

## Research Article

# A qualitative analysis of children with visual impairment by speech therapists and special education teachers

Javeria Gul<sup>1</sup>, Tehreem Ijaz<sup>2</sup>, Maryam Nadir Kiyani<sup>2\*</sup>

## ABSTRACT

**Background:** Visual impairment creates adverse effects on the affected individual and his family. Speech therapists played an essential role in the development of children who had communication problems.

**Objective:** To explore the perceptions of special education teachers and speech pathologists about the role of speech therapists in children with visual impairment.

**Methodology:** A qualitative study exploring the role of speech pathologists in visual impairment was conducted in Rawalpindi and Islamabad region in 2022. Purposive sampling was used to include 8 speech therapists and 7 special education teachers. Speech pathologists having minimum qualification of MS/SLP or PGD and Special education teachers with minimum qualification of master's in special education with a minimum of two years of experience were included. Open-ended questions were developed, and data was gathered by using semi-structured interviews. Recordings were done after informed consent. Thematic analysis was done to generate the themes.

**Results:** Four major themes were identified by both professionals. These include 1) the need for guidance for professionals 2) auditory and tactile orientations for the development of language 3) scarce resources in therapy, and 4) the need for training for professionals who are working with visually impaired children.

**Conclusion:** Speech therapists have a vital role in developing communication for children with visual impairment. Professionals suggested that speech therapists should work with children with VI as they work with sighted children.

**Keywords:** *speech therapists; special education teachers; visual impairment.*

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## INTRODUCTION

Vision is the fundamental visual sense by which a person can give and receive messages in his surroundings[1]. WHO describes visual impairment as any irregularity in psychological, physiological, or anatomical structure and function [2]. According to ICD-10 visual impairment is defined as low vision and an individual's visual acuity should be less than 6/18 or better than 3/60. On the other hand, a person would be said as blind whose visual acuity would be 3/60 [3].

In line with the country-wide federation of the blind, inside the US, individuals who are younger than 20 and have a visual impairment are about 2.4% (694,300 children)[4]. The ratio of children with visual impairment in under-developing countries of Asia and Africa is greater than in other countries (90%). In Pakistan, the prevalence of visual impairment and severe visual impairment is 33.8% and 27.2% respectively [5].

In developed countries, Cerebral (or Cortical) Visual Impairment, cataracts, congenital diseases, rubella, ametropia, optic nerve damage, and inflammation of the cornea have become a leading etiology in children with visual impairment [5-10].

Visual Impairment had a major impact on individual daily life activities. It affects the individual's physical performance, creates stress and anxiety, and deteriorates the quality of life [11]. Researchers suggested that development and the process of early literacy like reading, writing mathematical concepts, and information about letters, starts in infancy[12].

Researchers investigated the impact of visual impairment on the development of language and communication skills. In a study, language, and communication skills in typical children and atypical children with visual impairment of age 6-12 years were investigated. The results revealed that sighted children showed better language and communication skills as compared to the children with visual impairment who have pragmatically poor language and communication skills for social purposes[13]. Researchers investigated that children with visual impairment face difficulties in the development of verbal expression because these children depend on their caregivers and do not understand facial expressions[12].

Researchers illustrated that infants with visual impairment babble less likely than typical infants. They have no visual experience of the rewards of their caretakers. Similarly, literature also indicated that visual impairment also creates hindrances in speech production of visually impaired children till adolescence period[14].

According to research, speech therapists are those who assess infants after birth. They assess their early reflexes, non-verbal gestures, and gross and fine motor movements. They also help to initiate sucking and chewing[15]. Researchers suggested that speech therapists played an essential role in the development of atypical children, especially in language acquisition and the development of social communication. In the field of visual impairment, limited studies have been conducted on the role of SLPs. However, the importance of SLPs cannot be denied. For this area, according to researchers, SLPs are the practitioners who work hard to rehabilitate individuals, especially visually impaired individuals according to their different needs to facilitate them in developing effective communication [16].

A study was conducted on the use of AAC devices with children with visual impairment. Speech therapists, teachers, and occupational therapists were included in this study. Results concluded that professionals lack adequate knowledge and experience about the use of AAC devices with children with visual impairment[17].

