Pragmatic Speech and Language Therapy for Bengali Speaking Children with Hearing Impairment

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by

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of

M.Phil.

Approval Letter

This is to certify that the M.Phil. research entitled “Pragmatic Speech and Language Therapy for Bengali Speaking Children with Hearing Impairment”, submitted by Mobasshera Islam (Regd. No.: 59) for the award of the M.Phil. degree to the University of Dhaka, is a record of bonafide research done under my direct supervision and guidance. I have observed that the thesis has reached the standards, fulfilling the requirements of the rules and regulations of the degree. The contents embodied in the thesis have not been submitted for the award of any other degree or diploma in this or any other university.

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(Prof. Dr. Hakim Arif)

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Abstract

Speech and Language Therapy (SLT) is vital in acquiring speech and language for children with hearing impairment (CHI). Many researchers worldwide have discovered different approaches and factors to make SLT more effective for hearing impaired children. **This study attempted to find the gaps between the parents' and therapists' views about implementing pragmatic therapy. In addition, it also investigated the parents' and therapists' perceptions about the barriers to implementing effective therapy for CHI in Bangladesh. Finding gaps between parents and therapists as well as barriers to implementing effective therapy for CHI in Bangladesh illustrates the current scenario of speech and language therapy for CHI in Bangladesh.** By addressing all these identified shortcomings, we can ensure higher quality and more accountability in SLT, as well as raise awareness among therapists and relevant authorities about the pragmatic approach to speech and language therapy for CHI in the Bangladeshi context, which is the main goal of this research. To design speech and language therapy, the findings of various research outcomes play vital roles in developing the speech and language of CHI. The present research is based on the views and opinions of both Speech and Language Therapists (SALT) and Parents of hearing-impaired children. This study used a qualitative approach, with data collected via a semi-structured questionnaire. Of the 36 participants, 12 were SALT who provide speech therapy for hearing impaired children and adults, and the rest of 24 participants were parents of hearing-impaired children who had been receiving therapy under the supervision of those speech therapists for at least one year. Qualitative reasoning was used by evaluating the participant's experiences, research findings, and contextual observations. The results indicated that in the Bangladeshi context, some obstacles are impacting the effectiveness of speech and language therapy for Bengali-speaking hearing-impaired children. Analysis of collected data revealed that although the found factors (from literature) are significant enough, some of them are implemented by therapists, but not all of them are properly implemented in the context of Bangladesh due to some barriers and negligence. Therefore, according to therapists and parents of HI children, pragmatic features of SLT for Bengali-speaking hearing impaired children could be developed in our country by overcoming these barriers. Considerations of this research outcome could play a vital role in improving the quality of speech and language therapy that will be beneficial not only for acquiring language and developing speech for Hearing Impaired (HI) children in Bangladesh, but also for having a positive impact on their overall life pattern. Thus, the present research could help to improve the quality of SLT in the Bangladeshi context so that it could be beneficial for Bengali-speaking hearing-impaired children.

