DOI: https://doi.org/10.54393/pjhs.v3i06.316

PAKISTAN JOURNAL OF HEALTH SCIENCES
https://thejas.com.pk/index.php/pjhs
Volume 3, Issue 6 (November 2022)

Original Article

Comparison of Pragmatic Skills in Hearing Aid Users vs Normal Hearing Children

Zarish Mustafa[1*], Hafsa Noreen[2], Saba Yaqoob[2], Bilal Hussain[3], Fazaila Ehsaan[2], Syeda Asfara Badar[2], Muhammad Azzam Khan[1] and Tallat Anwar Faridi[4]

[1]Department of Rehabilitation Sciences, Faculty of Allied Health Sciences, University of Lahore, Pakistan
[2]Department of Rehabilitation Sciences, Riphah International University, Pakistan
[3]Department of ENT, University College of Medicine and Dentistry, University of Lahore, Pakistan
[4]University Institute of Public Health, Faculty of Allied Health Sciences, University of Lahore, Pakistan

ARTICLE INFO

Key Words:
Normal Hearing, Hearing Aid Users, Pragmatic Skills

How to Cite:
Mustafa, Z. ., Noreen, H. ., Yaqoob, S. ., Hussain, B. .,Ehsaan, F. ., Asfara Badar, S. ., Azzam Khan, M. ., & Anwar Faridi, T. (2022). Comparison of PragmaticSkills in Hearing Aid Users' Vs Normal HearingChildren: Pragmatic Skills in Hearing Aid Users.Pakistan Journal of Health Sciences, 3(06). https://doi.org/10.54393/pjhs.v3i06.316

***Corresponding Author:**
Zarish Mustafa
Department of Rehabilitation Sciences, Faculty of Allied Health Sciences, University of Lahore, Pakistan
xari.rajput@gmail.com

Received Date: 31st October, 2022
Acceptance Date: 23rd November, 2022
Published Date: 30th November, 2022

ABSTRACT

Hearing impairment (HI) is most typical birth defect. Pragmatics abilities usually developed in the first eight years of life in children. **Objectives:** To compare the pragmatic abilities of both children who are hearing aid users and normal hearing to asses pragmatics based on instrumental, regulatory, personal, interactional, need explanations, knowledge sharing and explanation**. Methods:** It was a comparative cross-sectional survey. Total sample of 54 children were included. 27 children were hearing aid users and 27 with the normal hearing. Purposive sampling technique was used in this study. All individuals with normal hearing and those who use hearing aid were included with the age range of 3 to 7 years. Social communication pragmatics checklist was used for collecting the data. **Results:** Results showed that children with normal hearing had overall better pragmatic abilities as contrast to the children who use hearing aid. The mean pragmatic skill total score in normal hearing children was 154.40 ± 18.9 and Hearing aid user children was 115.07 ± 27.98. There was significant difference in the mean pragmatic skill total score among both groups (P-value <0.05). **Conclusions:** It was concluded that communication-pragmatic abilities are good in children with normal hearing as compared to children who are hearing aid users.

INTRODUCTION

The most typical birth defect (BD) is hearing impairment. Because there is insufficient auditory information, hearing impairment has a negative impact on the development of early communication skills. Because of this, children with extreme HI are far more likely to experience serious delays in speech and language development, which may affect their ability to communicate, grow cognitively, and develop socially [1, 2]. When using oral-aural programmes, children demonstrate strong spoken language abilities and have fewer communication breakdowns than when using complete communication programmes [3]. Pragmatics abilities are often developed in the first eight years of life with a variety of peers through experience in regular discussions. By engaging in these reciprocal links, infants learn to distinguish between sender and receiver as well as a receiver of details [4]. Children with hearing loss follow more instructions and ask fewer questions than children with normal hearing, are barely able to keep the conversation on-topic, and display fewer distinct pragmatic conversational speech patterns, according to studies and knowledge about the development of pragmatics abilities in hearing loss children [5]. In a study,

