

Language Acquisition in Children with Cochlear Implant in Punjab Province, Pakistan

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Abstract

In this research, the researcher is trying to find out strong reasons that why language acquisition process is still suffering despite cochlear implantation. Language and speech are sources of expression for what the individual is feeling and mental state (thinking). Perception of speech encompasses various aspects, including recognizing phonemes, combining them to form words sentences, and extracting meaning from the linguistic content (Tezcan, F et al., 2026). In children with hearing issues and as well as children with cochlear implant faces many issues even in this era of Artificial Intelligence. Although cochlear implant has been common in Pakistan, but language and speech issues are still a heading in children's daily life which prohibits them in educational and social interaction goals. In this research, the researcher has developed a self-made questionnaire (with pilot testing) and tries to enlist the challenging factors of the children with cochlear implantation for language acquisition. As well as the researcher will assess the children current level of language and speech. In this process we find the old cochlear implant users which are not getting benefits from traditional style of speech therapy. We include those children (cochlear implant user) who are getting speech therapy from one year (minimum) and three years (maximum). Data has been analyzed through Excel and SPSS. Frequency measures have been used to find out the results which show these main factors which are Cost of therapies, Education of parents, Awareness of parents, No accountability procedure, Age of the patient.

Keywords: *CIU (cochlear implant users), Hearing impairment, Language, Language Acquisition, Speech Therapy (ST), SPSS (Statistical Package for Social Sciences)*

Introduction

Language and Speech perception refers to an ability to perceive linguistic structure in the acoustic speech signal. During acquisition of native language, infants must discover several levels of language structure in the speech signal including phonemes (Houston, D. M. 2022). Language is also considering as a science of cognitive and social activities, like face-to-face interaction, verbal expression gestural cues with organized and ordinary manners (Masood et al., 2024).

Review of Related Literature

Before the development of speech and language children need to achieve some pre-linguistic skills like response to the environmental stimulus like events and people but our children with hearing issues feel difficulty regarding this (Esbensen, A., & Grenner,

E., 2023) Another element which is very important for language development is development of attention span according to age because for the proper response to environment the children have to pay attention to any stimulus. After that the development of joint attention and its shifting have the same role in pre-linguistic skills. If any child will not develop joint attention he or she will not learn how to interact with the surroundings and unable to cope with other individuals (Porcar-Gozalbo., et al., 2024). Development of imitation (gestures, sounds and words) and their usage is crucial for acquiring language because if the child will not learn imitation won't be able to use language (Khorramshahi, H., et al. 2024). Initiation of interaction with others is also a milestone of language acquisition by giving social smile and gestures a child will learn how to start interaction with strangers and known individuals. It is early form of communication. The use of gadgets appropriately and happily is also important. Adequate use of technology can help interaction and learning in children; after that turn taking skill comes for maintain socialization and social relationship. Lastly receptive language has the most important for language acquisition (Kennedy, C, R., et al. 2022). All these skills need to develop before language acquisition but children with hearing issues seems to have lacking behind these skills. Understanding of what other people are saying or communicating has equal importance to speech and language development but in children with hearing impairment faces issues in understanding of verbal stimulus and in language development (Esbensen, A., & Grenner, E 2023). The first years of life children normally started to speak with some nouns, but due to hearing loss the children are unable to develop the speech and language according to their peer group, like after 18 months till 30th months the children started word combination and 30th months to 48th months normally children started complex sentences with the usage of morphological markers like plurals, relational word and gender discrimination (Houston, D. M. 2022).

A core characteristic of individuals with hearing impairment is delay in receptive and expressive language and communication (Karla, 2020). 50% of the children with hearing impairment do not develop speech up to the required level to meet their basic needs (Oghalai, J. S., et al. 2024). These individuals cannot use conventional means of communication due to their impaired hearing (Sinha, A., & Kumar, T, 2024). They also face some problems to follow linguistic and grammatical rules like missing of helping verbs, use of prosody as well as some Articulation error (Esbensen, A., & Grenner, E. 2023). It is usually observed in Pakistan children with cochlear implant do not achieve language level to such extent with which they can communicate in society properly and actively. There are many reasons but mostly children are implanted after the age of 5-6, often later due to delay diagnosis and so on, and till that age they use learn communicate with sign language and gestural, visual cues (Rashid, A. et al., 2023). Total Communication may enhance language acquisition more efficiently and quickly in cochlear implant users. Sometimes traditional hearing aids may not provide sufficient amplification for individuals for with severe to profound hearing loss. Even the most powerful hearing aids are unable to provide enough meaningful information for environment sound detection or speech perception for these individuals (Hickson, L. et al., 2020). In the case, the powerful digital hearing aids like Cochlear Implant helps people to provide an opportunity to receive information with their impaired auditory system (Sutton, A. E. et al., 2025). The cochlear implant is an electronic device that can amplify sounds and refers to an improved language acquisition of children with severe to profound hearing loss (Muzaffar, J., et al 2025). All kind of struggle for cochlear implant users are made for language acquisition, so by-passing pre-linguistics skills step by step the children may enhance language and able to interact with other hearing people

(Hardman, 2022). These efforts do not give ample reward for language acquisition in children with cochlear implant. It is observed many cochlear implant users are failed to get progress in language and communication skills despite of all efforts.