Abbreviations

SLT- Speech and Language Therapy

SALT- Speech and Language Therapist

CHI- Children with Hearing Impairment

AT- Auditory Training

AVT- Auditory Verbal Therapy

CI- Cochlear Implant

DSA- Dialogical Sequence Analysis

EHDI- Early Hearing Detection and Intervention

EI Early Intervention

FGD- Focus Group Discussion

HA- Hearing Aid

HI- Hearing Impaired

PETAL- Phonological Evaluation & Transcription of Audio-Visual Language

SL- Sign Language

SLT- Speech and Language Therapist

TC- Total Communication

TC- Total communication

TCCS- Therapeutic Collaboration Coding System

TCM-Therapeutic Cycles Model

VRM- Verbal Response Mode

YDP- Young Deaf People

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CHAPTER ONE

Introduction

1.1 Background

One of the most common sensory-based impairments is hearing loss in the world, especially in underdeveloped or developing countries like Bangladesh. Even in developed countries such as the United States, thirty-five million children and adults suffer from hearing impairment (Steinberg, 1991). Despite the high prevalence of Hearing Impairment (HI), little information is available about child-specific therapy procedures for Children with Hearing Impairment (CHI) **(**Venkatesh et al., 2021). The negative impact of hearing impairment can be reduced significantly through early diagnosis, proper investigations, treatments, and rehabilitation. As hearing is connected with our other senses, every hearing-impaired person experiences hearing loss in their own individual ways (Giolas & Wark, 1967). A person with the same type of hearing impairment can react differently; for example, moving to a more favorable listening position could be more effective for a children with hearing impairment. When Speech and Language Therapists (SALT) assess the child's general adjustment to his hearing loss, they should also determine his specific areas of difficulty. Developing effective ways of handling difficult speech and language acquisition situations should be the ultimate goal of therapy activities (Giolas & Wark, 1967). Different actions could be taken in response to specific difficult situations.

Therefore, the rehabilitation approaches should be designed based on the patient’s needs. For example, if the patient has profound hearing loss with an inactive inner ear, cochlear implants could be the best option. On the other hand, for other children with hearing impairment, hearing

aids could be appropriate. However, the types of hearing aids and therapeutic approaches completely depend on the patient's needs.

Many research studies have been conducted on the effectiveness of hearing aids for children with hearing loss, even those who have severe or profound hearing impairment (Fitzpatrick et al. 2011). As the primary goal is to restore audibility, hearing aids come first as a means of hearing loss compensation mechanism. Which type of hearing aid is more suitable for whom mainly depends on some factors like the capacity of amplification of sound, price, size, warranty, etc. (Anam, 2011). The use of modern hearing technology, such as digital hearing aids, has enabled most hearing-impaired children or people to get maximum acoustic and neurological benefits. By using hearing aids, children with severe hearing impairment have the opportunity to develop language by listening (Fitzpatrick et al. 2011).

A cochlear implant (CI) is suitable for sensorineural hearing impairment. Sensorineural hearing impairment refers to damaged hair cells in the inner ear. And a severe or profoundly hearing-impaired person may also be eligible for the cochlear implant. How suitable a cochlear implant is for a specific person depends on some factors like age, onset time of impairment, and motivation of the person or child's family (ASHA n.d). Oral language acquisition is the primary goal of a cochlear implant. While intervention support is increasing, a cochlear implant has been shown to be the most effective for regaining hearing loss (Arstegui & Denia 2005).

A device (hearing aids) or surgery (cochlear implant) is not sufficient for a hearing-impaired child or a person without the support of other interdisciplinary specialists such as audiologists, speech and language therapists, special teachers, psychologists, etc. speech and language therapists plays a vital role in cooperative interdisciplinary teamwork (ASHA n.d). Hearing is

not enough to understand sound and build up good speech comprehension. A hearing-impaired person can find it difficult to understand the sound signal that has a long gap for certain processing of acoustic information. The sound offered by the hearing aids sometimes is not properly understood by the listener (Chaix, 2016). In fact, the brain sometimes classifies the new sound-like noise and attempts to ignore it. When linguistic signals make a link with concepts; can produce an acoustic image, only the brain then considers it as a language or a way of communication, and here speech and language therapists plays a vital role. Thus, the role of speech and language therapists in improving speech and language for children with hearing impairment is undeniable. This research aims to understand how the therapy procedure is implemented for designing need-based Speech and Language Therapy (SLT) for children with hearing impairment in Bangladesh. Additionally, explore the pragmatic issues of implementing proper need-based therapy.