DOI: https://doi.org/10.54393/pjhs.v3i06.316

subjects who reported feeling enervated generally received lower marks for all of the microstructure elements of stories. However, the findings showed that there was little to no difference between different groups in the macrostructure of stories. It was also discovered that the students performed equally well on spoken and written accounts. Finally, a factor analysis revealed that the congregation, gender, and age of listening may affect the outcome of various communications [6, 7]. After discernibility is put to the test by background noise and hearing loss, visual information from communicators increases speech fluency for audience members. Only a small amount of information is known on how to actively process listening while maintaining knowledge of visual commands from various talkers in contexts with multiple talkers [8]. Early-implanted children could develop greater social communication skills similar to peers with normal hearing, and it could also plan for age one year after device activation. Grammatical improvements and social communication skills are indisputable correlates, but the current study design makes it impossible to predict the direction of this association. Children who had some preoperative residual hearing that was better showed more pragmatic ability [9]. The "hypothesis of brain" is one psychological domain in which hearing children are known to outperform hard of hearing children. Early conversational experiences that were ruined and the difficulty of conversing about hypothetical mental states are seen as possible promoters of this weakness [10]. The group's decision on the three requests' procedures varied significantly as well. The groups revealed similar amounts of mature enough correct expressive language, but they appeared to differ in how it was used in everyday situations. It was advised that projects' methodological preparation should take the speaker's speech understandability into account and be tailored to their particular demands [11].

METHODS

This comparative cross-sectional study was conducted for nine months in the Audiology center Lahore and district headquarters hospital Okara. Social communication checklist (the pragmatic checklist) was used to assess the pragmatic abilities of children using hearing aids and typical hearing. All Performa were filled by Speech Language Pathologists. Sample size was 54 (27 in each group). Using the level of mastery by age 7 years among normal (100%) vs hearing aid users (69%) the sample size was calculated using formula for two independent proportions. Proportion in group 1 was 1 and proportion in group 2 was 0.69. So, the (r) was 1 and calculated sample size was 27 in each group. Purposive sampling technique was used in the current study. Children who had normal hearing and who were hearing impaired, both were included in the study. Those children with hearing impairment who were wearing hearing amplification devices from at least 3 years and fall in age range of 3 to 7 years were included in the study. Post lingual hearing aid user and children with any physical and psychological disorder co morbid with hearing loss were excluded from this study. Measuring tool was social communication checklist. The pragmatics checklist which is a standardized tool and Cronbach's alpha value is 0.80. Total 45 pragmatic items were included. There are six categories in the checklist which defines the pragmatic skills. (1) instrumental, (2) regulatory, (3) personal, (4) interactional, (5) wants explanation, (6) shares knowledge [12].

RESULTS

The data analytic strategies involved demographic information and mean difference and standard error in pragmatic skills of children with normal hearing and hearing aid users. The two sections comprise of the demographic section and the comparative differences between normal hearing and non-hearing aid users. The final table shows the cumulative score of the pragmatic ability of both types of individuals. The demographic information of the hearing impaired and normal hearing children, the gender, socioeconomic status and age of the children. The subjects were divided equally between normal hearing and hearing aid users, majority of the subjects were male and the socioeconomic status cluster mainly comprises of lower income individuals. The children were mostly between the ages of 5-6 years. The gender of the child when paired with hearing status we can see males with hearing aid show more response and normal hearing females show more response. The socio-economic status with normal hearing were more in number and the middle class catered more towards hearing aid users, in the upper class more children were from the normal hearing category. When compared with family type the joint family system children who were hearing aid users had better pragmatic abilities. The parental education when compared with hearing status of child shows that the illiterate families had better pragmatic abilities in hearing children and the educated people had majority development in the hearing aid children, whereas the highly educated parents of children also had better skills for normal hearing individuals (Table 1).

