



Research Article

AWARENESS ON SPEECH AND HEARING FIELD AMONG PSYCHOLOGIST, OCCUPATIONAL THERAPIST, AND PHYSIOTHERAPIST IN NEPAL

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ABSTRACT

Aim: The study's objective is to examine how well-informed Nepalese physiotherapists, occupational therapists, and psychologists are about speech and hearing issues.

Methodology: There were questionnaires created. Five practicing speech and language pathologists validated a set of 20 (yes/no) questions and 10 multiple choice questions. A questionnaire concerning the person's profession or occupation is in the first part. In the second segment on audiology, there are 5 multiple questions and 5 yes/no questions, and in the last section on speech, there are 5 multiple questions and 10 yes/no questions.

Participants: Study includes the participants who are currently working under the target professionals in Nepal. Uncertified and retired participants were excluded from the study. There were also occupational therapists, psychologists, and physiotherapists. The poll did not include students who were enrolled in allied programmers like nursing, social work, or speech therapy.

Conclusions: Several experts in the field of speech and hearing completed a questionnaire to determine their degree of knowledge. The questionnaire went out to 30 experts in all, 10 from each of the departments of occupational therapy, psychology, and physiotherapy. As these professionals become more aware of the problem, there will be a surge in the number of patients who are referred for speech and hearing problems. Additionally, it would result in an efficient "team approach" for the rehabilitation of people with speech and hearing issues, improving their quality of life. Almost all of the experts concurred that specialists in speech and hearing should be important players in their respective professions. They also thought that speech and hearing specialists should be available everywhere in the country.

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INTRODUCTION

Speech is the audible manifestation of language (Charles and Erickson, 1996). Speech is the expression of or the ability to express thoughts and feelings by articulators. Language is the set of arbitrary symbols used by a group of people for the purpose of communication. The process of imparting to one another's ideas, thoughts, feelings or options by means of signs, signals and symbols expressed consciously or unconsciously is known as communication (Wood, 1971). Hearing is the act of perceiving sound. Acquisition and monitoring of speech primarily depend upon the auditory modality.

Speech language pathologists are specialist who evaluates and treats patients with speech and language impairments. A specialist who measures hearing sensitivity and offers rehabilitation in the form of hearing aids and other assistive listening devices is known as an audiologist. He is dependent on numerous other experts, and the rehabilitation requires teamwork. There is a need to be a good communication and interaction between these professionals for successful rehabilitation.

Diagnosing and treating impairments of speech, language, hearing, and cognitive-communication in both children and adults is their main priority. Specialists in the diagnosis and treatment of communication disorders include speech-language pathologists. A speech-language pathologist and an audiologist's typical areas of focus include speech-language impairments, cognitive-communication problems, dysphonia, stuttering, cleft lip and palate, learning disabilities, and hearing impairment.

The terms "Audiological (re)habilitation" and "Aural (re)habilitation" broadly refer to a variety of modalities used by the audiologist to improve the ability of the hearing impaired patient to function and interact in a world of sound. The methods of audiological intervention include the use of tangible devices like tactile aids, cochlear implants, hearing assistance technology, and hearing aids, as well as psychological techniques like patient and family counselling, creating communication plans, and auditory-visual training. Professionals from a variety of fields, such as clinical psychologists, educational psychologists, and occupational therapists, work at Psychology Associates. Speech and language pathologists are qualified to conduct through,

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multidisciplinary exams. These assessments can be provided by one clinician from one discipline, or we can provide multidisciplinary assessments to provide a more comprehensive understanding.

Physical therapists offer diagnosis and care for conditions linked to musculoskeletal injury. The speech language pathologists and physical therapists frequently treat many of the same patients in the hospital and rehabilitation setting.

For people with disabilities, occupational therapists assess and treat their daily life skills. Working with patients who have dysphagia is where speech language pathologists and occupational therapists will frequently engage.

Clinical psychologist is a specialist in psychology who investigates behavior as well as mental states, perceptual, cognitive, emotional, and social processes. They frequently experiment with, observe, and interpret how people interact with one another and their surroundings as part of their work.