1.2 Pragmatic Approach of Speech and Language Therapy

The present research proposes a pragmatic approach. The term "pragmatic" refers to how speech and language therapy is implemented on the patient practically or on the basis of the patient's needs. A pragmatic study focuses on a single decision-maker in a real-life circumstance. The first step in conducting a pragmatic study is identifying an issue and considering it in its broadest sense. This leads to a research investigation, which aims to understand the problem better and, eventually, address it. Finally, the study findings frequently lead to policy recommendations, new environmental efforts, or social change. (Salkind, 2010). The pragmatic study considers that knowledge is not a representation of reality or a "mirror of nature"; rather, it is a tool for action which should be evaluated according to whether it serves our desired interests (Cornish & Gillespie, 2009). As every person with hearing loss has a unique experience with hearing loss;

the ultimate goal of therapy activities should be to develop appropriate strategies for dealing with problematic speech and language acquisition scenarios for people with the same sort of hearing impairment (Giolas & Wark, 1967). That is why the therapy model should be personalized. Otherwise, there may be obstacles in the way of achieving the goal. Thus a pragmatic approach focuses on implementing speech and language therapy by considering the patients' circumstances reasonably and logically rather than following some fixed ideas, which could be a better therapeutic approach.

1.3 Rationale of the Study

There are different modes of communication widely used all over the world for hearing impaired children (Soman et al., 2012), for instance, auditory-oral, auditory-verbal, cued speech, total communication, etc. (Lebahn, 1989). Many research has been conducted on the outcomes of approaches described above, such as 'Speech and language training for the hearing-impaired using the auditory-verbal approach' (Lebahn, 1989), 'Conducting experimental research in audiovisual translation (AVT): A position paper' (Orero et al., 2018) and many others. For some children with hearing impairment, a single approach could be chosen, and for other people, two or more approaches, because that's what works best for them (Lebahn, 1989).

Although much research has been conducted on different therapy and outcome measurement processes, several other types of research focus on different ways to provide need-based therapy for clients, which can help to enhance the effectiveness of the chosen approach for the HI child. Klatte et al. (2020) discussed 'Collaboration between parents and speech and language therapists s'; Sheehey & Sheehey (2007) investigated 'elements for successful parent-professional collaboration''. Patient- therapists' relationships have been focused on by Kelley et al. (2014),

DesJardin et al. (2014) have shown the importance of the home environment evaluation for young HI children. The positive impact of Integrated therapy and evidence-based practice is also proven by much research for effective speech and language therapy for HI children. These studies are carried out independently. Accumulating all these scatter research findings in one place and implementing them along with the selected speech and language therapy approach can help to accelerate the communication skills of HI children.

On the other hand, many children with hearing impairment can achieve a good level of language skills during habilitation, but the major concern is an inconsistency in progress. A range of observed outcomes illustrates uncertainty in progress. When a clinician expects to get the desired outcome, they must consider a range of possible factors that may impact the outcome, and these factors could be those outcomes found in different works of literature mentioned above. In many cases, after providing speech therapy and other required facilities, a child is not able to acquire language according to the milestone. It may be due to some barriers which could be investigated.

It has been found that research findings that could directly or indirectly support achieving a better outcome of speech and language therapy and ensuring its implementation have been rarely studied together by researchers. Therefore, this study investigates the proper way of implementing speech and language therapy and its pragmatic approach in the Bangladeshi context for children with hearing impairment. It could bring a major change in the way of implementing speech and language therapy for HI children, which could accelerate language acquisition process of hearing impaired children in Bangladeshi context.

1.4 Aim of this study

This research attempts to find out the proper approach to implementing speech and language therapy as well as bring awareness to speech and language therapists about factors that could impact proper treatment for children with hearing impairment. Client-therapist relationships, parent involvement, environmental factors, early intervention, home-based guidance, integrated therapy, frequency of therapy settings, and the importance of evidence-based practice are also highlighted as elements of pragmatic therapy. One of the primary objectives of this study is to determine the barriers to providing therapy to children with hearing impairment in Bangladesh.

1.5 Research questions

1. What are the gaps between the parents' and therapists' views about implementing pragmatic therapy?
2. What are the parents' and therapists' perceptions about the barriers to implementing effective therapy for children with hearing impairment in Bangladesh?
3. What is the pragmatic scenario of speech and language therapy for children with hearing impairment in the context of Bangladesh?