Objectives

To identify the key factors affecting language acquisition in children with cochlear implants, assess their current speech and language levels, and examine why traditional speech therapy shows limited effectiveness. The study also aims to analyze the impact of parental awareness, education, therapy cost, accountability, and age on children's linguistic and social development.

Methodology

The researcher employs a quantitative research methodology and collects the data of 300 cochlear implant users age range will be 6 to 8 years through initial survey and gathered the information about those children who are not getting many benefits from speech therapy even they are getting session from one year minimum and three years maximum. The researcher assessed the child's performance through informal (self-made) questionnaire (screening tool). The population of the study are children with cochlear implant from different institutes of Punjab, Pakistan. The sample will be selected from different clinics, hospitals and institutes who provide different services to cochlear implant users. The multi-stage random sampling technique will be used to determine the sample of the study. The age range of these children will be 6-8 years, without any gender discrimination.

Findings and Discussion

Table 1. Frequency distribution on the basis of education of the parents.

Qualification	F	%
Metric	168	56
F.A	63	21
B.A	42	14
M.A	16	5.33
M.Phil.	11	3.6
Total	300	300

The table 1 of the frequency distribution shows that there are only less parents which are highly qualified and matriculation is high in numbers, that's why people with low education are facing more difficulties in the treatment of their children regarding language acquisition.

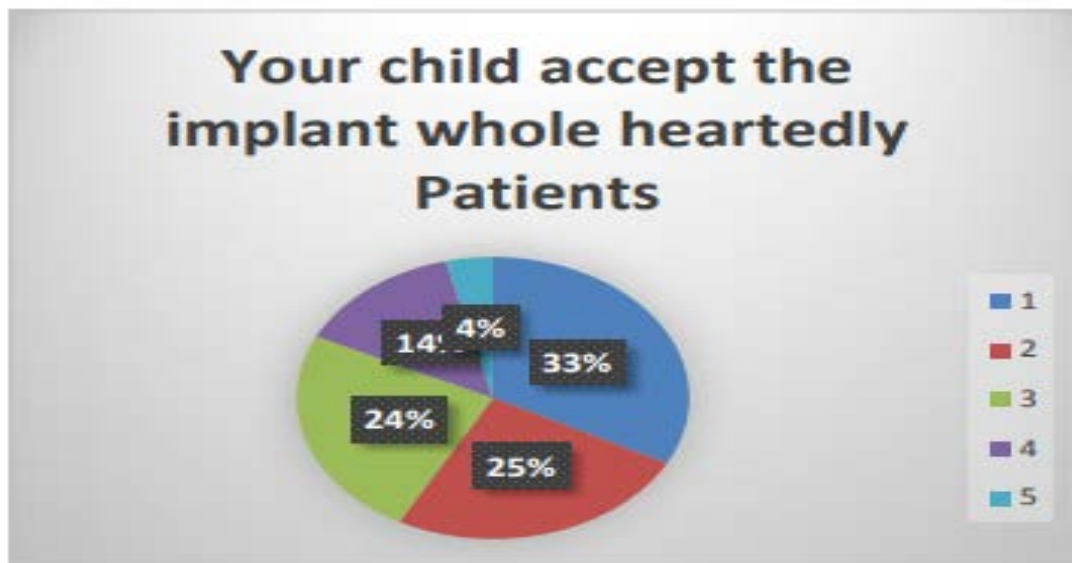


Figure 1 is showing that only 4% children accept the cochlear implant whole heartedly.