REVIEW OF LITERATURE

Cup, pietetersr, knuijt, Hendricks, engelen, oostendorp & wilt (2007) compared the volume of occupational therapy physical therapy and speech therapy received by patients with neuromuscular diseases with the volume of occupational therapist, psychologist, and physiotherapist recommended by a multidisciplinary team and concluded some patients with a neuromuscular disease do not receive any form of allied healthcare, whereas they should.

Sewpersad (2014) describes the co morbidities within the field of occupational therapy, speech therapy and physiotherapy that pre-school children with hearing loss present with at the Centre for language and hearing-impaired children and its implications for management and findings is that study were found mostly within the field of occupational therapy and included fine and gross motor delay, visual motor integration disorders and bilateral integration disorders.

Ferigollo & Kessler (2017) identified that how the theme of interdisciplinarity in health and human communication disorders is developed regarding the importance of interdisciplinarity in the care of human communication disorders and concluded that physiotherapist, speech therapist and occupational therapist are informed about the importance of interdisciplinarity in the care of disorders of human communication disorders.

Gosa, dodrill, grief & silverman (2020) analyzed pediatric feeding disorders (PFDs) present as a complex clinical challenge because of the heterogeneous underlying etiologies and their impact on health, safety, growth, and psychosocial development and they say multidisciplinary team approach is essential for accurate diagnosis and prompt interventions to lessen the burdens associated with PFDs and they concluded due to their complex nature, the successful management of PFDs is only possible with the care and expertise of a multidisciplinary team, which includes parents/caregivers and also they say SLPs are important members of these multidisciplinary teams and provide valuable input for the accurate identification.

Gasiewski, Weiss, leaf, & labowitz (2021), reviews the history and foundational concepts of both disciplines and the common approaches associated with each and they suggest for enhancing interdisciplinary communication and treatment for

understanding the values and expertise offered by different disciplines, and requires mutual respect and professional dialogue.

Prevalence and incidence of SLP in Nepal

Pascolini and Smith (2009), Nepal national survey found that 7.5 percent of the population overall has some degree of hearing loss. Regarding the severity of disabilities, especially hearing loss, little information is available. Additionally, there aren't many organizations or programmers in place that support the creation of hearing loss rehabilitation programmers.

Mahajan et al. (2006), 12.47 percent of Nepalese children had hearing loss, while 13.2 percent of children had otitis media effusion. This prevalence was substantially greater in school-going children than in adults, and it was much higher in kids from lower socioeconomic backgrounds. In children compared to adults, otitis media complicating conditions are more prevalent and severe.

METHODOLOGY

Aim

The aim of the study is to analysis the awareness of speech and hearing field among physiotherapists, occupational therapists, and psychologist.

The study was carried out in three phases.

Phase 1: Preparation of Questionnaire

A set of 20 (yes/no) questions and 10 multiple choice question were validated by 5 speech and language pathologist who are currently in practice. The first section has questionnaire about the profession / occupation of the individual. Second section has 5 multiple and 5 yes/no questions of audiology and last section is speech where 5 multiple questions and 10 yes/no questions are there.

Section:1 Questionnaire

Yes/ No Question

- Are you aware that ENT's work in association with audiologist?
- The acquisition and monitoring of speech depend upon the auditory modality?
- Do you think by early intervention and rehabilitation a hearing-impaired child can be integrated in the normal school?
- Do you think speech language pathologist teachers sign language?
- Neonatal screening should be conducted systematically on all newborns as a standard practice to assist in the early identification of hearing loss.?

Section 2: Audiology Questions

Multiple Choice

Which of the following instrument is used by the audiologist to measure hearing sensitivity?

1. Audiometer
2. Otoscope
3. Sound level meter

Immittance evaluation can be used in detecting

1. Middle ear disorders
2. External ear disorders
3. Laryngeal disorder

Which is the instrument used to measure hearing sensitivity in difficult to test population?