CHAPTER TWO

Literature Review

2.1 Introduction

Hearing is one of the basic senses of human beings that helps us be capable of experiencing our environment and learning from it. The adverse impact of hearing impairment on communication skills, cognition buildup, and social norm adoption has been well documented. There are many reasons for hearing impairment. Therefore, after diagnosis, a speech and language therapist (SALT) works hard to help a hearing-impaired person overcome or minimize the negative impact of hearing loss. Because hearing impairment can cause partial or total hearing loss, it is also known as hearing loss. Hearing impairment may affect one or both ears. The hearing ability helps us to experience the environment and plays a crucial role in daily life for a person. Normal psychological development and language acquisition ability are largely dependent on intact hearing capacity. The impact of hearing impairment is multidimensional; it is emotional, interpersonal, behavioral, physical, and psychological. Levels of impairment can differ from person to person. It could be a complete or partial loss of hearing ability and may damage one or both ears. The severity of impairment can be mild, moderate, severe, or profound (Mathers et al., 2000). Impairment can happen at the pre-lingual or post-lingual stage and is classified as conductive, sensorineural, or mixed-type hearing loss. The same type or degree of hearing loss can have different impacts on different people, as every person experiences their hearing impairment in a very individual way, which proves the necessity of a need-based habilitation

procedure. To make speech and language therapy more effective for hearing-impaired children, therapists should implement different approaches, methods, and research outcomes.

2.1.1 Hearing **Impairment**

Intact hearing ability is essential for an individual as it secures communication, normal psychological growth, and maturation (Pohel, 1994). According to ASHA (2015), hearing is critical for language learning, which can impact one's education, communication, and social skills. Hearing loss causes language delay and affects speech clarity which impacts negatively on educational skills and social development. This lack limits a person's access to communication and hinders interactions with others; in addition, it may cause feelings of isolation (ASHA, 2015) as well. Early identification and proper management of hearing loss can significantly reduce its impacts (WHO, 2013a). The consequences of hearing impairment are multifaceted that have impacts on emotional, interpersonal, behavioral, physical, and psychological aspects (Carggs-Hinton, 2007). According to Dobie et al (2004), a person may become hearing impaired at the pre-lingual, or post-lingual stage and it can be classified as conductive, sensorineural, and mixed-type hearing loss (Anam, 2011).

Damage to any part of the auditory pathway may lead to hearing loss. Hearing loss has been categorized mainly into three types: conductive hearing loss, sensorineural hearing loss, and mixed hearing loss. Any damage to the conductive system of the ear—which includes the ear canal, tympanic membrane (eardrum), and ossicles (middle ear bones)—leads to conductive hearing loss (Anam, 2011). In usual cases, the middle ear space can be filled with fluid due to conductive damage. Sensorineural hearing loss indicates a problem in the inner ear, auditory

nerve, or higher auditory centers in the brainstem and temporal lobe. Mixed hearing loss designates that hearing loss has both a conductive and sensorineural component.

The severity of the hearing loss is determined by the duration of impairment, frequency, and degree. Another critical factor is whether the hearing loss is unilateral or bilateral (Leonhardt, 1999). It is natural that every individual hearing-impaired person experiences and suffers in a very particular and individual way. These consequences lead to rehabilitation, so fitting and adjusting hearing aids and/or cochlear implants become unavoidable (Mourtou, 2014). Moreover, understanding communication requires a great deal of concentration and compensational tools like lip-reading, a combination of information, and the use of contextual frames (Mourtou, 2014).

2.1.2 Dealings with hearing impairment

According to WHO (2013a), 5% of the world population is suffering from hearing impairment, of which 32 million are children. Early diagnosis of the type and severity of hearing loss plays a vital role in providing proper intervention for children. The type of hearing loss can be determined by comparing the results obtained by ear conduction with those obtained by bone conduction (ASHA, n.d.). Surgery, various types of hearing aids, cochlear implants, medication, and various forms of habilitation and rehabilitation can be used to treat hearing impairment (Dobie et al., 2004). When sound cannot pass effectively through the ear canal to the eardrum and to the middle ear, then it is considered conductive hearing loss (Sataloff and Sataloff, 2006). It is a type of hearing loss that can often be cured surgically if detected earlier. According to different studies, the causes of conductive hearing loss are fluid in the middle ear, allergies, difficulties in Eustachian tube function, ear infections, and perforated eardrums (Marfoh,2011).