Variable	Child Hearing Status		Total
	Normal Hearing	Hearing Aid User	
Gender			
Male	13(48,1%)	18(66.7%)	31(57.4%)
Female	14(51.9%)	9(33.3%)	23(42.6)
Socioeconomic Status			
Lower Class	10(37.0%)	9(33.3%)	19(35.2%)
Middle Class	12(44.4%)	15(56.6)	27(50.0%)
Upper Class	5(18.5%)	3(11.1%)	8(14.8%)

DOI: https://doi.org/10.54393/pjhs.v3i06.316

Family type			
Joint	15(55.6%)	18(66.7%)	33(61.1%)
Nuclear	12(44.4%)	9(33.3%)	21(38.9%)
Parents Education			
Illiterate	10(37.0%)	4(14.8%)	14(25.9%)
Educate	9(33.3%)	18(66.7%)	27(50.0%)
dhighly Educated	8(29.6%)	5(1.5%)	13(24.1%)
Age of Child			
3-4	9(33.3%)	11(40.7%)	20(37.0%)
5-6	9(33.3%)	12(44.4%)	21(38.9%)
Up-to 7	9(33.3%)	4(14.8%)	13(24.1%)

Table 1: Demographic information

The mean pragmatic skill total score in Normal Hearing children was 154.40 ± 18.9 and Hearing aid user children was 115.07 ± 27.98. there was significant difference in the mean pragmatic skill total score among both groups (P-value <0.05)(Table 2).

	Child Hearing Status	Mean ± SD	P-value
Pragmatic Skill Total Score	Normal Hearing	154.4074 ± 18.94376	0.000
	Hearing Aid User	115.0741 ± 18.94376	

Table 2: Mean difference in pragmatic skill score among hearing aid and normal hearing children

DISCUSSION

This study aimed to compare the pragmatic ability of the children who wore the hearing aids due to hearing deficit and children who have normal hearing, in order to spotlight on social aspects and language use. The sum of sample was 54 children, age ranges from 3 to 7 years of age and 27 were normal hearing and 27 were hearing aid users. Children for this study were chosen by using non probability purposive sampling technique. DeLuzio and Luigi examined peer interactions between children with and without hearing loss in 2011. The ability of children with hearing loss (SPHL) to manage conversational exchanges with peers in social situations. Close friends of preschoolers with SPHL avoided social interactions with them. Age-appropriate linguistic skills were no guarantee of successful friendships. Comprehensive preschool initiatives can think about providing homeroom-wide social skills training to improve cooperation opportunities [13]. According to 2015 study by Hoffman *et al.*, the focus of this investigation was on verbal and the social development of young children with hearing loss and their hearing companions. Relapse findings revealed that linguistic age and hearing ability predicted social skill in two groups after controlling for mother training and remuneration. Connections were also seen in the age of amplification, the age of enhancement, and the total social skill testing in children with hearing loss. The results corroborated the theory that linguistic deficiencies may have negative effects on early hard of hearing children's progress in social abilities [14]. Nicholas stated that the research shows a cross-sectional investigation of social communication skills in children with substantial hearing loss and children with normal hearing. A rather unique example of open work advancement in children with hearing impairment and normal hearing was suggested by Nicholas. Additionally, the success of traditional linguistic achievements was strongly linked to the use of language in social designs [15]. In order to build an appropriate intercession database and prepare for the effects of early pragmatic language expertise issues on later scholastic and social capacities, the main goal of this study was to examine the pragmatic linguistic capacity of Arbi-talking children with sensorineural hearing loss. The findings of this investigation showed that children with HL had significantly worse pragmatic abilities than children with NH. The amount of HL, discourse separation capacity, and the concept of hearable suffering all showed notable connections with the realistic elements. Shoeib *et al.*, found the importance of pragmatic skills for additional socially instructive and academic vocations as well as the increased powerlessness to pragmatic impedance in this category of children should be taken into account in their rehabilitation plan [16]. This investigation looked at how weak and typical talking kids used language in dialogue. Twenty individuals who were language-impaired (LI) in stages III and IV formed the trial group. One benchmark group was made up of 20 typically speaking, more normal young children (NSY), who were compared to MLU's language-impaired individuals. The other comparison group was made up of 20 more seasoned average normal speaking children (NSO) who were compared to the test group according to chronological age. More than the LI or NSY, the NSO used describing and recognizing conversation acts. The LI employed noting more frequently than the NSO did. The NSY used mentioning an action more frequently than the NSO. The findings suggest that language-weak persons can use a variety of discourse [17]. In this study, disconnected word acknowledgment explorations in cued speech for French in both normal-hearing and the hard of hearing subjects were introduced. Cued speech recognition for augmentative communication in normal-hearing and hearing-disabled subjects appeared in this investigation's results. Communication was achieved at a rate of 92.0% for those with hearing loss and 95.2% for those with normal hearing thanks to the cues [18]. In tasks involving hearable verbal memory of sounds (reverse), visual-verbal memory of letters, and visual-verbal memory of pictures, the hearing-impaired children performed on par with typically hearing children. Nevertheless, they showed lesser levels of understanding appreciation execution (p<0.001). Additionally, there was little evidence of a link between