Special education teachers play an important role in the development of the mainstream education system. They require thorough knowledge about the needs of disabled students to meet their requirements [18]. Research was conducted in Zambia to determine the struggles of teachers working with children having visual impairment. The researchers suggested that the teachers faced troubles during question-answer sessions, teaching comprehension questions, and group discussions as they are not skilled in overcoming such challenges[19]. A study was conducted to observe activities and teaching methodologies of teachers of visual impairment for the development of core curriculum. The results showed that for the development of communication skills teachers often use braille reading, soft wares, and electronic machines[20].

According to the research, students with visual impairment need a multidisciplinary team approach because they also struggle with other developmental processes throughout their life span. The multidisciplinary team should take the responsibility of assessing and developing strategies for the betterment of children having visual impairment [21].

Keeping in view the importance of the role of speech pathologists with visually impaired children, this research aimed to investigate an in-depth analysis of the perception of speech therapists and special education teachers from specialized centers about the role of SLPs. This study will allow professionals to think about early interventions and therapy goals for children having visual impairment.

## METHODOLOGY

A qualitative study was conducted in 2022, at special education schools of Rawalpindi and Islamabad region after the approval from the Research Ethical Committee of Riphah International University Islamabad (with Ref # Riphah/RCRS/REC/01339). A purposive sampling technique was used for data collection. 15 participants were selected for the semi-structured interviews who are working with visually impaired children (n=7 special education teachers, n=8 speech pathologists). Both male and female participants, who had more than 2 years of experience with visually impaired children (age range of 4-9 years)

were selected for interviews. The speech pathologists having minimum qualification of PGD and MS/SLP and special education teachers with minimum qualification of master's in special education were included in the study.

Open-ended questions were developed after the literature review. Separate questions were developed for speech therapists and special education teachers. To save the data and avoid bias in the transcription of the data, interviews were recorded after obtaining consent from participants. Thematic analysis was conducted by using Braun and Clark's 6-step guidelines [22].