1. Brainstems evoked response audiometry
2. CT scan
3. Electroencephalography

A person having difficulty in understanding speech in noisy environment

1. hearing loss
2. normal hearing
3. may or may not having hearing loss

Permanent use of hearing aids is prescribed to clients having

1. reversible hearing loss
2. irreversible hearing loss
3. both

YES/NO

- Can you identify the hearing impairment in infants soon after birth?
- Intake of certain drugs can cause hearing impairment?
- Asphyxia is one of the common causes of hearing loss?
- Hearing aid helps the person to understand speech?
- Aids can be a cause for hearing loss?

Section:3 Speech

Multiple Choice

Short tongue can lead to which of the following problems

- voice disorder
- articulation disorder
- loss of language

The most commonly seen problem in teachers due to excessive speaking

- swallowing problem
- chest pain
- voice problem

Male who sounds like a female is known as

- stutter
- puberphonic
- aphonia

Which of the following used in measuring parameters of voice

- electroencephalography
- electroglottography
- audiometer

Stuttering is a problem where we can see

- repetitions of sounds/words
- voice problem
- swallowing problem

Yes/No

- Trauma or injury to head leads to speech problems?
- Can malalignment to teeth be a cause for pronunciation problem?

- Are you aware of the existence of the disorder called “learning disability”?
- Dysarthria is a neuromotor disorder leading to speech problems?
- Respiratory irregularities in children with cerebral palsy can lead to deviant speech?
- Do you think speech therapy is important after surgery of cleft palate?
- Does speech therapist play a role in the rehabilitation of swallowing disorder?
- Stammering can be reduced with the help or surgery?
- An individual can be taught speech after the removal of voice box?
- Principles of learning theories is used by a speech language pathologist in their rehabilitation procedure?

Phase- 2: Participants

Study includes the participants who are currently working under the target professionals in Nepal. Uncertified and retired participants were excluded from the study.

Inclusion Criteria

Physiotherapist, psychologist and occupational therapist were included.

Exclusion Criteria

Other allied course like nursing, social workers, speech therapist were excluded from the survey.

Stimulus Used

The validate questionnaire was used for the purpose of sampling.

Procedures

The validated questionnaire was distributed among physiologist, physiotherapist and occupational therapist. The participants were asked to mark the response.

Statistical Analysis

The questionnaire was administered on target professions. The data was collected using the validated questionnaire as shown in the method.

RESULTS

The aim of the study was to analyze the awareness about speech and hearing career among physiotherapist, psychologist and occupational therapist in Nepal and the obtained results are discussed below.

Table 1 and Fig 1 shows the below percentage by different professions for generals questions yes/no (1) Are you aware that ENT’s work in association with audiologist? 88.9% was score by psychologist, 88.9% by Physiotherapist and 77.8% by occupational therapist. (Q2) The acquisition and monitoring of speech depend upon the auditory modality ?100% was scored by psychologist, 77.8% by physiotherapy and 88.9% by occupational therapist. Q3 Do you think by early intervention and rehabilitation a hearing-impaired child can be integrated in the normal school?66.7% was scored by both psychologist &physiotherapist and 77.8% by occupational therapist. Q4. Do you think speech language pathologist teachers sign language? 88.9% was scored by psychologist, 66.7% was scored by physiotherapist and 44.4% by occupational therapist. Q5.

Neonatal screening should be conducted systematically on all newborns as a standard practice to assist in the early identification of hearing loss? 100% was score by psychologist & occupational therapist and 88.9% by physiotherapist.

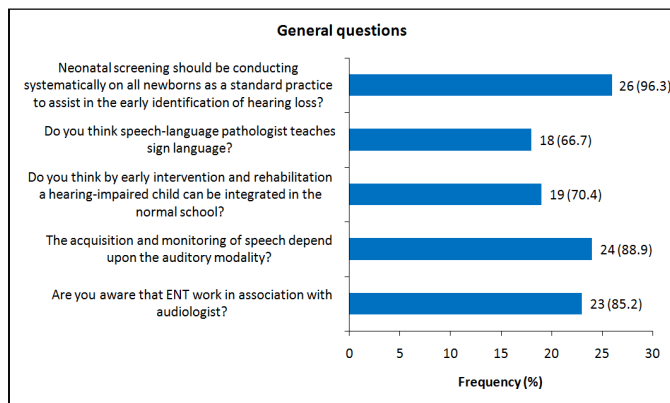


Fig 1 percentile responses on general knowledge among different faculty in the field of speech language pathology and Audiology

