

Awareness and Knowledge of Audiologists Regarding Benefits of Speech-Language Therapy for Hearing Impaired Individuals

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A B S T R A C T

Objective: To investigate the knowledge and awareness of audiologists regarding the benefits of speech-language therapy for hearing impaired individuals.

Methodology: Cross-sectional Survey study was conducted at the Department of Speech Language Pathology, Riphah College of Rehabilitation Sciences, Lahore, from October 2014 to April 2015. It was a cross-sectional survey through a questionnaire (developed by literature review and experts opinion), including two aspects: knowledge and awareness of audiologists regarding the benefits of speech language therapy for hearing impaired individuals. The target population was the male and female qualified Audiologists working with hearing impaired individuals in the tertiary care units and private clinics of Lahore, Pakistan. The questionnaire was circulated to 63 Audiologists of Lahore, and a total of 60 Audiologists responded back. The response rate was 95.2 %. The data was statistically analyzed through SPSS-16.

Results: There is significant knowledge and awareness of audiologists regarding benefits of speech-language therapy for hearing impaired individuals.

There is a strong correlation between audiologists' Understanding Regarding General Speech Therapy (URGST) and their awareness about the benefits of speech therapy for hearing impaired (ASTHI).

There was no significant effect found in (Private, Public and Both) nature of clinic (unidisciplinary, multidisciplinary) on Understanding Regarding General Speech Therapy (URGST) and Awareness about benefits of Speech Therapy for Hearing Impaired (ASTHI) in audiologists.

Conclusion: It is concluded that there was a strong correlation between audiologists' Understanding Regarding General Speech Therapy (URGST) and Awareness about benefits of Speech Therapy for Hearing Impaired (ASTHI).

Introduction

The term "Hearing Impaired" is a broad term and is defined under special Education rule 340.1717. This term includes both individuals who are hard of hearing and those who are deaf and indicates any sort or level of listening to the misfortune that meddles with improvement or seriously influences instructive execution. Deafness implies a listening hindrance that is severe enough to the extent that the individual is impeded in transforming

phonetic data through audition, with or without the use of amplification. The term indicates the individuals who possess hearing impairment, which includes both possibilities the one with undeviating hearing loss or may be varying degrees of hearing loss.^{1,2}

The National Dissemination Center for Children with Disabilities (NICHCY) defines that hearing loss is mainly divided into four sub-categories according to the

site of the lesion. These categories are conductive, sensorineural, mixed and central auditory processing disorders. These types are grouped according to the different parts of body in which hearing impairment occurs. A hearing loss may also be differentiated as unilateral (one side affected) or bilateral (both sides affected). The hearing loss is known as symmetrical when its degree is the same in both ears and asymmetrical when its degree is different in both ears. ³

The age when listening to misfortune has happened is known as "time of onset." Sometimes listening to disability is depicted regarding pre-lingual and post-lingual. A pre-lingual listening to misfortune happens before a kid has figured out how to comprehend and utilization dialect. A post-lingual listening to misfortune happens after a child has realized and learned some language. It is well documented that the sense of hearing plays a crucial role in the development of speech, language, communication, and learning. Individuals who have hearing loss, auditory processing difficulties remain to be under identified and underserved population because of their listening problems. ⁴

It is a fact that the earlier hearing loss happens in a child's life, the more seriously that child's development is affected. Audiologist, speech-language pathologist and early intervention program are the initial preferences where children should be referred early when a delay in speech-language is suspected. There is a great need and benefit of the early diagnosis and treatment which creates a positive impact on impairment.⁵

Early intervention starts with a visit from a newborn child/family authority/specialist. The early intervention group incorporates experts like infant/family authority, an audiologist, speech and language therapist, primary care physician, school district representative. The early intervention gave through support in newborn child and family. Hearing loss is established and measured by using a battery of audiology tests, and with these specific tests and measures hearing impairment is designated according to the age of the patient. ⁶