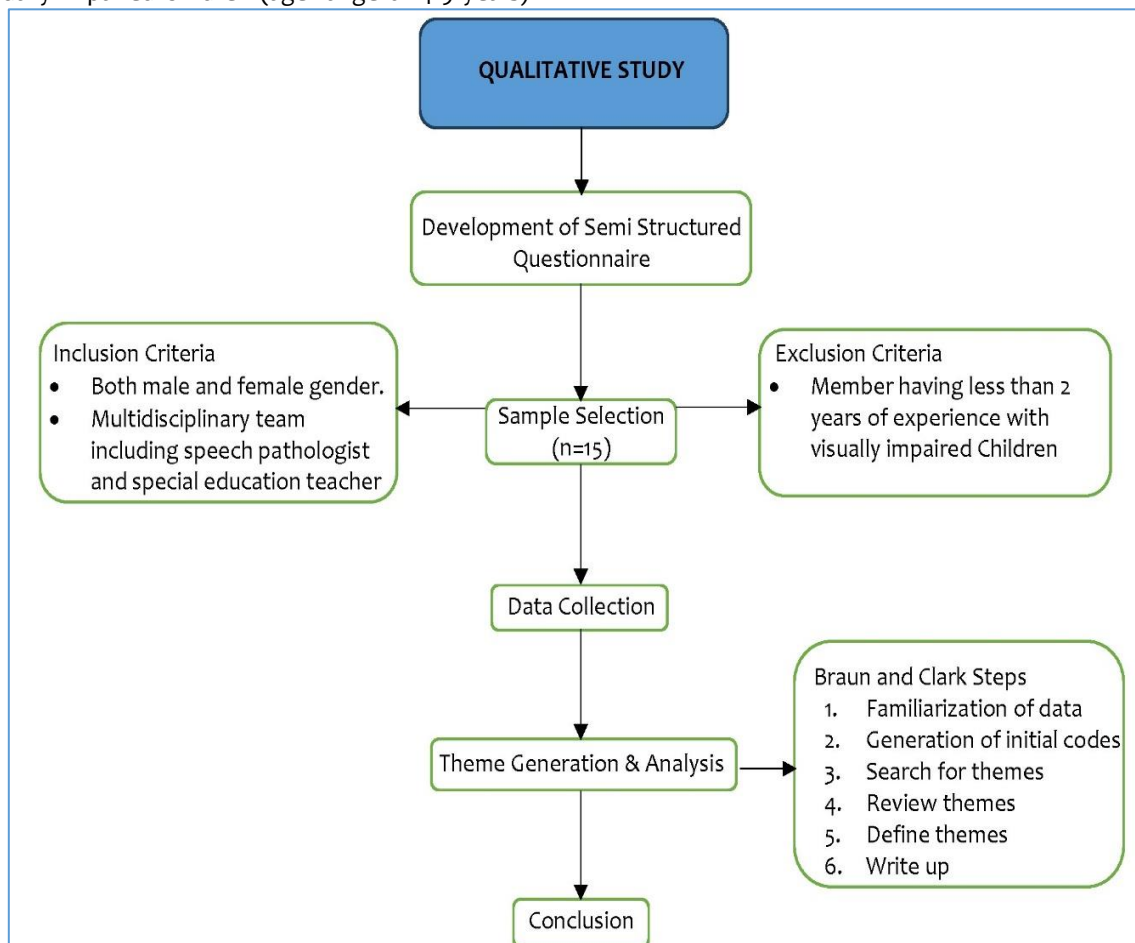


Figure 1: Study Flow Diagram

## RESULTS

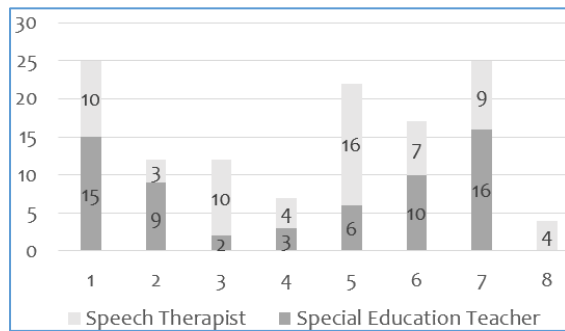
For a valid result, an expert panel was established to evaluate the research questions. Five experts in the field who were knowledgeable about the construct under inquiry made up the panel. Based on the opinions offered by the expert panel, 10 questions have been selected from a total of 21 questions for the final interview from both professionals.

The participant's experience was taken before conducting the interviews. Most of the participants had the experience of 2 to 5 years with visually

impaired children. While 57% of the special education teachers were females who are working at special centers. On the contrary, 87% of the speech therapists were females who were working with children with visual impairment.

**Theme Analysis:** Thematic analysis was conducted manually by two researchers. Eleven interrelated themes along with 15 and 12 subthemes were identified by special education teachers and speech therapists respectively about their perceptions regarding the role of speech therapists with visually impaired children.

The special education teachers perceived that the speech therapists should provide guidance and be involved in the development of auditory and verbal skills. While few of them consider their strong role in developing receptive skills. Similarly, speech therapist perceived their strong role in alternative augmentative communication, auditory bombardment, and oral motor exercises with visually impaired children. While few of them consider their role in stammering, articulation, and voice disorder.



**Figure 2: Experience of Professionals**

#### Frequent Themes of Special Education Teachers

**Theme 1: SLP help in Speech and Language Development:** The special education teachers gave positive responses about the role of speech therapists. They suggested that children with a visual impairment might have the same language problems as sighted children. 4 out of 7 respondents gave suggestions that SLP should work on the child's receptive skills and others suggested that SLP should use drill and repetitive practices for the development of language skills.

**Theme 2: Involvement of SLP in developing auditory-verbal skills:** All special education teachers were positive about the role of SLP in developing literacy skills. One participant discussed about the SLP's role in schemas development and discrimination of the sounds. She reported that "children with visual impairment face issues in the development of these skills if their schemas would not develop properly. So, by making schemas and after developing fine motor skills, their literacy skills should be developed". Most of the respondents discussed the child's auditory-verbal skills through which an SLP could help children with visual impairment in developing literacy skills.

