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Oral-Language Skills of the Iranian Pupils With Hearing-Impairment

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Background: Spoken and written language skills of prelingually deaf pupils should be evaluated to improve the existing language curricula.

Objectives: The current study aimed to determine the oral language development of the students with hearing impairment studying in Shiraz special primary schools.

Patients and Methods: The current research was administered as a cross-sectional study. The sample size was 29 Farsi language students of exceptional primary schools with hearing impairment in Shiraz, Iran. A speech-language pathologist (SLP) evaluated the subjects by Farsi version of the Test of Language Development-Primary 3 (TOLD-P: 3) individually. A number of TOLD-P: 3 subtests were administered in the subjects including: semantics, grammar, listening, organizing, speaking, and overall language ability. To determine the oral language ability of the subjects compared to the norms, the subjects' score in each dimension was statistically compared with the nearest category in the scale. The data were registered in IBM SPSS 21, and analyzed by means of one-sample T-test at 0.05 significance level.

Results: There was a significant difference between the subject's scores in all sub-tests and the category of moderate in TOLD-P: 3 ($P < 0.001$).

Conclusions: Based on the current study, the students with hearing impairment enrolled in special schools had difficulties to learn optimal oral language skills compared to their normal peers.

Keywords: Hearing Loss; Pupils; Special Schools

1. Background

Children born with congenital hearing loss have significant difficulties with acquisition of oral language (1). As an approved finding, hearing loss (HL) can cause mild to severe speech and/or language disorders in children based on its severity (2). Therefore, the children with hearing impairment should receive early detection and early intervention to acquire oral language (3). After that, they are enrolled at normal or special schools for children with hearing impairment, based on their developmental status. Undoubtedly, the most determinant factor of enrolling a child with HL in the normal schools is his/her oral language ability; in other words, if a child with hearing impairment can succeed in the entrance exam of normal schools, depending on his/her oral language skills, she/he will be enrolled in that school. Otherwise, she/he should be educated in the special schools for hearing-impaired pupils. Besides, the sooner the child with severe-profound hearing loss is detected, the sooner she/he can benefit from rehabilitation services; therefore, if the child cannot acquire appropriate oral language skills (4), she/he has to enroll at the special school. The findings of the studies on the children who did not receive early intervention show that they faced serious problems in acquisition of oral language skills and subsequent school performance (5). Consequently, they cannot achieve literacy, because oral language abilities are pre-requisites of learning, reading, and writing skills. Indeed, the spoken and written language skills of prelingually deaf pupils should be evaluated to improve the existing language curricula (6). There have been a few studies on the children with HL studying in the special schools in Iran so far aiming the other aspects of the children with hearing impairment including: auditory comprehension, literacy and social behaviors; therefore, none of them studied the oral language of the children.

2. Objectives

The current study aimed to determine the oral language development of the students with hearing impairment in Shiraz special primary schools.

3. Patients and Methods

The research was administered as a cross-sectional study. Informed consent was obtained from each patient participating in the study and the study protocol was approved in the Ethical Committee of Shiraz Welfare Organization. The sample size was 29 Farsi language students

of exceptional primary schools with hearing impairment in Shiraz, Iran. The subjects were recruited through consecutive sampling method, and thus all of the students with the inclusion criteria were recruited. The inclusion criteria included normal IQ (intelligent quotient), bilateral severe-profound, sensory-neural hearing loss, using hearing aids or cochlear implant, using oral language as the communication method, no other disabilities, and studying in the first-to-fifth grades. The educational documents of the students were used to find the qualified ones. Then, a speech-language pathologist (SLP) evaluated the subjects by the Farsi version of the Test of Language Development-Primary: 3 (TOLD-P: 3) individually at the schools. Each subject was given approximately 90 minutes for the test. The data were collected in a one-month period. The TOLD-P: 3 adapted to Farsi language is a highly valid and reliable norm-referenced test to assess the development of language skills in children. The mean of Cronbach's alpha as a measure of consistency and the mean of validity coefficient as a measure of usefulness were reported 90.7 and 43.7, respectively. The TOLD-P: 3 has nine subtests which measure various aspects of oral language. The results of these subtests can be combined to form composite scores for the major dimensions of language: semantics, grammar, listening, organizing, speaking, and overall language ability. In fact, the sum of the scores of semantics, grammar, listening, organizing, and speaking will be the score of overall language ability. The TOLD-P: 3 has provided a scale to interpret the scores including: perfect (≥ 131), excellent (121-130), above moderate (111-120), moderate (90-110), below moderate (80-89), weak (70-79), poor (≤ 69). Therefore, to determine the oral language ability of the subjects compared to the norms, the subjects' score in each dimension was statistically compared with the nearest category in the scale. For example, if a subject's listening quotient was 72, the nearest category was weak (70-79); therefore, the subject's score was compared with the mean of this category, i e, 74.5. If the difference between them was insignificant, the subject's listening ability was described as weak. Otherwise, the subject's listening ability was described as poor, because the subject's score was in this category. The data were registered in IBM SPSS 21 and analyzed by means of one-sample T-test at 0.05 significance level. As the data were normal, the parametric test was used.

4. Results

The subjects' age range was 8- 16 (SD = 2.53, mean = 13.36). Besides, the gender distribution of the subjects was 22 males (75.90%) and seven females (24.10%). Also, 28 subjects (96.60%) used hearing aids, while only one child (3.40%) used cochlear implant. Table 1 indicates the results of comparison between the scores of the students with hearing impairment and TOLD-P: 3 norms. There was a significant difference between the subject's scores in all sub-tests and the category of moderate in TOLD-P: 3 including: semantics (SD = 14.27, t = -5.67, $P < 0.001$), grammar (SD = 9.62, t = -23.11, $P < 0.001$), organizing (SD = 14.25, t = -11.53, $P < 0.001$), listening (SD = 12.93, t = -6.86, $P < 0.001$), speaking (SD = 11.20, t = -16.27, $P < 0.001$), and overall language ability (SD = 11.74, t = -13.63, $P < 0.001$).