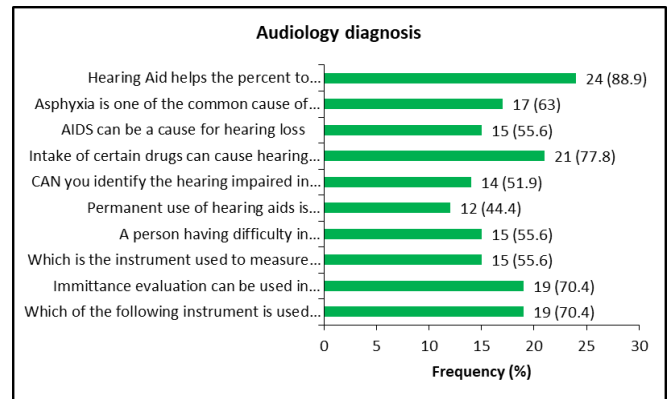


Fig 2 Percentile Responses of Awareness in Diagnosis of Audiology Among Different Professions.

From Table 2 and fig 2 it can be seen for multiple choice questions for audiology Q1. Which the following instrument is used by the audiologist to measure hearing sensitivity? 88.9% was scored by psychologist, 66.7% by physiotherapist and 55.65 was scored by occupational therapist. Q2. Immittance evaluation can be used in detecting? 66.7% was scored by both psychologist & occupational therapist and 77.8% by physiotherapist.

Table 1 Showing the percentage scores and p value for awareness questions among Physiotherapist, Psychologist and Occupational therapist in Nepal

General questions		Sections						Likelihood Ratio	p value
		Psychology		Physiotherapist		Occupational therapist			
		n	%	n	%	n	%		
Are you aware that ENT work in association with audiologist?	Yes	8	88.9	8	88.9	7	77.8	0.559	0.756
	No	1	11.1	1	11.1	2	22.2		
The acquisition and monitoring of speech depend upon the auditory modality?	Yes	9	100.0	7	77.8	8	88.9	3.023	0.221
	No	0	0.0	2	22.2	1	11.1		
Do you think by early intervention and rehabilitation a hearing-impaired child can be integrated in the normal school?	Yes	6	66.7	6	66.7	7	77.8	0.366	0.833
	No	3	33.3	3	33.3	2	22.2		
Do you think speech-language pathologist teaches sign language?	Yes	8	88.9	6	66.7	4	44.4	4.270	0.118
	No	1	11.1	3	33.3	5	55.6		
Neonatal screening should be conducting systematically on all newborns as a standard practice to assist in the early identification of hearing loss?	Yes	9	100.0	8	88.9	9	100.0	2.275	0.321
	No	0	0.0	1	11.1	0	0.0		

Table 2 Showing the percentage value and p value for awareness in audiology field among physiotherapist, occupational therapist and psychologist.