An audiologist's job comprised of wide-ranging services for impairments like auditory, vestibular, and other related ones. These services are used to investigate the hearing loss, degree and type of hearing impairment. Treatment and rehabilitation services are made available

to individuals throughout the entire age span; to individuals from diverse language, ethnic, cultural, and socioeconomic background and to individuals who have multiple disabilities. Treatment involves the best possible options according to the impairment and it may also consist of hearing aid provision or the advice of a cochlear implant.⁷ Speech-language pathology services are those services which are essential for the identification and treatment of various disorders that result in communication disabilities like swallowing (dysphagia), speech-language, and cognitive-communication disorders⁸

The present need for the successful rehabilitation of the hearing impaired individuals is that the SLPs and Audiologists need to work effectively across different settings. As a clinician, they must develop strategies for working collaboratively in interdisciplinary, multidisciplinary, and transdisciplinary teams. ⁹

The cooperation between professionals during their work is only possible when they sufficiently understand each other's role, work criteria, and benefits of functional efforts. The team efforts provide more valuable results for the rehabilitation of hearing impaired individuals. ⁹

Methodology

This study was carried out to observe the awareness and knowledge of audiologists regarding the benefits of speech therapy for hearing impaired individuals. The qualified male, female audiologists were taken who were working with hearing impaired clients in public and private sector and meeting the inclusion criteria for being recruited in the study. While the exclusion criteria comprised of all other professionals, ENT Specialists, Speech Language Therapists, doctors, nurses, physical therapists and unqualified audiologists working with hearing impaired in different settings.

This Cross-sectional survey was conducted from October 2014 to April 2015 and information was gathered from Audiologists working with hearing impaired individuals in the tertiary care units and private clinics of Lahore, Pakistan through a questionnaire formulated on likert scale. After literature review and experts opinion, the questionnaire was developed and validated by 10 experts of a minimum 3 to 5 years experience that was used for record keeping purpose. This included the bio data, age

of the individuals and information about their education or professional experience and work setting. The survey questionnaire had two basic parts, first part consisted of 9 open ended questions to know the Understanding of Audiologists Regarding General Speech Therapy (URGST) and the second part consisted of 19 open ended questions to know their Awareness about benefits of Speech Therapy for Hearing Impaired Individuals (ASTHI). Purposive sampling technique was used and responses were collected in person, postal services and through emails. The data was statistically analyzed through SPSS-16. Sample size was calculated by using the online Sample Size Calculator.¹⁰ The confidence interval was taken as 99% with 5% precision. The sample size was 63 qualified Audiologists. The questionnaire was circulated to 63 Audiologists of Lahore, and a total of 60 Audiologists responded back. The response rate was 95.2 %.

Results

The research aimed to investigate the Audiologists' understanding and awareness regarding benefits of Speech-Language Therapy for hearing impaired individual. It was also expected that there will be a relationship between level of audiologists' Understanding Regarding General Speech Therapy (URGST) and their Awareness towards benefits of Speech-Language Therapy for Hearing Impaired Individual (ASTHI). The effectiveness of level of Understanding Regarding General Speech Therapy (URGST) on Awareness towards Speech Therapy for Hearing Impaired Individual (ASTHI), of audiologists was also investigated. This chapter includes description of analyses, demographics, correlation analysis, and regression analysis. For additional investigation two ways

Table III: Descriptive of Type of Clinic and Nature of Clinic

		Private		Public		Both	
		M	SD	M	SD	M	SD
URGST	Uni- disciplinary	21.50	7.77	21.74	6.2	21.0	3.5
	Multi- disciplinary	23.88	4.04	23.96	2.94	26.0	3.5
	Total	23.74	4.18	23.96	2.9	23.50	3.53
ASTHI	Uni- disciplinary	48.50	21.9	48.4	13.5	48.0	15.5
	Multi- disciplinary	50.8	9.2	50.3	7.3	50.46	8.51
	Total	50.71	9.72	50.39	7.37	43.0	5.65

ANOVA was also run to find out differences on the demographical bases.