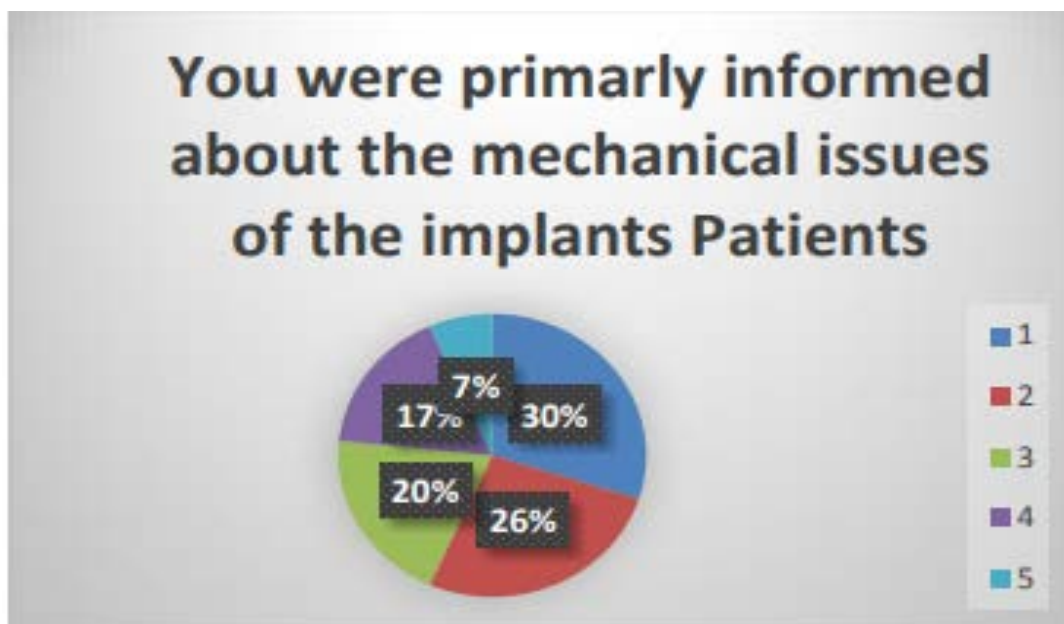


Figure 2 is showing that only 7% people were primarily informed about the mechanical issues of the plant.

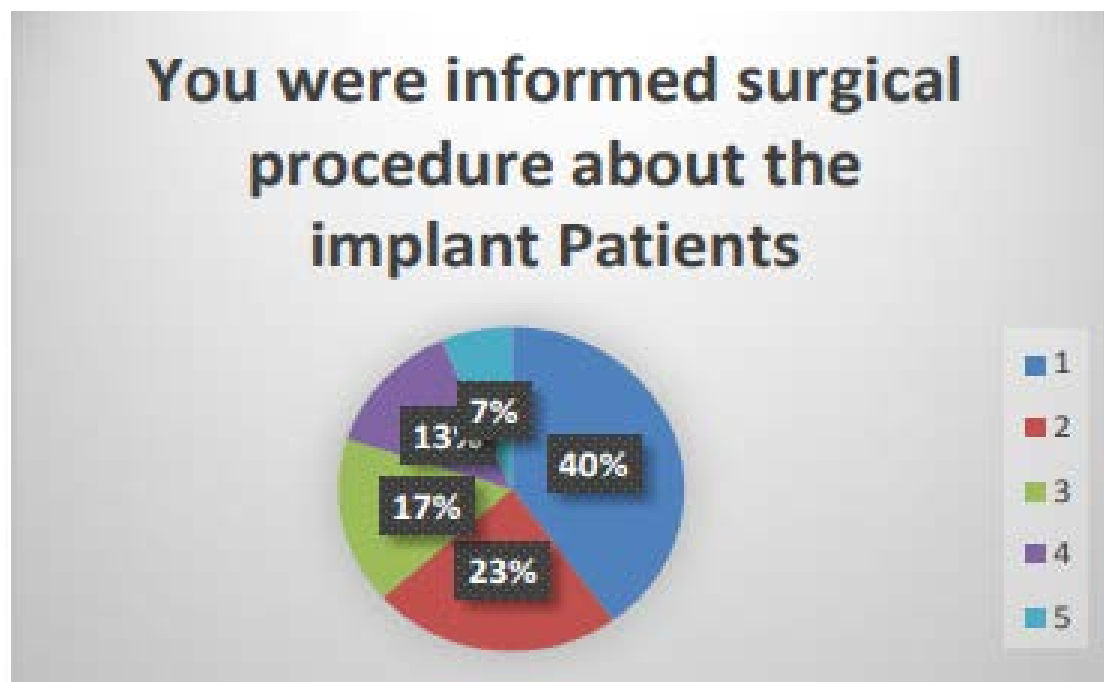
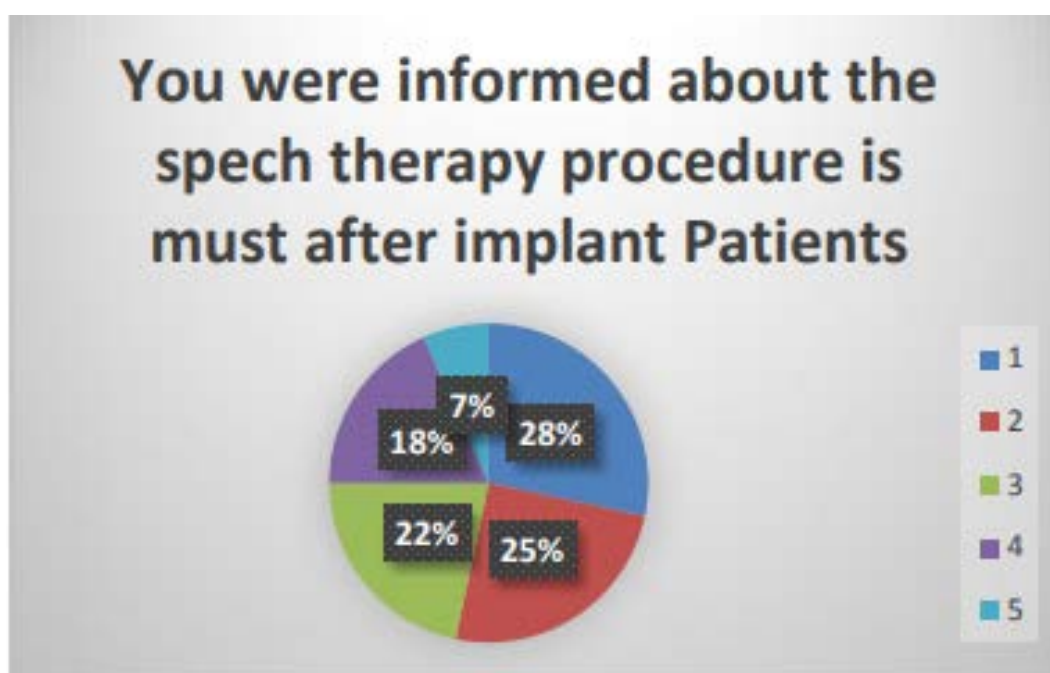