Audiology diagnosis		Sections						Likelihood Ratio	p value
		Psychology		Physiotherapist		Occupational therapist			
		n	%	n	%	n	%		
Which of the following instrument is used by the audiologist to measure hearing sensitivity?	Yes	8	88.9	6	66.7	5	55.6	2.714	0.257
	No	1	11.1	3	33.3	4	44.4		
Immittance evaluation can be used in detecting	Yes	6	66.7	7	77.8	6	66.7	0.366	0.833
	No	3	33.3	2	22.2	3	33.3		
Which is the instrument used to measure hearing sensitivity in difficult to test population?	Yes	6	66.7	5	55.6	4	44.4	0.908	0.635
	No	3	33.3	4	44.4	5	55.6		
A person having difficulty in understanding speech has	Yes	3	33.3	6	66.7	6	66.7	2.724	0.256
	No	6	66.7	3	33.3	3	33.3		
Permanent use of hearing aids is prescribed to clients having	Yes	2	22.2	6	66.7	4	44.4	3.739	0.154
	No	7	77.8	3	33.3	5	55.6		
CAN you identify the hearing impaired in infants soon after birth	Yes	6	66.7	3	33.3	5	55.6	2.113	0.348
	No	3	33.3	6	66.7	4	44.4		
Intake of certain drugs can cause hearing impairment	Yes	7	77.8	6	66.7	8	88.9	1.333	0.513
	No	2	22.2	3	33.3	1	11.1		
AIDS can be a cause for hearing loss	Yes	4	44.4	5	55.6	6	66.7	0.908	0.635
	No	5	55.6	4	44.4	3	33.3		
Asphyxia is one of the common cause of hearing loss	Yes	8	88.9	3	33.3	6	66.7	6.401	0.041*
	No	1	11.1	6	66.7	3	33.3		
Hearing Aid helps the percent to understand speech	Yes	9	100.0	7	77.8	8	88.9	3.023	0.221
	No	0	0.0	2	22.2	1	11.1		

Q3. Which is the instrument used to measure hearing sensitivity in difficult to test population? 66.7 was scored by psychologist, 55.6 by physiotherapy and 44.4 by occupational therapy. Q4. A person having difficulty in understanding speech in noisy environment ? 33.3 was scored by psychologist and 66.7% was scored by both physiotherapist and occupational therapist. Q5. Permanent use of hearing aids is prescribed to clients having? 22.2% was scored by psychologist, 66.7 by physiotherapist and 44.4 % was scored by occupational therapist and it also seen for YES/NO questions for audiology Q1. Can you identify the hearing impairment in infants soon after birth? 66.6% was scored by psychologist, 33.3% by physiotherapist and 44.4% by occupational therapists. Q2. Intake of certain drugs can cause hearing impairment? 77.7% scored by psychologist, 66.7% by physiotherapist & 88.9% by occupational therapist. Q3 asphyxia is one of the common causes of hearing loss? 88.9% by sychologist, 33.3% by physiotherapist and 66.7% by occupational therapist. Q4. AIDS can cause hearing loss? 44.4% scored by psychologist, 55.6% by physiotherapist and 66.7% by occupational therapist. Q5. HEARING AID helps the person to understand speech? 100% was scored by psychologist, 77.7% by physiotherapist and 88.9% by occupational therapist.

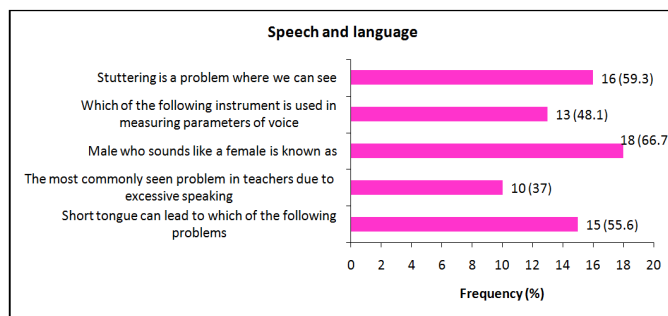


Fig 3 shows the responses of different faculty regarding the awareness in the area of speech and language.

Table 3 & fig 3 shows the knowledge of speech & language in different professions. It can be seen that for speech and language multiple questions Q1. short tongue can lead to which of the following problems 66% was scored by psychologist, 55.6% by physiotherapist and 44.4% by occupational therapist. Q2. the most commonly seen problem in teachers due to excessive speaking 44.4% was scored by psychologist & physiotherapist and 22.2% was scored by occupational therapist.