**Theme 3: Modified Therapy Resources:** Most of the participants suggested that the therapies should be modified and converted to tactile and auditory-based techniques. One of the participants discussed

that therapy protocols should include "Poems, Listening, and drill method", while another participant responded that "Children with visual impairment can respond to tactile models so it should be included in therapies". One of the participants shared an example of teaching these children "If speech therapists want to teach them about sparrows, therapists should teach them through real sound of sparrows and other things". (table 1)

#### Frequent Themes of Speech Therapists

**Theme 1: Atypical speech and language development with comorbidity:** Most of the speech therapists shared their opinion that the difference can be seen if the child has multiple disabilities with visual impairment. One participant talks about a child's psychological state, due to which he can face the issue of stammering as seen in typical children. One participant discussed that the difference would always be seen because perception depends on our senses and the absence of vision makes our perceptions faulty.

**Theme 2: Practice with the help of auditory and tactile sensations:** Participants gave positive responses about the role of speech therapists. Some said that speech therapists should guide these children through auditory and listening skills. Some suggest that the tactile skills of children could also be used for the enhancement of the vocabulary of these children. One of the participants discussed that if these children have speech-related issues, the therapists will teach them through a tongue depressor if they want to teach them verbs like jumping then they can prompt them with tactile senses. Participants suggest that in social interaction speech pathologists can rehabilitate children with the help of their listening skills. They would provide auditory support through verbal instructions.

**Theme 3: Factors affecting assessment and management"** This theme was focused on analyzing those factors that could influence the SLP's decisions and interpretations. Most of them discussed that Visual impairment is itself a big factor that influences their decisions. Some talked about the caregiver support, and rapport building during sessions as a influencing factor. Two of the participants talked about the strengths and weaknesses of the child as an influencing factor in the assessment and management of the child during sessions. (table 2)



Table 1: Perceptions of Special Education Teachers (Codes &amp; Theme)

Sr. #	Codes	Subthemes	n	Themes	Example Quotes
1	Lack of resources	Scarce Resources	5	Academic progress requirements	“In educational aspect, children with VI need attention.” “Children with VI lack visual experience that’s why they face career limitations.”
	Require specific tools				
	Need for special setting/ environment	Need Specific Arrangements	2		“They have lack of resources for their educational process, like we cannot provide them firsthand things so we can use embossed modeling”
	Need of training for professionals	Require Trainings	5		
2	SLP can help as like they help sighted children	Role Of SLP	6	SLP help in speech and language development	“I cannot sign, so whatever I do, I use my language and power of speech for conveying my opinion.” “Speech therapists are those who worked with the language development of children”. “If they have issues related to language then drill method can be used with them. Repetitive use of tactile skills.”
	SLP can help as per requirement				
	SLP can help in language development more accurately as compared to SET				
	SLP should work on vocabulary				
	SLP can help through touch and listening	Learning Practice/Rehearsals	4		
	Drill method				
	Repetitive practice	Parental Support	5		
	Practice through exposure of natural things				
	Parent support should be strong during learning	Strong Receptive Skills	1		
	Professional and parental support				
Recognition of things through touch	Communication Gap	2	Lack of confidence / low self esteem	“If their parent gave them exposure of educated people and guide them properly then they can communicate very nicely”	
Receptively sharp without comorbidity					
Clarity in words should be present while instructing the child					
Social communication is weak					
3	Low confidence while communicating others	Prosody	1		“Through accent they can access so many things in social communication but nonverbally they cannot communicate, if someone guide them then they can. In social communication they always need guidance”
	Through vocal accent of others, visual impaired children can understand expressions				
	They can understand by the tone of other individual/ verbal communication	Non-Verbal Communication	2		“Those children who have acquire visual impairment, they have intact nonverbal communication and those who are visually impaired by birth totally depends on verbal communication.”
	They cannot communicate through gestures				
	Cannot communicate nonverbally	Need Of Guidance	7		“These children always need guidance in every situation like during azan time we guide them to stay quiet. They cannot anticipate things by themselves.”
	After guidance, sometimes can communicate through gestures but in rare cases				
	In different setting they can communicate but need guidance	Use Of Auditory – Verbal Skills	7	Involvement of SLP in developing auditory verbal skills	“Children with visual impairment are good listeners. They can recognize voices of people”. “By simple instructions they cannot understand but with the addition of tactile they can understand best”
	Without guidance they cannot communicate properly				
	Cannot anticipate by themselves				
	Can acquire literacy skills with the passage of time after learning and practice				
4	Schemas development	Modified Therapy	7		“In intervention you should teach them through poems. Listen and repeat method should be used and if you further go for listening skills you follow listen and write listen and elaborate” “Speech therapists should work on guidance, listening and tactile senses. They should give them exposure of natural experiences. For example, if speech therapists want to teach them about sparrows, therapists should teach them through real sound of sparrows and other things.”
	SLP can help in discrimination of sounds				
	Bombardment of nouns and then touch	Auditory Discrimination	2		
	If mental disability is present, then use auditory. skills				
	Poems Musical therapy	Tactile Discrimination	5		
	Listening practice				
Tactile modelling	Original and tangible models should be provided				
Tactile Orientation should be provided					