Figure 3 shows that only 7% people were informed about the surgical procedure of implant.



Above mentioned figure 4 is showing that 25% parents are willing to say that they were not informed about speech therapy procedure and only 7 % were informed properly.

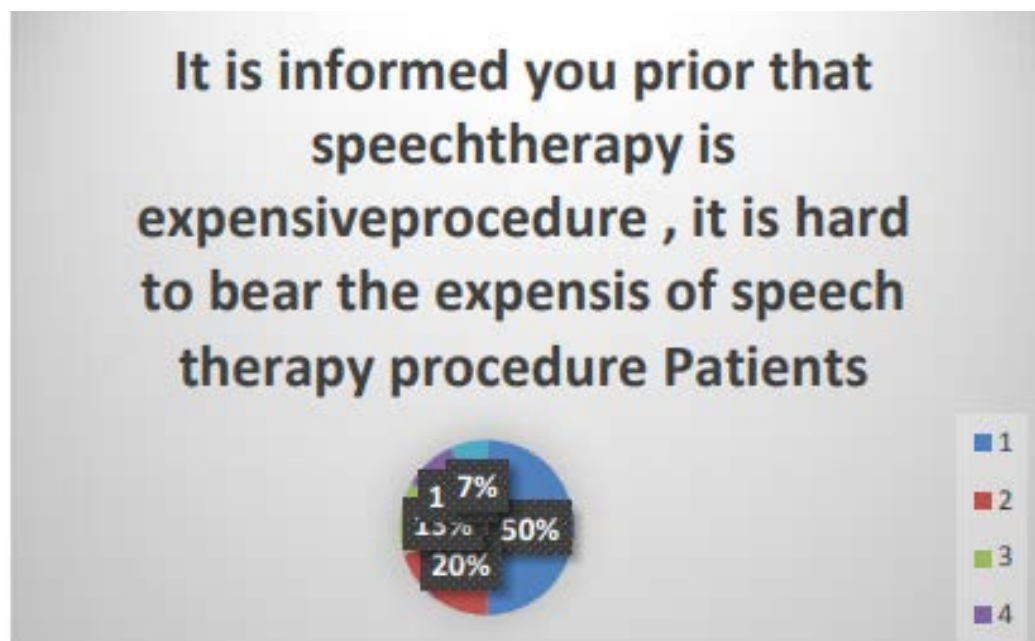


Figure 5 is showing that it is 50% of the patient were not informed that speech therapy is expensive procedure.



Above mentioned figure 6 showing that 32% parents were strongly agree on this statement which is showing that it is difficult for them to travel for speech therapy.