Table 3 Showing the percentage value and p value for awareness in speech and language field among physiotherapist, occupational therapist and psychologist

Speech and language		Sections						Likelihood Ratio	p value
		Psychology		Physiotherapist		Occupational therapist			
		n	%	n	%	n	%		
Short tongue can lead to which of the following problems	Yes	6	66.7	5	55.6	4	44.4	0.908	0.635
	No	3	33.3	4	44.4	5	55.6		
The most commonly seen problem in teachers due to excessive speaking	Yes	4	44.4	4	44.4	2	22.2	1.329	0.515
	No	5	55.6	5	55.6	7	77.8		
Male who sounds like a female is known as	Yes	7	77.8	6	66.7	5	55.6	1.014	0.602
	No	2	22.2	3	33.3	4	44.4		
Which of the following instrument is used in measuring parameters of voice	Yes	5	55.6	4	44.4	4	44.4	0.297	0.862
	No	4	44.4	5	55.6	5	55.6		
Stuttering is a problem where we can see	Yes	5	55.6	6	66.7	5	55.6	0.311	0.856
	No	4	44.4	3	33.3	4	44.4		

Table 4 Showing the percentage value and p value for awareness of diagnosis and causes in speech and language field among physiotherapist, occupational therapist and psychologist

Diagnosis and causes		Sections						Likelihood Ratio	p value
		Psychology		Physiotherapist		Occupational therapist			
		n	%	n	%	n	%		
Trauma or injury to head problem leads to speech problem	Yes	8	88.9	6	66.7	8	88.9	1.860	0.395
	No	1	11.1	3	33.3	1	11.1		
Can malalignment to teeth be a cause for pronunciation problem?	Yes	8	88.9	4	44.4	4	44.4	5.489	0.064
	No	1	11.1	5	55.6	5	55.6		
Are you aware of existence of the disorder called "learning disability"?	Yes	6	66.7	7	77.8	4	44.4	2.237	0.327
	No	3	33.3	2	22.2	5	55.6		
Dysarthria is a neuromotor disorder leading to speech problem?	Yes	8	88.9	5	55.6	6	66.7	2.714	0.257
	No	1	11.1	4	44.4	3	33.3		
Respiratory irregularities in children with cerebral palsy can lead to deviant speech?	Yes	7	77.8	7	77.8	6	66.7	0.376	0.828
	No	2	22.2	2	22.2	3	33.3		
Do you think speech therapy is important after surgery of cleft palate?	Yes	7	77.8	8	88.9	9	100.0	3.023	0.221
	No	2	22.2	1	11.1	0	0.0		
Does speech therapist play a role in the rehabilitation of swallowing disorder?	Yes	7	77.8	7	77.8	4	44.4	2.937	0.230
	No	2	22.2	2	22.2	5	55.6		
Stammering can be reduced with the help of surgery?	Yes	6	66.7	4	44.4	7	77.8	2.237	0.327
	No	3	33.3	5	55.6	2	22.2		
An individual can be taught speech after the removal of voice box	Yes	6	66.7	4	44.4	7	77.8	2.237	0.327
	No	3	33.3	5	55.6	2	22.2		
Principles of learning theories is used by a speech language pathologist in their rehabilitation procedures?	Yes	8	88.9	8	88.9	6	66.7	1.860	0.395
	No	1	11.1	1	11.1	3	33.3		

Q3. male who sounds like a female is known as 77.8% was scored by psychologist, 66.7% by physiotherapist, and 55.6% by occupational therapist. Q4. which of the following used in measuring parameters of voice 55.6% by psychologist & 44.4% by both physiotherapist and occupational therapist. Q5. stuttering is a problem where we can see 55.6% was scored by psychologist & occupational therapist and 66.7% by physiotherapist

Principles of learning theories is used by a speech language pathologist in their rehabilitation procedure? 88.9% was scored by both psychologist & physiotherapist and 66.7% by occupational therapist.