First of all data was screened to recover any kind of missing value or double assigned values. Frequencies of each scale items was calculated using SPSS16 and it was assured there is no missing value. Further it was assured that the values lie in between assigned value (accurately between 0-4).

Table I: Distribution of population in demographics

Demographics	Sub types of demographics	N(%)
Qualification	BS	56(90%)
	Masters	2(3.2%)
	Others	2(3.2%)
Clinic/ Institute of Participant	Private	35(56.5%)
	Public	23(37%)
	Both	2(3.2%)
Nature of Clinic/ Institute	Uni-disciplinary	3(4.8%)
	Multi-disciplinary	57(91.9%)
Initial Referral of Audiologists	ENT specialist	43(69.4%)
	Speech Therapist	0(0%)
	Own Advice or treatment	17(27.4%)
Post Referral of Audiologists	Speech therapist	53(85.5%)
	Special Educator	0(0%)
	Own advice or treatment	7(11.3%)

Table II: Effectiveness of Level of Understanding Regarding General Speech Therapy (URGST) And Awareness about benefits of Speech Therapy for Hearing Impaired Individual (ASTHI), Of Audiologists

Predictors	Awareness for		
	B	T	P
Constant	14.31**	2.5	.01
URGST	1.51***	6.2	.00
R ²	.39		

Note. *p< .05. **p< .01., p<.001*** (Enter method). R = .39 N = 60

Table V: Frequency and percentage of responses towards URGST and ASTHI (N=60)

Title of question	Strongly disagree %	Agree %	Don't know %	Disagree %	Strongly disagree %
Necessity of speech therapy for communication	51.6	45.2	-	-	-
Speech therapy is appropriate for both congenital and developmental conditions.	9.7	67.7	8.1	11.3	-
Speech therapy may be habilitative or rehabilitative.	32.3	51.6	12.9	-	-
Speech therapists need to follow a more social model.	25.8	54.8	16.1	-	-
Hearing impaired communicates if aided and trained.	43.3	38.3	6.7	6.7	-
Provision of right therapy at right time improves H.I participation in activities.	55.0	36.7	1.7	6.7	-
Speech therapist can provide both diagnostic and therapeutic services.	10.0	35.0	6.7	41.7	6.7
Speech therapist and audiologist collaboration cause problems in their work.	6.7	10.0	18.3	50.0	15.0
Audiologist is appropriate to practice as speech therapist.	3.3	15.0	13.3	43.3	25.0
Deaf children with sign language acquire vocabulary like normal children.	13.3	25.0	5.0	33.3	23.3
Speech therapist serves as a consultant of literacy issues for deaf students' teacher.	16.7	50.0	15.0	18.3	-
SLP use AVT for speech and language development.	30.0	66.7	3.3	-	-
AVT encourages signing and lipreading.	18.3	20.0	30.0	10.0	21.7
Hearing impaired and cochlear implant users follow an oral/aural route and have auditory training to learn speech sounds.	31.7	55.0	6.7	6.7	-
Students with slight/unilateral hearing loss typically wear hearing aids.	20.0	25.0	11.7	21.7	21.7
Speech and language therapy is essential for both hearing aid and cochlear implant users.	48.3	36.7	5.0	10.0	-
Children with mild to moderate hearing loss and conventional hearing aid users may require more conventional speech therapy.	35.0	26.7	11.7	26.7	-
Students with a unilateral or slight hearing loss may benefit from a personal amplification system at their desk, classroom amplification, or listening centers.	28.3	56.7	5.0	10.0	-
Hearing aids fitting alone are enough to ensure good speech and language development.	11.7	26.7	20.0	35.0	6.7
The success of speech therapy with conventional hearing aid users will depend on the extent of their hearing impairment.	20.0	70.0	8.3	1.7	-
Almost all children require speech-language therapy/listening therapy after the fitting of hearing aids for good communication skills.	38.3	46.7	5.0	10.0	-
The success of speech therapy will not depend on the individuals' motivation and the dedication of the team around the child.	18.3	16.7	6.7	43.3	15.0
Students with a unilateral or slight hearing loss may require intervention due to language delay.	18.3	46.7	10.0	15.0	-
A student with a unilateral/slight hearing loss is often overlooked until he exhibits a delay in language development.	11.7	61.7	8.3	11.7	6.7
For the student who does not require direct remedial services, the speech-language pathologist may assist in designing and implementing support for the classroom teacher.	15.0	65.0	10.0	10.0	-
Pull-out activities (where students are taken out of their classroom for provision of specialized support)are used for Students with moderately severe to profound hearing loss.	20.0	48.3	21.7	6.7	3.3
Indirect speech therapy services may include preferential seating, room amplification, Listening centers, and personal FM system.	20.0	58.3	16.7	5.0	-
Pull-out activities may be necessary to remediate articulation delays, improve voice production, speech reading skills or auditory perceptual skills.	25.0	46.7	25.0	3.3	-