Table 2: Perceptions of Speech Therapists (Codes &amp; Themes)

Codes	Subthemes	n	Themes	Example Quotes
Mostly they have issue only regarding to vision				"Children with visual impairment had rare problems related to speech and language development."
As such no difference is seen in speech development	No difference in speech development	2		"As such no difference is seen because visual impairment didn't affect their language if the child has no other disability"
In language development difference is seen if they have other disability	Difference in speech development with comorbidity	4	Atypical speech and language development with comorbidity	"If the child is presented with multiple disorder, then we can say that there is a difference, but that difference would be according to the level of other disability".
Comorbidity with visual impairment mostly not properly diagnosed	Miss-Diagnosis	1		"I observed that these children are not properly diagnosed with other disabilities"
Faulty perception due to Visual impairment	Misperceptions	1		
Audible prompts				"Speech therapists can also support them by enhancing their listening skills".
Enhance listening skills	Auditory perception	3	Practice with the help of auditory and tactile sensations	"Speech therapists can use their therapies, but they cannot provide visual prompts, but they can give them audible prompts and tactile prompts."
Clear instructions				"Speech therapist can rehabilitate them through sense of touch and clear instruction".
Tactile prompts	Tactile sensations	3		
Tactile modeling				
Vocabulary enhancement	Auditory Bombardment	7		
Rare oral difficulties				"I didn't see any vi child who has these types of difficulties because these problems arise with those children who have multiple disabilities."
Swallowing difficulty in down syndrome	Poor oral motor musculature control	5	Oral motor musculature	"If any physical issues arises or due to trauma or accident this difficulty may be occur just like in sighted children."
If child has other disability, then these difficulties may be arisen				"Sucking, chewing and swallowing problems are related to the individual's oral musculature and oral perceptions. It would be affected because whenever these children intake their food they would always be dependent on others"
Physical disability				
Oral motor exercises	Oral motor exercises	7		"In my opinion decision making process of SLP would automatically effect by this impairment."
Home plans				"Decision making depend on the assessment, your assessment should be strong enough if you are taking history of a child or building a rapport with the child then you would have definitely had idea about the problem of the child."
Detailed Assessment needed	Screening and evaluation	5		"In decision making process we should make a triangle in which the therapist, parent and child should be involved"
Sometimes difficulty in vocabulary assessment (color recognition)				
Rapport building	Professional assistance	4	Factors affecting assessment and management	"With children with physical disabilities we might use AAC devices or other mode of communication."
Care giver support				"We can modify our therapies by searching alternative ways which should be according to the requirements and beneficial for children with visual impairment"
Observation of SLP				
SLP, parent and child make a triangle				
Short comings of child				
Strengths	Strengths and weaknesses			
Attention of Child				
Child with physical disability can use alternate mode of communication				
High tech may be used but with children who have high socio-economic status	Use of other mode of communication	8	Alternative Augmentative devices	

## DISCUSSION

This study aimed to determine the perception of speech therapists and special education teachers about the role of speech therapists in children with visual impairment. The results of this study emphasize the value of early interventions and multidisciplinary strategies for helping children with visual impairment. The study suggested that speech therapists would have an indispensable role if children with visual impairment have speech and language problems.