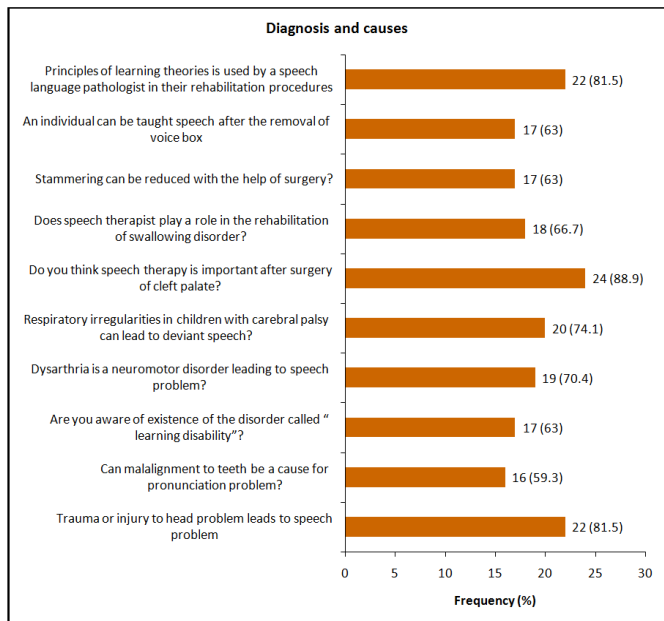


Fig 4 figure explains the awareness of diagnosis and causes in speech language pathology among different faculty.

Table 4 & fig 4 shows knowledge about diagnosis by different professions. Trauma or injury to head leads to speech problems? 88.9% was scored by psychologist & occupational therapist and 66.7% by physiotherapist. Q2. Can malalignment to teeth be a cause for pronunciation problem? 88.9% was scored by psychologist and 44.4% was scored by physiotherapist & occupational therapist. Q3. Are you aware of the existence of the disorder called "learning disability"? 66.7% was scored by psychologist, 77.8% by physiotherapist and 44.4% by occupational therapist. Q4. Dysarthria is a neuromotor disorder leading to speech problems? 88.9% was scored by psychologist, 55.6% by physiotherapist & 66.7% by occupational therapist. Q5. Respiratory irregularities in children with cerebral palsy can lead to deviant speech? 77.8% was scored by psychologist & physiotherapist and 66.6% by occupational therapist. Q6. Do you think speech therapy is important after surgery of cleft palate? 77.8% was scored by psychologist, 88.9% by physiotherapist and 100% by occupational therapist. Q7. Does speech therapist play a role in the rehabilitation of swallowing disorder? 77.8% was scored by psychologist & physiotherapist and 44.4% was scored by occupational therapist. Q8. Stammering can be reduced with the help of surgery? 66.7% was scored by psychologist, 44.4% by physiotherapist & 77.8% by occupational therapist. Q9. An individual can be taught speech after the removal of voice box? 66.7% was scored by psychologist, 44.4% by physiotherapy and 77.8% by occupational therapist. Q10.

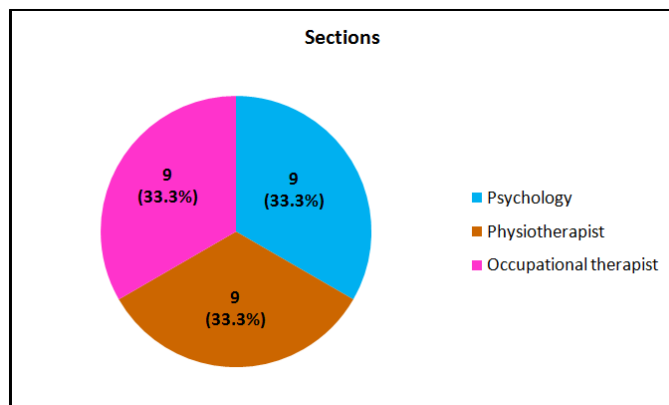


Fig 5 Shows overall awareness of speech and language pathology and audiology among different professions.

CONCLUSIONS

To gauge the level of knowledge among various specialists in the field of speech and hearing, a questionnaire was created. A total of 30 experts, 10 from each of the departments of occupational therapy, psychology, and physiotherapy, received the questionnaire. The number of patients referred for speech and hearing issues will rise as these experts' awareness of the issue grows. Additionally, it would result in an effective "team approach" in the rehabilitation of people with speech and hearing problems, which would enhance their quality of life. Nearly all of the professionals agreed that speech and hearing specialists should play a significant role in their respective fields. Additionally, they believed that every part of the nation needed to have access to speech and hearing professionals.

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