Sensorineural hearing loss is the most common type of hearing loss. It is mostly treated by cochlear implants along with the use of hearing aids.

2.1.3 Rehabilitation

A suspected hearing-impaired person is usually referred to an audiologist who is a non-medically trained person to diagnose the type and degree of hearing loss (Rezen and Hausman, 2000). They do the hearing test on the basis of intensity, frequency, and complexity (Mourtou, 2014). Audiometric evaluation procedures are usually done qualitatively or quantitatively and are divided into subjective or objective tests. After completing the required tests, audiologists can identify patients' range of pitches, the loudness of each peach, and hearing ability in each ear. After the diagnosis of hearing loss by an audiologist, an otorhinolaryngologist can initiate further steps for the treatment (Mourtou, 2014). Thus, it is decided whether patients need to use hearing aids or an implant. The overall decision related to the treatment and support services for hearing loss is directly connected to his day-to-day life conditions (Mourtou, 2014).

Hearing aids amplify sounds for users and consist of a microphone, an amplifier, a circuit, and a receiver. Hearing aids are either analog or digital. There are different types and models as well. In most cases, mild, moderate, and even severely hearing-impaired people can be helped by using modern hearing aids. A cochlear implant is generally prescribed for profound or irreversible hearing loss. Although an earlier cochlear implant is preferable for an adult who has lost their hearing ability at the post-lingual stage, nowadays, any child born with profound hearing loss just after birth is considered a candidate for a cochlear implant.

After taking hearing aids or implantation, users have to go through a process of adaptation to a new sound and perceive and interpret its meaning. The rehabilitation period varies depending on some factors like age, degree, type of impairment, and patients' medical histories (Huber et al., 2001). In rehabilitation procedures, mostly speech therapists and audiologists are involved. Although the technological development of cochlear implantation is very advanced, a patient does need special rehabilitation and treatment for a lifetime.

2.1.4 Cochlear Implants and Hearing Aids

While both devices treat hearing loss, hearing aids are more frequently used than cochlear implants. Hearing aids are used to successfully treat varying degrees of hearing loss, from mild to severe. Most people with hearing loss are candidates for and can be benefited from hearing aids, which work by amplifying sound frequencies.

Cochlear implants are used in cases where it is not enough to treat with hearing aids. Generally, implants are used to treat severe-to-profound sensorineural hearing loss due to absent or reduced cochlear hair cell function. Implanted surgically, they work by replacing the function of the damaged cochlea (inner ear) and stimulating the auditory nerve directly.

2.1.5 Habilitation and Rehabilitation

Habilitation and rehabilitation are both related terms; they are used as an individual approach to enable a person with disabilities to maintain maximum independence in all aspects of life (Oudesluys-Murphy et al.,1996).

Habilitation is a kind of service that helps a person to learn or help to improve skills and different types of functional abilities that they may not be developing normally (Hasselkus, 2012). It refers

to a process that aims to help disabled people improve their functional activities like daily living skills (Oudesluys-Murphy et. al., 1996).

For children with congenital hearing loss or young children with hearing loss who have not learned to listen and talk, speech therapy is the best habilitation for them (ASHA, n.d.). Based on the child's needs, a hearing aid or cochlear implant can be chosen. On the otherhand, the term "rehabilitation" refers to a role in providing "rehab" services (Hasselkus, 2012). The actual meaning of rehabilitation is regaining skills, abilities, or knowledge that may have been lost or compromised as a result of illness, injury, or disability. Rehabilitation helps hearing-impaired people regain skills that they have lost. If an older child or an adult loses their hearing ability, rehabilitation can help him or she learn to hear once again (Oudesluys-Murphy et al., 1996).