5. Discussion

According to the findings of the study, overall language ability of the pupils with hearing impairment enrolled in Shiraz special primary schools was weak. The overall ability of the subjects in different language dimensions was lower than that of the eight- year-old children with normal hearing including: semantics and listening below moderate, organizing weak, and grammar and speaking poor. In other words, listening and speaking skills of 8- to 16-year-old students with severe-profound HL were lower than those of the eight-year-old normal children. Then, there is a significant gap between the children studying in special primary schools and their normal peers. It seems that late detection (5, 7), using hearing aids instead of cochlear implant (8-10), late intervention (4, 11) and inappropriate education and habilitation before (5) and during school were the main factors impeding the pupils to achieve optimal oral language skills. Therefore, further studies are needed to determine the main factors influencing oral language development in the Iranian pupils. As mentioned earlier, considering the relationship between oral language abilities and literacy, students with hearing impairment have serious problem in acquisition of reading and writing skills. Of course, further studies have to be conducted to find the appropriate response

Table 1. Comparing the Subjects' Scores With the Norms of TOLD-P:3

Language Dimensions	Category	Children With Normal Hearing	Children With Hearing Loss			SD	T-test	P Value
			Min	Mean	Max			
Semantics	Below moderate	84.50	53	84.96	106	14.27	0.17	0.86
Grammar	poor	69.00	25	58.69	75	9.62	5.77	0.00
Listening	Below moderate	84.50	53	83.51	108	12.93	0.41	0.68
Organizing	Weak	74.5	56	69.48	100	14.25	1.89	0.07
Speaking	poor	69.00	51	66.14	89	11.20	1.37	0.18
Overall language ability	Weak	74.50	51	70.27	88	11.74	1.94	0.06

for the issue. The small sample size was the main limitation of the study. As a strength point, the current study was the first to employ TOLD-P: 3 to examine the Iranian pupils with hearing loss. Based on the current study results, the students with hearing impairment enrolled in special schools had difficulties to acquire optimal oral language skills compared to their normal peers. Consequently, they should receive intensive speech therapy services, especially in the first year of school. But, since the best method of treatment is prevention, enrollment of the children with hearing impairment in the special schools can be prevented through early detection and optimal intervention.

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Authors' Contributions

Study concept and design: Mohammad Majid Oryadi Zanjani; acquisition of data: Maryam Vahab; analysis and interpretation of data: Maryam Vahab; drafting of the manuscript: Mohammad Majid Oryadi Zanjani; critical revision of the manuscript for important intellectual content: Maryam Vahab; statistical analysis: Mohammad Majid Oryadi Zanjani; administrative, technical, and material support: Mohammad Majid Oryadi Zanjani; study supervision: Shiraz Welfare Organization.

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References

1. Hegde MN, Maul CA. *Language disorders in children: An evidence-based approach to assessment and treatment.*: Pearson; 2006.
2. Vohr B, Topol D, Girard N, St Pierre L, Watson V, Tucker R. Language outcomes and service provision of preschool children with congenital hearing loss. *Early Hum Dev.* 2012;**88**(7):493–8.
3. Sarant JZ, Holt CM, Dowell RC, Rickards FW, Blamey PJ. Spoken language development in oral preschool children with permanent childhood deafness. *J Deaf Stud Deaf Educ.* 2009;**14**(2):205–17.
4. Yoshinaga-Itano C. Principles and guidelines for early intervention after confirmation that a child is deaf or hard of hearing. *J Deaf Stud Deaf Educ.* 2014;**19**(2):143–75.
5. Verhaert N, Willems M, Van Kerschaver E, Desloovere C. Impact of early hearing screening and treatment on language development and education level: evaluation of 6 years of universal newborn hearing screening (ALGO) in Flanders, Belgium. *Int J Pediatr Otorhinolaryngol.* 2008;**72**(5):599–608.
6. Becker R, Schildhammer A, Ruoss M. [Language performance of deaf children and adolescents in verbal and written retelling of a picture story]. *Z Exp Angew Psychol.* 1994;**41**(3):349–77.
7. Korres S, Nikolopoulos TP, Peraki EE, Tsiakou M, Karakitsou M, Apostolopoulos N, et al. Outcomes and efficacy of newborn hearing screening: strengths and weaknesses (success or failure?). *Laryngoscope.* 2008;**118**(7):1253–6.
8. Yoshinaga-Itano C, Baca RL, Sedey AL. Describing the trajectory of language development in the presence of severe-to-profound hearing loss: a closer look at children with cochlear implants versus hearing aids. *Otol Neurotol.* 2010;**31**(8):1268–74.
9. Tong MC, Leung EK, Au A, Lee W, Yue V, Lee KY, et al. Age and outcome of cochlear implantation for patients with bilateral congenital deafness in a Cantonese-speaking population. *Ear Hear.* 2007;**28**(2 Suppl):56S–8S.
10. Ostojic S, Djokovic S, Dimic N, Mikic B. Cochlear implant--speech and language development in deaf and hard of hearing children following implantation. *Vojnosanit Pregl.* 2011;**68**(4):349–52.
11. Bubbico L, Di Castelbianco FB, Tangucci M, Salvinelli F. Early hearing detection and intervention in children with prelingual deafness, effects on language development. *Minerva Pediatr.* 2007;**59**(4):307–13.