The results of the current study indicated the limited resources in institutions, for children with visual impairment. Similar results were depicted in a study, conducted to determine the integration of children with visual impairment in a mainstream setting. In a study, 30 teachers and 40 pupils were interviewed. The results of that study concluded that the institutions had a lack of resources and untrained professionals (teachers) which influences the progress of children with visual impairment in academic settings [23]. Government should provide the required resources and tools for their academic progress. They should provide kits with repair facilities as well as laboratories. Devices should also be presented for children with visual impairment in a wide range.

Current study indicates that speech therapists can help children with visual impairment speech and language development by providing tactile cues. A study was published in which the purpose of the study was to introduce different ways of communication (the use of tactile modeling) in which multiple disabled sighted children and children with visual impairment were included. Training was given to these children for a period. For instance, therapists said that it was time for music and cued them tangible for the activity. Therapists allowed them to explore objects with tactile sense. Results indicated that children with mild and moderate multiple disabilities along with visual impairment learned with the help of tangible cues[24].

In a current study, professionals suggested that for intervention of children with severe visual impairment, speech therapists should use alternate modes of communication. One participant suggested the use of augmentative and alternative devices for language development. Similarly, study results indicated that the participants gained benefits from the use of alternative modes of communication and improved the development of literacy skills[25].

In the current study, professionals also discuss the role of speech therapists in enhancing the auditory or listening skills of children with visual impairment. In a study, it was highlighted that

learning to listen or auditory reading plays an important role in children with visual impairment. They can identify different sounds along with physical exposure and label the objects or sounds easily[26].

Visual impairment restricts the child's accessibility to non-verbal communication which hinders their social interaction with others. Due to this children with visual impairment have low confidence and weak social communication skills. Similarly, a study was conducted to determine the language and social communication of children with visual impairment which concluded that children with visual impairment may face difficulties in socio-communication and pragmatic language [13]. At this point, professionals and caregiver support is very important for children with visual impairment. Children, parents, and professionals should make a triangle in which they work in collaboration.

So, the current study showed positive results about the role of speech therapists in children with visual impairment. After getting the professional's perceptions and collecting evidence it was concluded that children with visual impairment need professional support in their speech and language development. In the future, the perception of parents and psychologists about the role of speech therapists should also be included who have children with visual impairment. Studies can be conducted to find out the barriers regarding the speech and language assessment and management of visually impaired children.

## CONCLUSION

This study revealed that the professionals emphasized the role of speech therapists in children with visual impairment. Most of the professionals encouraged the speech therapist's role by suggesting developing modified therapy techniques which should include auditory-tactile models. They also highlighted the lack of resources in the development of children with visual impairment. Speech therapists should also provide services regarding language development as they provide to the sighted children.

## DECLARATIONS & STATEMENTS

### Author's Contribution

JG: substantial contributions to the conception and design of the study.

JG: acquisition of data for the study.

JG and TI: interpretation of data for the study.

TI: analysis of the data for the study.

TI and MNK: drafted the work.

MNK: revised it critically for important intellectual content.

MNK: final approval of the version to be published and agreement to be accountable for all aspects.

of the work in ensuring that questions related to the accuracy or integrity of any part of the work are



appropriately investigated and resolved. All authors contributed to the article and approved the submitted version.

#### Ethical Statement

The study was conducted after approval from the Research Ethical Committee of Riphah International University Islamabad (with Ref # Riphah/RCRS/REC/01339). Data was coded for confidentiality. No physical or psychological harm was caused to any participant.

#### Consent Statement

Written consent was obtained from participants and schools.

#### Data Availability Statement

Data can be provided by the corresponding author if needed.

#### Conflicts of Interest

There is no conflict of interest associated with this publication.

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