2.1.6 Habilitation and Rehabilitation Role of speech and language therapists

The role of a speech and language therapists for a hearing-impaired person is to build up good speech comprehension ability as well as an intelligible speech production capacity. Hearing is not enough; understanding sound signals is also very important. It can be difficult for a hearing-impaired person to understand sound signals that have a long time gap for certain acoustic information processing. The sound passed through the hearing aids may not always make the user listen to what is being said (Chaix, 2016). Sometimes the brain classifies the new sound as noise and tries to ignore it. When linguistic signals make links with concepts and can make an acoustic image, it becomes language. A speech and language therapists aims to help a hearing-impaired person to make sense of the auditory world (Chaix, 2016) and develop communication skills.

2.2 Intervention Approaches

There are different types of communication modalities within the Deaf and Hard-of-Hearing community. Which one should choose will depend on various factors. According to Beazley et al. (2012), when a speech and language therapists works with a young hearing-impaired person, they should use a two-stage approach, first focus should be on environmental factors that might create barriers to inclusion and which influence the therapist to make decisions about the need for therapy. The second step relates to the communication procedures surrounding the person and how they could impact the decisions of therapy design (Beazley et al., 2012). Although the argument of spoken (oral) versus signed (manual) language is predominant, there are different modes of communication widely used all over the world (Soman et al., 2012).

All over the world, sign language, total communication, auditory-oral, aural-oral, AVT, cued speech, etc. are used as a mode of communication as well. Nowadays AVT is becoming a very popular way for toddler hearing impaired patients. However, total communication, sign language, and other procedures are also beneficial according to patients' physical and financial condition.

2.2.1 *Sign Language (SL)*

Sign language often refers to the language of the deaf community. It is a complete language with unique syntactical, morphological, and grammatical elements that are different from verbal modes. Facial cues, expressions, and body language are prominently used in sign language. Deaf children with deaf parents, who receive the experience of sign language from the beginning, develop linguistic competence comparable to hearing children (Marschark & Hauser, 2008).

2.2.2 *Total Communication (TC)*

TC refers to a diverse group of communication options that combine manual signs with spoken language (Soman et al., 2012). Based on a child's needs, TC may include one or several communication modes such as spoken, written, or sign language.

2.2.3 *Auditory-oral*

The principles of auditory-oral communication are the acquisition of spoken language, both receptive and expressive competence. This mode of communication evolved in an environment where spoken language was consistently used both at home and at school. Cued Speech, a visual system used to improve speech reading, is also in this category (Soman et al., 2012).

The above categories simplify the variety of communication types available for hearing-impaired children. Children with hearing loss might participate in any or all of these programs at various times of their lives throughout their environmental needs (Mitchell & Karchmer, 2004).

2.3 Decision-making process of a Therapist

Approximately 90% of hearing-impaired children are born to parents who have normal hearing, so these parents often choose oral methods for their children (White, 2006). But the decision-making process that speech and language therapists implements in their working process for hearing impaired children use a two-stage approach First, the focus is on environmental factors that may create barriers and which influence the therapist in making decisions about the need for therapy (Beazley et al, 2012). The second stage relates to the communication process surrounding the hearing-impaired child (Beazley et al, 2012).

2.3.1 *The influence of environmental factors on the decision-making process*

When a speech and language therapy initially considers an appropriate therapeutic approach for a young hearing-impaired child, he/she needs to think about how it is best delivered, by whom, where, and when it will be most effective. For these, the consideration of environmental factors is very important. According to Beazley et al.(2012), some important influencing factors that help to create a favorable environment for young HI children are mentioned in the following figure (see figure1).