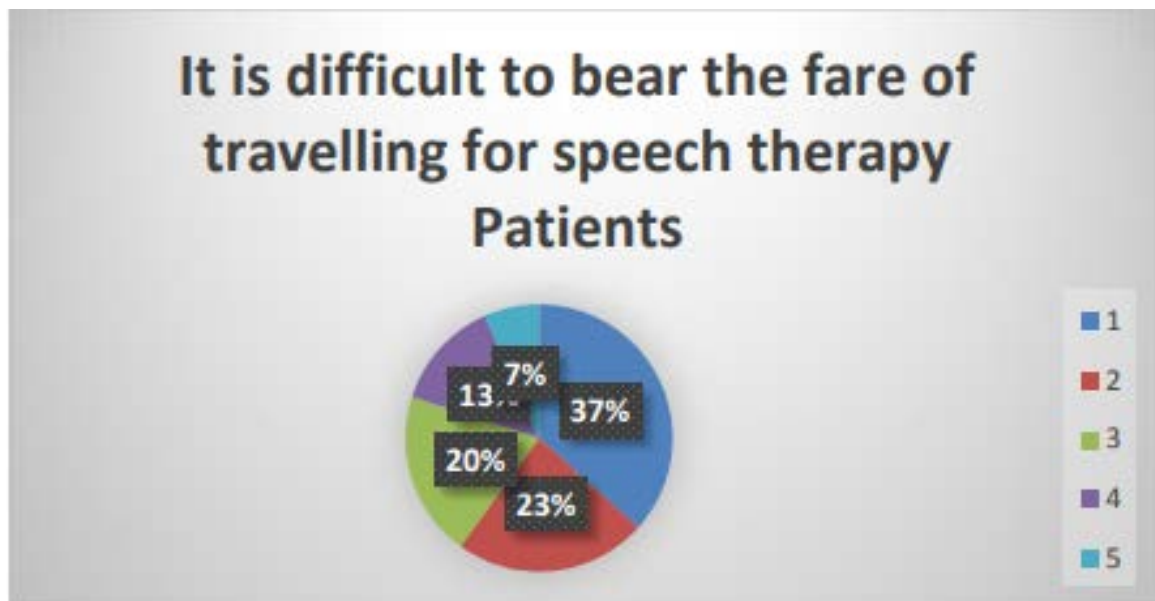


Figure 7 is showing that 37% were strongly agree that it is hard for them to bear the fare of travel for speech therapy.



In figure 8 we can see that only 10 % people are strongly agree on that they can manage their time for speech therapy and 29 % people find its hard to manage the time for speech therapy for their children.

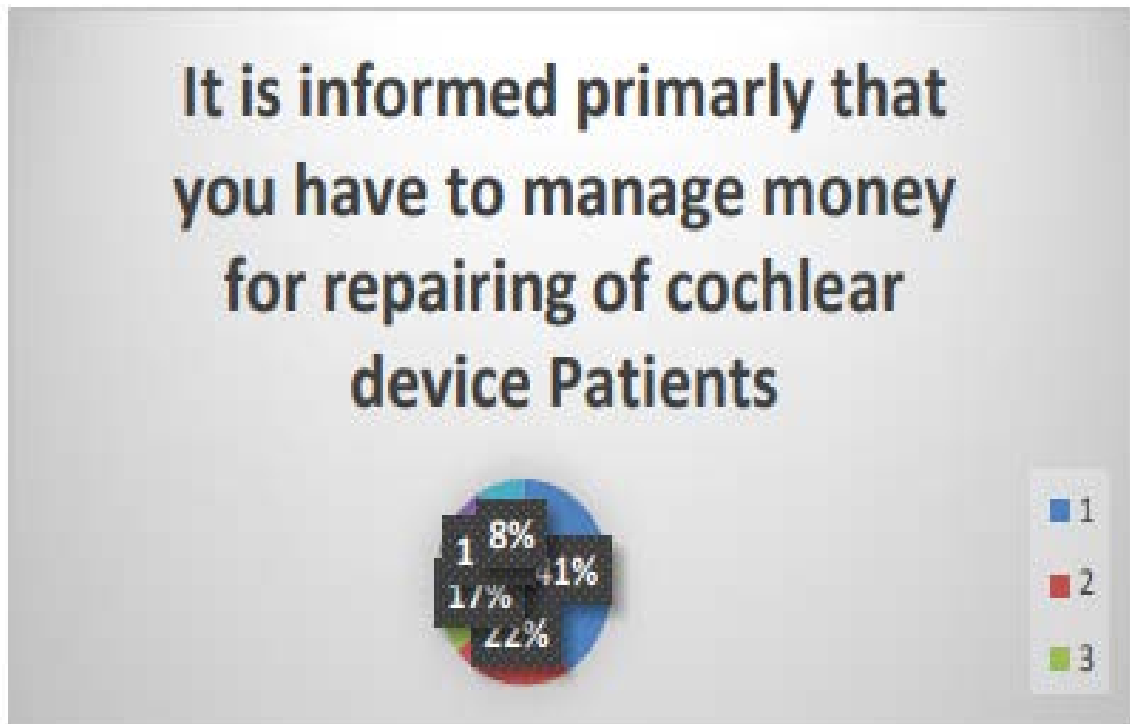


Figure 9 is showing that 41% parents are strongly disagree with this statement that they were primarily informed about the cochlear device management expensis.

