

Speech Perception Outcome Comparison between Educated and Uneducated Parents of Children with Cochlear Implantation

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ABSTRACT

A Cochlear implant is one of the electronic device management options for children with severe to profound sensorineural hearing loss. The outcomes of cochlear implants will have various factors. This current study's main factor is parental education. The study aims to find out the speech perception significant difference between educated and uneducated parents children with a cochlear implant. A cross-sectional study was conducted in 240 children with the cochlear implant within the age range of 4-8 years. Four simple stories with phase and sentence levels were used for data collection. The results reveal that there is a significant difference between the educated and uneducated parent's children's speech perception. Parental education also one of the influencing factors for speech perception in children with a cochlear implant.

Keywords: Educated, Uneducated, Cochlear implant, Parents

INTRODUCTION

Cochlear implants are one of the implant systems, which will provide high-quality hearing performance. It's a very good option for children with severe to profound sensorineural hearing loss. Inter-professional teams integrated different professional's perspectives and backgrounds to provide highly comprehensive care.

Cochlear implants will give successful speech recognition to many prelinguistically deafened children as well as to most linguistically deaf children. If children are implanted before 2 years of age and have good language training, they can achieve speech perception, production, and expressive and receptive language at levels that are normal for their chronological age (Graeme Clark, 2004).

Speech perception is the measurable outcome in children with cochlear implants. Studies are showing that duration of the deafness and residual hearing is the most important primary predictor and the temporal difference limen in pre-operative round window electrical stimulation is a secondary predictor (Johannes E van Dijk, et al, 1999). According to Gerard M O'Donoghue, MD et al, 2000, young age at intervention and oral communication mode is the most important known determinants of later speech perception in young children after cochlear implants. Early identification of candidates of universal neonatal screening implementation of universal neonatal screening programs

for hearing impairments. Early implantation, regular speech, and language therapy, audiological follow up these are the primary factor for good speech perception in children with cochlear implantation. There is some secondary factor which would enhance speech perception in children with cochlear implants, such as family background, socio-economic status of the parents, parental child interaction, other family members involvement, and peer interaction. This study focusing on a consequence of parental education in cochlear implant children outcome-Speech Perception.

AIM OF THE STUDY

- The study aims to find out a consequence of parental education in cochlear implant children's speech perception.

OBJECTIVES OF THE STUDY

- To assess the significant difference between educated and uneducated parents of children with cochlear implants and speech perception in story-1 of phase and sentence level in auditory mode.
- To assess the significant difference between educated and uneducated parents of children with cochlear implants and speech perception in story-2 of phase and sentence level in auditory mode.
- To assess the significant difference between educated and uneducated parents of children with cochlear implants and speech perception in story-3 of phase and sentence level in auditory mode.
- To assess the significant difference between educated and uneducated parents of children with cochlear implants and speech perception in story-4 of phase and sentence in auditory mode.
- To assess the significant difference between educated and uneducated parents of children with cochlear implants and speech perception in story-1 of phase and sentence level in auditory-visual mode.
- To assess the significant difference between educated and uneducated parents of children with cochlear implants and speech perception in story-2 of phase and sentence level in auditory-visual mode.
- To assess the significant difference between educated and uneducated parents of children with cochlear implants and speech perception in story-3 of phase and sentence level in auditory-visual mode.
- To assess the significant difference between phase and uneducated parents of children with cochlear implants and speech perception in story-4 of phase and sentence level in auditory-visual mode.

METHODOLOGY

Test material: The test stimuli were prepared by the research scholar based on reviving the previous studies. The test stimuli were designed, which is consists of four simple stories with pictures. In each story, it has two levels, phase level, and sentence level, which is consist of three to word utterances.

Validation: Face validity was done by the search scholar. Content validation and construction validation were done by the two Speech-language Pathologists, two audiologists, two-habitational therapists, and one linguistic person were done the

validation. And then final test stimuli were prepared and used for data collection. The test stimuli were four simple stories.

Population and Criteria: 240 children with cochlear implants were encompassed in this study, who undertaken cochlear implant before the age of four. They should attend the auditory habilitation minimum of one year. The age range was 4-8 years of age, both male and female. They should not have any other associated conditions, such as Autism, Intellectual disability, visual impairment, Attention Deficit Hyperactive Disorder, or any other sensory issues.