The distribution of the population was calculated using frequencies of each demographic which are as follows: Correlation analysis was run to assure the presence of the relationship of the main two parts of scale if there is any significant relationship between the level of Understanding Regarding General Speech Therapy (URGST) and Awareness about benefits of Speech Therapy for Hearing Impaired individual(ASTHI), of audiologists. There was a significant relationship found between the level of Understanding Regarding General Speech Therapy (URGST) and Awareness about benefits of Speech Therapy for Hearing Impaired individuals (ASTHI), of audiologists $r(60) = .63, p < .001$.

Regression analysis was applied for the testing of the effectiveness of Audiologists' level of Understanding Regarding General Speech Therapy (URGST) and Awareness about benefits of Speech Therapy for Hearing Impaired individuals (ASTHI).

Effectiveness of Level of Understanding Regarding General Speech Therapy (URGST) And Awareness about the benefits of Speech Therapy for Hearing Impaired Individual (ASTHI), of Audiologists.

It was also supposed to find the effect of type of institution/clinic and nature of institute/clinic (unidisciplinary, multidisciplinary) on audiologists' awareness of speech therapy for hearing impaired individuals.

Effect of Type and Nature of Institute/Clinic on Audiologists' Understanding Regarding Speech Therapy (URGST) and their Awareness about the benefits of Speech Therapy for Hearing Impaired Individuals (ASTHI).

Table IV showed that there was no significant effect of type of Institute/Clinic on Audiologists' Understanding Regarding General Speech Therapy(URGST) and Awareness about the benefits of Speech Therapy for Hearing Impaired individuals (ASTHI). The results indicated that there was no significant effect of the nature of the Institute/Clinic on Audiologists' Understanding Regarding General Speech Therapy (URGST) and Awareness about the benefits of Speech Therapy for Hearing Impaired individuals (ASTHI). Further, there was no significant effect of the interaction of Type of Institute/Clinic and nature of Institute/Clinic on Audiologists, Understanding Regarding

General Speech Therapy (URGST) and Awareness about benefits of Speech Therapy for Hearing Impaired individual(ASTHI).

The frequency percentage of each item's response was calculated from data to check the individual positive and negative response of audiologists in both sub-scales Understanding Regarding General Speech Therapy (URGST) and Awareness about the benefits of Speech Therapy for Hearing Impaired Individual(ASTHI).

Discussion

American Seech-Language Hearing association demonstrated that there is a huge range of work settings including schools, hospitals, clinics, private homes, nursing homes and more for Speech-Language Pathologists. Due to these diverse work environments Speech-Language Pathologists (SLPs) work in collaboration with a wide variety of professionals. They interact during work with teachers, psychologists, doctors, nurses, social workers, audiologists, occupational and physical therapists. SLPs share information with clients and caregivers and therefore must form a working relationship with patients and family members as well. As SLPs work in close interaction of a wide variety of individuals, it is essential to understand the relationship between the practicing SLPs and their co-workers. It is also essential to understand others' attitudes, knowledge regarding speech-language pathology and their awareness about the benefits of speech-language pathology services for communication disorders in order to develop a successful professional relationship.¹¹ Highlighting the importance of neonatal hearing screening and early treatment provision, the world (except few countries like Pakistan) was following universal screening programs for the newborn babies for identification and diagnosis of various disorders at an early age.¹¹