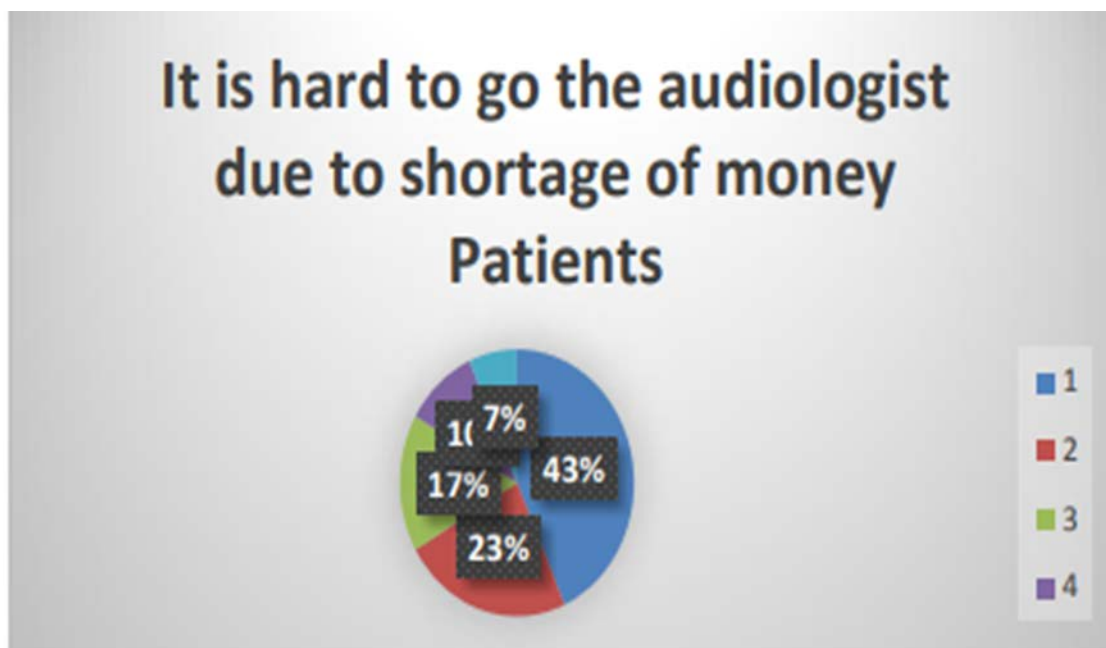


Figure 10 is showing that 43% patient were found with the shortage of money for audiologist's visits.

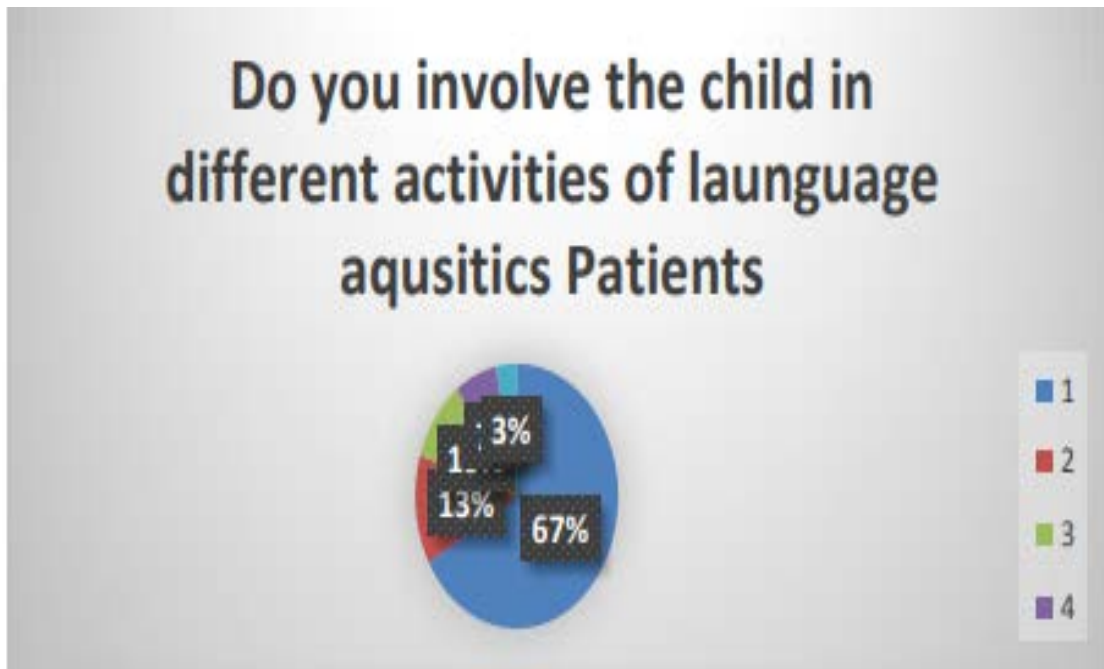


Figure 11 is showing 67% patients are strongly disagree with this statement that their children were involved with language acquisition activities.

