



LLCd Symposium.
POSTER PRESENTATIONS.

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- Brief Bio:** Angel Selvakumar is an Assistant Professor in the Department of Speech and Hearing, Manipal College of Allied Health Sciences, Manipal University. She did her Bachelors (2009) and Masters (2011) in Audiology and Speech-Language Pathology at Manipal College of Allied Health Sciences. Her recent research is focused on metaphonological skills in verbal children with cerebral palsy.
- Title of Presentation:** Metaphonological Skills in Kannada-Speaking Verbal Children With Cerebral Palsy
- Abstract:** Metaphonological/phonological awareness is the ability to consciously reflect on and manipulate the subunits of spoken language such as syllables, rhymes, and phonemes (Gillon, 2004). Metaphonological skills are a pre-requisite for and a predictor of future reading success. Use of explicit phonological awareness instruction is beneficial in reading acquisition of typically developing children and children with reading disability, both in alphabetic (Bradley & Bryant, 1983; Swanson, Hodson & Schommer-Aikins, 2005) and alpha-syllabary language systems (Ponnumani, 2003; Shilpashri, 2004).
- In children with cerebral palsy however, there are reports of speech production being a better predictor of reading skills (rather than metaphonological skills) and a facilitator of phonological awareness skills in this population. Studies pertaining to metaphonological skills in India, in verbal children with cerebral palsy are lacking. It will prove worthwhile to study these skills in verbal children with cerebral palsy exposed to an alpha-syllabary language such as Kannada. It was hypothesised that verbal children with cerebral palsy will perform as well as typically developing peers.
- In this study, the metaphonological skills in Kannada-speaking verbal children with cerebral palsy (Group 1, n=12) were investigated and compared with the performance of language-age matched, typically developing children (Group 2, n=30) using a standard group comparison design. Both groups had IQ > 80 and had literacy

experience (Group 1 = 6.25 years; Group 2 = 3.8 years). The skills assessed were rhyme recognition, syllable stripping, syllable oddity (words), syllable oddity (non-words), phoneme stripping, phoneme oddity (non-words), taken from the Metaphonological Skills Test (Prema, 1997). Speech intelligibility was also rated on a 5-point rating scale. Descriptive statistics (Mean, Standard deviation) and Student t-test (independent samples) were done to compare the performance between the groups and across tasks using SPSS software (version 16.0).

Overall, though Group 2 performed better on all tasks, there was no significant difference between both groups for rhyme recognition, syllable stripping, syllable oddity (words) and phoneme oddity. The performance of Group 1 was significantly poorer in syllable oddity (non-words) ($p = 0.017$) and phoneme stripping ($p = 0.011$). This poor performance in syllable oddity (non-words) could be attributed to limited ability in exploiting the articulatory loop and difficulty in remembering novel phonological strings whereas in phoneme stripping it was probably due to insufficient exposure to Kannada orthography. Also, the fact that the academic curriculum followed in a special school is simpler and less demanding than that followed in regular schools could have contributed.

The implication of this study is that metaphonological instruction should be targeted early on, with activities focussing on syllable-level, onset-rime level and phoneme level along with letter knowledge, such that it is a vital part of the educational curriculums of children with cerebral palsy.

Summary:

The study compares phonological skills in children with cerebral palsy and in language-matched control children. A number of phonological tasks have been administered, including rhyme, syllable-, and phoneme awareness. The groups differed in performance on a nonword syllable oddity task and on a phoneme stripping task. The authors interpret their findings as a verbal memory deficit (for the nonword syllable task) and insufficient exposure to orthography (for the phoneme stripping task).

Comment:

1. The theoretical background for the study should be stated more clearly. Why are these groups examined? What cognitive profile do the authors expect for children with cerebral palsy? Given that children with cerebral palsy represent a very heterogeneous group deficits may mainly depend on the damaged brain areas, rather than being associated with a diagnosis of "cerebral palsy". To generalise the findings to all children with cerebral palsy seems to me not reasonable.

Answer:Metaphonological skills are a pre-requisite for and a predictor of future reading success (in typically developing children). However in children with cerebral palsy, speech production is reported to be a better predictor of reading skills (rather than metaphonological skills) and a facilitator of phonological awareness skills in this population. Studies pertaining to metaphonological skills in India, in verbal children with cerebral palsy are lacking. We felt that it will be worthwhile to study these skills in verbal children with cerebral palsy exposed to an alpha-syllabary language not only from an academic perspective but also clinically beneficial in determining if metaphonological instruction should be emphasised early on in the educational curriculum of these children.

Both groups studied here had IQ > 90. All children with cerebral palsy were verbal (with few having mild-moderate unintelligibility). Hence it was hypothesised that there will be no difference between the metaphonological skills between both groups.

2. To better understand the cognitive profiles it would be important to report correlations between the tasks. Are there any factor scores that can be extracted (e.g. syllable awareness versus phoneme awareness)?

Answer: Factor scores cannot be extracted in this study due to the small sample size.

3. To interpret the results more information about task performance (are there any floor or ceiling effects?) and reliability scores for the tasks would be needed.

Answer: Scores approximated maximum (ceiling effect) in the Rhyme recognition subtest for both groups as this skill matures by 8 years. It was evidenced in studies done by Prema (1997). No floor effects were observed. Test-retest reliability could not be checked as the test was administered once. However responses obtained from the study participants were reliable.

4. Is there any information available about general cognitive abilities of the children tested?

Answer: The IQ of all children tested was > 80.

5. Please add the following information about the sample:

☑Age range and mean age of the tested children. How much younger was the language matched group?

Answer: Group 1 → Chronological age range = 10-19 years, mean age =13 years. Group 2 → Age range = 8-9 years, mean age = 8.5 years. Both groups were matched for language i.e. both groups had language age > 8 years of age.

☑How many years of reading instruction did these children have?

Answer: Group 1 → 6.25 years of literacy experience, Group 2 → 3.8 years of literacy experience.

☐What language constructs were used to match the groups (expressive, receptive language)?

Answer: Both groups were matched for receptive and expressive language i.e. > 8 years.