According to a report of the National Institute of Health (NIH), Islamabad, 70 % of the country's population had been facing challenges of hereditary hearing loss (which is passed down from parents to their children). The developed states were implementing the programs through full-fledged audiology units at the healthcare facilities but the situation was worst in Pakistan. There are only five foreign qualified and trained audiologists, who had been providing services to a large number of patients in public and private sectors. These five audiologists had

done post-graduation from abroad after MBBS qualification.¹²

At present, it is said, audiology services were available only at three teaching hospitals across the province (Mayo Hospital, Services Hospital, and Children's Hospital). Absence of the qualified audiologists at even these specialized institutes had aggravated the healthcare to patients in the field.¹²

It is only possible with the help of an audiologist that the hearing impaired individuals can overcome their problems about hearing aid adjustments, reassessment and maintenance of hearing aids. There are some external environmental factors that interrupt auditory input i.e. background noise, the invisibility of speaker and distant soft speech sounds. Audiologists and speech-language pathologists can also provide measures and training about how to cope with these hindrances and improve communication in difficult auditory situations.¹³

The duties and responsibilities of audiologist and speech-language pathologists vary with education, experience and place of employment. In clinics such as those in hospitals, they use diagnostic procedures to identify and evaluate speech-language and hearing disorders. Then in cooperation with physicians, audiologists, psychologists, physical therapists, and counselors, they develop and implement an organized program of therapy. They also work with administrators in developing programs, counsel parents on prevention and assist teachers with classroom activities to develop oral communication skills.¹⁴

During the past four years, clinicians in the University of Northern Colorado Community-Wide Program in aural rehabilitation have observed success with regard to hearing aid evaluation procedures, speech reading activities and motivation in individuals who formerly had isolated themselves due to their communication problems. Many of these individuals are now communicating with others when previously they did not know each other name. They started to communicate with their families are now willing to resume that association once again. The aural rehabilitation of these individuals completely depends on the provision of continuous speech pathology and audiology services and their collaborative work.¹⁵

Some senior audiologists possess the viewpoint that words like treatment and diagnosis (used in various survey statements) are not appropriate and related to speech-language pathology services. Whereas according to the official definition of speech-language pathology services are included the services which are essential for the diagnosis and treatment of dysphagia, speech, language, and communication disabilities.¹⁵

Another important issue that creates a major hindrance in the collaboration of SLPs and Audiologists in Pakistan is the mismanagement and absence of facilities at the health institutes which expose the government's high claims about public health priorities. There are a limited number of qualified audiologists who are available only in a few big cities. So it is not possible for all the hearing impaired patients to avail of their diagnostic and treatment services. That's why audiologists don't have any spare time to provide collaborative services with the SLPs.¹⁶

Finally, the use of technology and telepractice in diagnostic and intervention services is just beginning. The use of technology, in particular, the internet, offers speech-language pathologists and audiologists the opportunity to transmit clinical information quickly to experts in various parts of the world and share information with each other according to the rehabilitative needs of the patient. Such accessibility extends clinical knowledge and improves the quality of services.¹⁷

Conclusion

There was found significant awareness and knowledge regarding the benefits of Speech-Language therapy for hearing impaired individuals among audiologists. There was a strong correlation between audiologists' Understanding Regarding General Speech Therapy (URGST) and Awareness about benefits of Speech Therapy for Hearing Impaired (ASTHI).

Recommendation: This study should be conducted on a large scale, on large sample size, large population and not only on audiologists but also on other health professionals. Workshops should be held for increasing knowledge and awareness regarding the benefits of speech therapy among different professionals.

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