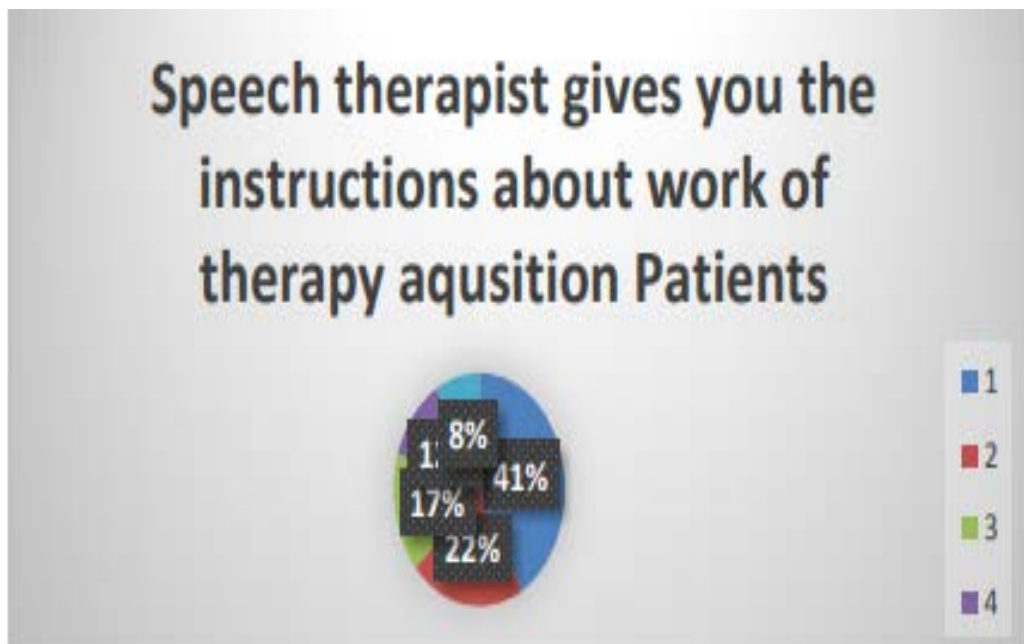


Figure 12 is showing that 41% strongly disagree with it that their speech therapist gave instructions about work at home.



Figure 13 is showing that 43% parents are strongly disagree with the statement that they can follow the speech therapist instructions easily at home.

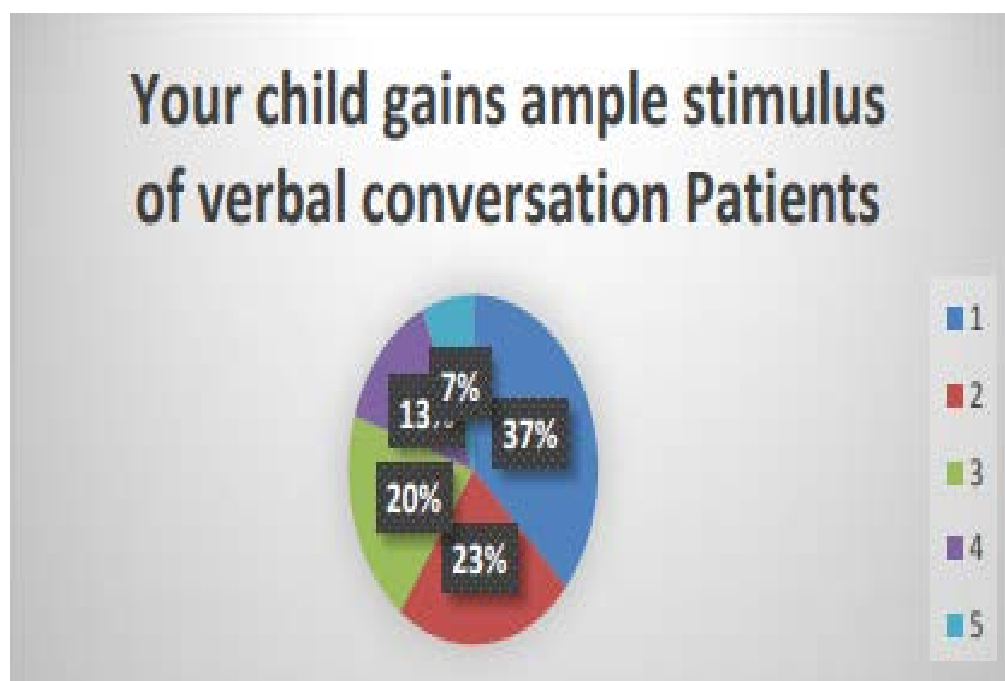


Figure 14 is showing 37% people are strongly disagree on the gain of ample verbal stimulus.

You ask question to your speech therapist about the practice at home Patients



Figure 15 shows that 65% parents are strongly disagree about the statement of asking the speech therapist about the home practice.

Your speech therapist do not get irritable at your questions Patients



Figure 16 is showing that only 17 % parents are strongly agreed and 22% are agree with the statement about their children's speech therapist did not get irritable on questioning of the parents about speech practice.

