979.
- Nelson(1973): Cited in "Language disorders in children recent advances" by A.L.Holland, College Hill Press, S.D.California, 1984.
- Nice (1925): Cited in "Speech and language: Advances in basic research and practice" Vol 12, (ed) by Lass, Academic Press Inc, New York, 1979.

- Ninio and Bruner (1978): "The achievement and antecedents of labelling". J.Child Lang. 5, 1-16, 1978.
- Prior and Halt (1979): "Comprehension of transitive and intransitive phrases by autistic, retarded and normal children". J.Child Lang. 12, 103-111, 1979.
- Schwartz and Folger (1977): Cited in "Speech and Language: Advances in basic research and practice", Vol.2, (ed.) by Lass, Academic Press Inc, New York,1979.
- Smith (1926): Cited in "Speech and Language: Advances in basic research and practice", Vol.2, Ed. by Lass, Academic Press, Inc, New York, 1979.
- Snyder (1978): Cited in "Speech and Language: Advances in basic research and practice", Vol.2, Ed. by Lass, Academic Press Inc, New York, 1979.
- Spriesterbach, Darley and Morris (1962): Cited in "KPVT - A Screening Kannada Picture Vocabulary Test" by Sreedevi, An unpublished Dissertation submitted as a part fulfilment of Masters degree (Speech and Hearing), University of Mysore, 1988.
- Sreedevi, N.(1988): "KPVT - A Screening Kannada Picture Vocabulary Test", an unpublished dissertation submitted as part fulfilment of Master degree (Speech and Hearing) University of Mysore, 1988.
- Templin (1957): Cited in "KPVT - A Screening Kannada Picture Vocabulary Test" by Sreedevi, An unpublished dissertation submitted as part fulfilment of Masters Degree (Speech and Hearing), University of Mysore, 1988.
- Van Hattum (1980): "Communication disorder: An introduction", MacMillan Publishing co.Inc, New York,1980.
- Wilks (1975): "PPVT - An assessment of alternate forms" Cited in "KPVT -A Screening Kannada Picture Vocabulary Test" by Sreedevi, An unpublished dissertation submitted as part fulfilment of Masters degree (Speech and Hearing)University of Mysore, 1988.
- Winitz (1959): Cited in "Articulatory acquisition and behaviour" by Winitz,H.(1969): Appleton-Century-Grofts, New York, 1969.
- * Cited in "KPVT -A Screening Kannada Picture Vocabulary Test" by Sreedevi, An unpublished dissertation submitted as part fulfilment of Masters degree (Speech and Heating) University of Mysore, 1988.

APPENDIX 'A'