DOI: https://doi.org/10.54393/pjhs.v3i06.316

working memory and reading comprehension. Rezaei *et al.*, study shown that children with hearing loss have a significant impairment in their capacity to read comprehension. Inability to understand language content and jargon may be the main cause of these kids' weak reading comprehension. Working memory is most definitely not a reliable predictor of understanding comprehension in children with hearing impairment [19]. The purpose of this study was to compare the outcomes of children with severe to profound hearing loss who learned language through cochlear inserts to those of a group of candidates with moderately serious to severe hearing loss who use listening devices on a range of language (discourse language, phonology, and cognition). 40 children with corresponding sensorineural hearing loss, aged 6 to 18, were enrolled in this study. Twenty children had moderately severe or acute hearing loss and wore hearing aids, while 20 had severe to profound hearing loss and wore cochlear implants. Discourse acknowledgment Tests and standardized ratios of discourse production, language, phonology, and insight were used to survey students' academic and communication skills. Discourse language, phonology/education, and discernment were considered in the current study. This study suggests that, when compared to portable amplifiers, using a cochlear implant as an assistive device improves the development of language abilities (discourse language, phonology, and discernment)[20].

CONCLUSIONS

Summarizing, the major outcome of this study was the comparison of pragmatics, which includes instrumental, personal, regulatory, interactional, shares knowledge, wants explanations and concluded that children having the normal hearing status showed the good pragmatic abilities compared to hearing impaired children.

Conflicts of Interest

The authors declare no conflict of interest

Source of Funding

The author(s) received no financial support for the research, authorship and/or publication of this article

REFERENCES

[1] Armstrong NM, An Y, Ferrucci L, Deal JA, Lin FR, Resnick SM. Temporal sequence of hearing impairment and cognition in the Baltimore longitudinal study of aging. The Journals of Gerontology: Series A. 2020 Feb; 75(3): 574-80. doi: 10.1093/gerona/gly268

[2] Dieleman E, Percy-Smith L, Caye-Thomasen P. Language outcome in children with congenital hearing impairment: The influence of etiology. International Journal of Pediatric Otorhinolaryngology. 2019 Feb; 117: 37-44. doi: 10. 10 16/j.ijporl.2018.11.002

[3] Tye-Murray N. Conversational fluency of children who use cochlear implants. Ear and Hearing. 2003 Feb; 24(1): 82S-9S. doi: 10.1097/01.AUD.0000051691. 33869.EC

[4] Ibertsson T, Hansson K, Asker-Àrnason L, Sahlén B. Speech recognition, working memory and conversation in children with cochlear implants. Deafness & Education International. 2009 Sep; 11(3): 132-51. doi: 10.1179/146431509790559615

[5] Lederberg AR and Everhart VS. Conversations between deaf children and their hearing mothers: Pragmatic and dialogic characteristics. Journal of Deaf Studies and Deaf Education. 2000 Sep; 5(4): 303-22. doi: 10.1093/deafed/5.4.303

[6] Most T, Shina-August E, Meilijson S. Pragmatic abilities of children with hearing loss using cochlear implants or hearing aids compared to hearing children. Journal of Deaf Studies and Deaf Education. 2010 Oct; 15(4): 422-37. doi: 10.1093/deafed/enq032