Data Collection: The data collection was done at different habilitation centers in Tamil Nadu. The child's speech therapist or habilitation therapist has to present the test stimuli to the child once the child has completed at least of one year auditory training. The child has to repeat the stimuli. While presenting to the child the therapist shouldn't repeat the stimulus. The child's responses were documented based on techniques, auditory mode, and auditory-visual mode.

RESULTS AND DISCUSION

In this current research, speech perception outcome comparison between educated and uneducated parents in children with cochlear implants. The responses were documented in two techniques auditory mode and Auditory visual mode for four different simple stories which are consist of phase and sentence level. From 240 children with cochlear implants, aged between 4 to 8 years and both the gender were included. In 240 children 120 male children and 120 female children. The data were tabulated in an excel sheet and the analysis was done by using SPSS. An independent t-test was performed.

Table-1: is showing the speech perception comparison between educated and uneducated parent's in children with cochlear implants on auditory mode for different simple stories in-phase and sentence level.

Stories	Auditory Mode	Parental Education	N	Mean	S.D	p-value
Story-1	Phase level	Uneducated	176	6.68	2.58	0.00
		Educated	64	8.08	2.68	
	Sentence level	Uneducated	176	2.52	2.05	0.00
		Educated	64	4.46	2.91	
Story-2	Phase level	Uneducated	176	6.71	2.55	0.00
		Educated	64	8.12	2.62	
	Sentence level	Uneducated	176	2.54	2.07	0.00
		Educated	64	4.43	2.90	
Story-3	Phase level	Uneducated	176	6.72	2.57	0.00
		Educated	64	8.12	2.59	
	Sentence level	Uneducated	176	2.53	2.03	0.00
		Educated	64	4.48	2.92	
Story-4	Phase level	Uneducated	176	6.63	2.68	0.00
		Educated	64	8.08	2.65	
	Sentence level	Uneducated	176	2.60	2.09	0.00
		Educated	64	4.48	2.92	

From the above table, it is clear that there is a significant difference in the mean score between male and female children with a cochlear implant in the assessment test for

speech perception in-phase ($p=0.00$) and sentence level ($p=0.00$) for story-1, story-2, story-3, and story-4. From the results, it is clear that there is a significant difference in the mean score between educated and uneducated parents in children with cochlear implants, in auditory mode.

Table-2: is showing the speech perception comparison between educated and uneducated parents in children with Cochlear Implants on auditory-visual mode for four different simple stories in-phase and sentence level.

Stories	Auditory Visual Mode	Parental Education	N	Mean	S.D	p-value
Story-1	Phase level	Uneducated	176	6.68	2.58	0.00
		educated	64	8.08	2.65	
	Sentence level	Uneducated	176	2.52	2.05	0.00
		Educated	64	4.46	2.91	
Story-2	Phase level	Uneducated	176	6.71	2.55	0.00
		Educated	64	8.12	2.62	
	Sentence level	Uneducated	176	2.54	2.07	0.00
		Educated	64	4.43	2.90	
Story-3	Phase level	Uneducated	176	6.72	2.57	0.00
		Educated	64	8.12	2.59	
	Sentence level	Uneducated	176	2.53	2.03	0.00
		Educated	64	4.48	2.92	
Story-4	Phase level	Uneducated	176	6.63	2.68	0.00
		Educated	64	8.08	2.65	
	Sentence level	Uneducated	176	2.60	2.09	0.00
		Educated	64	4.48	2.92	

From the above table-2, it's clear that there is a significant difference in the mean score between educated and uneducated parents in children with a cochlear implant in the assessment test for speech perception in-phase ($p=0.00$) and sentence ($p=0.00$) for story-1, story-2, story-3, and story-4. From the results, it is clear that there is a significant difference in the mean score between educated and uneducated parents in children with cochlear implants.

CONCLUSION

Cochlear implants are surgical amplification devices for severe to profound sensorineural hearing loss children. According to Watcharapol poonual, (2017), conducting a newborn hearing screening program and keep follow-up during the developmental period of the child will lead to earl intervention. Which would be the main key for preventing acoustic deprivation and improve language development. The major enhancing factor for speech perception is the age of implantation. Early implantation will give a better outcome in audition, language, and speech. According to Teresa YC Ching, et. al (2017). And similar studies were done, good speech perception included grader nonverbal intelligence, smaller family size, longer use of the processor, a fully active electrode array, greater growth of loudness with increasing stimulus intensity. Our study strongly states that parents' education also plays a vital role in a child's speech perception.

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