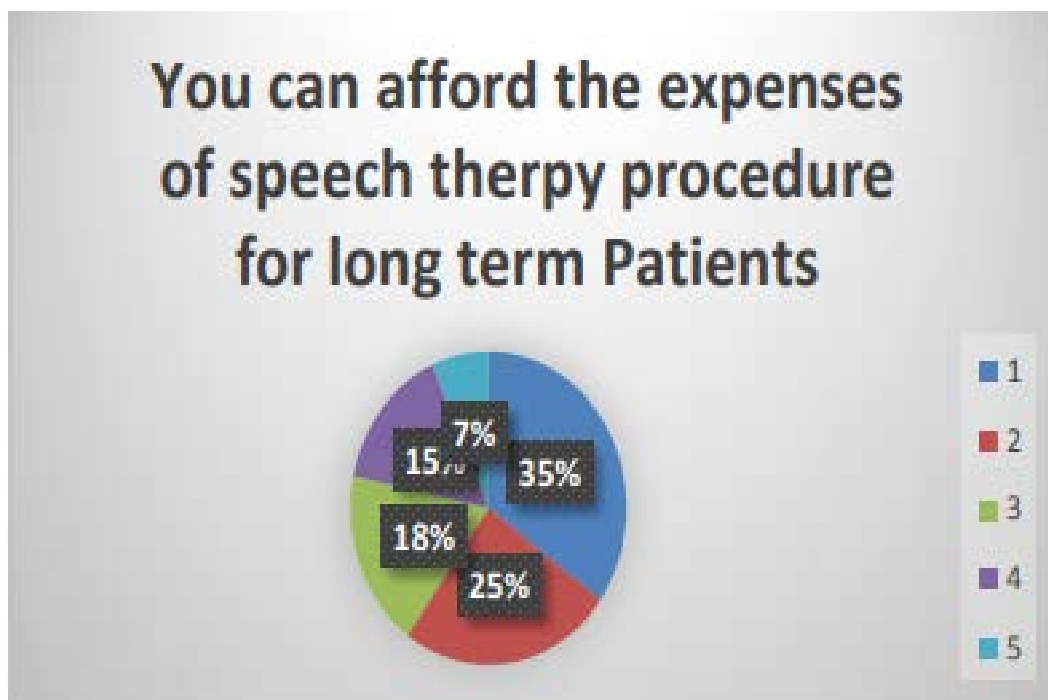


Figure 17 shows that only 7% parents can afford the expenses of speech therapy procedure for long term.

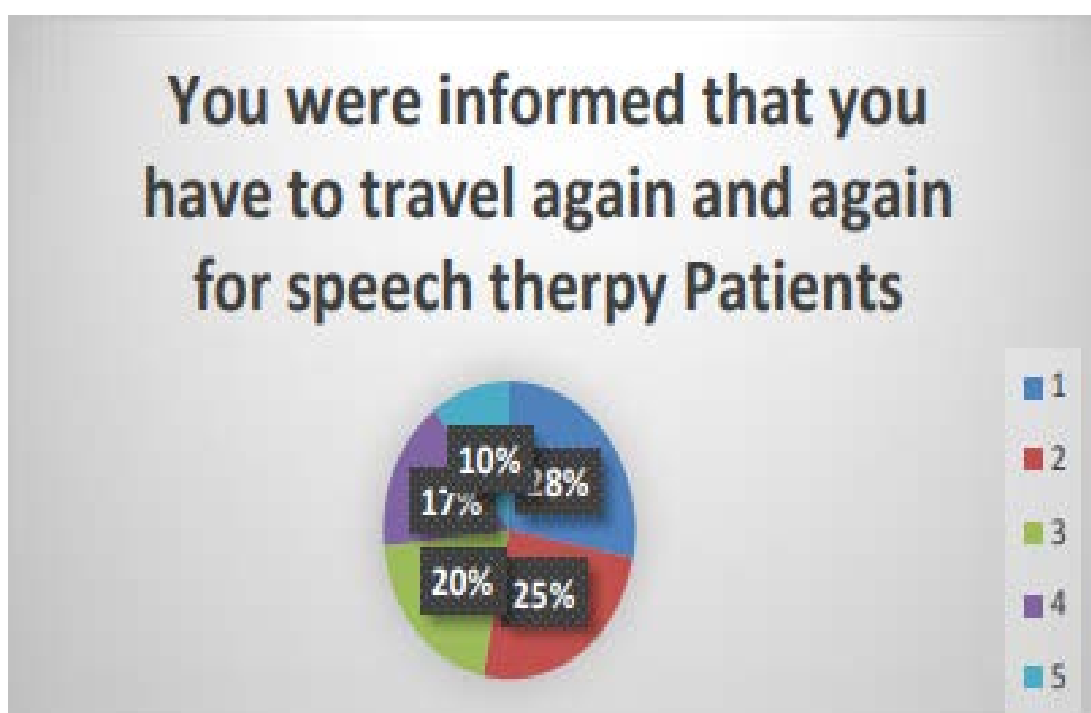


Figure 18 is showing that only 10% people and strongly agree with this statement that they were informed that they have to travel again and again for speech therapy of their children.

Conclusion

Above mentioned results show that parents of children with cochlear implant users are still facing many issues regarding their finance, procedural, surgical, technical, traveling and awareness.

The results show that in Pakistan poor economy of parents leads them to discontinue the therapy system but well-educated parents to somehow tried to manage but they are few in numbers. It is keenly observed that many of the parent of cochlear implant users come from far away from hospitals, clinics, institutes and therapy centers. So that they find it hard to go again and again for speech therapy. By keeping this thing in mind, the government should promote therapeutic services and therapy centers in every district and major areas of villages and different towns from government.

On the other hand, an accountability system should be introduced by the government, so if any of the patient does not follow the instructions about speech therapy and auditory verbal training will face the hard steps or charge fine. In Pakistan the education of the parents also plays vital role, as well as awareness of the parents is a big hurdle for children with cochlear implant.

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