[7] Zamani P, Soleymani Z, Rashedi V, Farahani F, Lotf G, Rezaei M. Spoken and written narrative in persian-speaking students who received cochlear implant and/or hearing aid. Clinical and Experimental Otorhinolaryngology. 2018 Dec; 11(4): 250-258. doi: 10.21053/ceo.2017.01011

[8] Lewis DE, Smith NA, Spalding JL, Valente DL. Looking behavior and audiovisual speech understanding in children with normal hearing and children with mild bilateral or unilateral hearing loss. Ear and Hearing. 2018 Jul; 39(4): 783-794. doi: 10.1097/AUD.0000000000000534

[9] Guerzoni L, Murri A, Fabrizi E, Nicastri M, Mancini P, Cuda D. Social conversational skills development in early implanted children. The Laryngoscope. 2016 Sep; 126(9): 2098-105. doi: 10.1002/lary.25809

[10] Macaulay CE and Ford RM. Language and theory-of-mind development in prelingually deafened children with cochlear implants: A preliminary investigation. Cochlear implants International. 2006 Mar; 7(1): 1-4. doi: 10.1179/cim. 2006.7.1.1

[11] Most T. The use of repair strategies by children with and without hearing impairment. Language Speech and Hearing Service in Schools. 2000 Apr; 33(2): 112-123. doi: 10.1044/0161-1461(2002/009)

[12] Goberis D, Beams D, Dalpes M, Abrisch A, Baca R, Yoshinaga-Itano C. The missing link in language development of deaf and hard of hearing children: pragmatic language development. InSeminars in

DOI: https://doi.org/10.54393/pjhs.v3i06.316

speech and language 2012 Nov (Vol. 33, No. 04, pp. 297-309). Thieme Medical Publishers. doi: 10.1055/s-0032-1326916

[13] DeLuzio J and Girolametto L. Peer interactions of preschool children with and without hearing loss. Journal of Speech Language and Hearing Research. 2011 Aug; 54(4): 1197-1210. doi: 10.1044/1092-4388(2010/10-0099)

[14] Hoffman MF, Quittner AL, Cejas I. Comparisons of social competence in young children with and without hearing loss: A dynamic systems framework. Journal of Deaf tudies and Deaf Education. 2015 Apr; 20(2): 115-24. doi: 10.1093/deafed/enu040

[15] Nicholas JG. Age differences in the use of informative/heuristic communicative functions in young children with and without hearing loss who are learning spoken language. Journal of Speech, Language, and Hearing Research. 2000 Apr; 43(2): 380-94. doi: 10.1044/jslhr.4302.380

[16] Shoeib RM, Kaddah FE, Kheir El-Din ST, Said NM. Study of pragmatic language ability in children with hearing loss. The Egyptian Journal of Otolaryngology. 2016 Jul; 32(3): 210-8. doi: 10.4103/1012-5574.186526

[17] Rom A and Bliss LS. A comparison of verbal communicative skills of language impaired and normal speaking children. Journal of Communication Disorders. 1981 Mar 1;14(2):133-40. doi: 10.1016/0021-9924(81)90006-X

[18] Heracleous P, Beautemps D, Abboutabit N. Cued speech recognition for augmentative communication in normal-hearing and hearing-impaired subjects. Interspeech 2009. 2009 Sep; doi: 10.21437/interspeech.2009-427

[19] Rezaei M, Rashedi V, Gholami Tehrani L, Daroei A. Comparison of reading comprehension and working memory in hearing-impaired and normal-hearing children. Bimon Audit Tehran Univ Med Sci. 2013 Mar; 22(1): 67-74.

[20] Bollapalli VR and Prakash S. A Comparative Study on the Development of Language Skills among the Children using Cochlear Implant and Hearing Aids. Journal of Communication Disorders, Deaf Studies & amp; Hearing Aids. 2019; 07(03): 1-9. doi: 10.35248/2375-4427.19.7.192