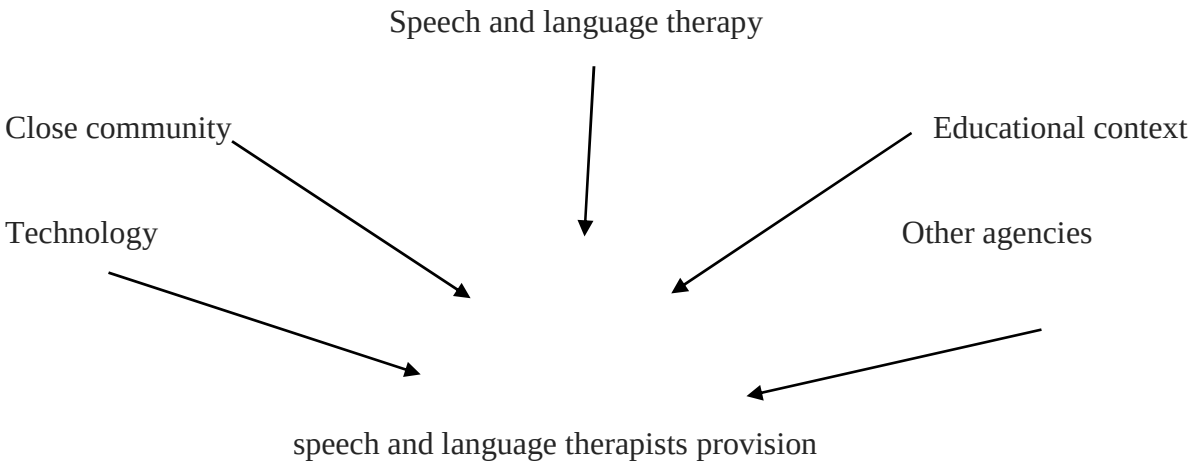


Figure 1: The influence of potential enabling / disabling factors in a young deaf person's environment on speech and language therapy provision (Source: Beazley et al., 2012: 127)

2.3.2 *Close community*

Multiple languages can be used in hearing-impaired children's homes, schools, and other contexts. In school, sign language and in-home, oral or total communication methods can be used. Such individual-oriented information can influence the therapist to choose communication methods. However, a speech and language therapists needs to discover the preferred

communication mode of the patient. It could be a spoken language, a sign language, or the language that is used by the dominant culture (Marschark & Spencer, 2010).

It is an issue of debate whether spoken or sign language or both should be chosen for hearing impaired children (Marschark & Spencer 2010). Such decisions could be taken emotionally. Sometimes, conflicting messages around these issues can be difficult for the family of a young deaf child, so a speech and language therapists needs to be sensitive (Humphries et al., 2019). To build up an understanding with the family, it is important to explain the ultimate goal for the child, share information, and discuss experiences (Beazley et al., 2012).

2.3.3 *Educational Context and Other Influence*

As soon as HI children are diagnosed as having hearing loss, they may be referred to a speech and language therapists. The team around the HI child needs to work in close collaboration with families (DES, 2006). Moreover, parents may need advice on methods of communication and support in monitoring the development of speech and language skills (Beazley et al. 2012). To work effectively and find the best way for the specific HI child, various professionals and their families must collaborate (BATOD/RCSLT 2007).

2.3.4 *Other Agencies*

There are some representatives from a range of agencies working with HI children and their families. The speech and language therapists needs to find out about these types of teams, services, and policies in the area. The therapist needs to identify and contribute to how any team works, particularly its success at interdisciplinary communication (Beazley et al., 2012).

2.3.5 *Technology*

An speech and language therapists needs to be kept up-to-date with technological development, including the constantly expanding range of devices available for hearing-impaired children. In addition, the benefits of the latest devices need to be thoroughly understood by the speech and language therapists, so that he/she can be able to advise appropriately and provide effective support. Many hearing-impaired children like to communicate through different media, such as email, the internet, text, and video phones. Such technology can be helpful for functionally meaningful assessment and therapy (Beazley et al., 2012). Developments in technology directly affect the achievement of HI children, and service provision needs to be responsive to any subsequent changes in communication and educational needs (De Raeve, 2010).

2.4 The communication process and therapy planning

The types of support that might be given to a specific hearing-impaired child by a speech and language therapists need to be decided first. Therapists should focus on the needs of the child. However, the types of needs differ depending upon the age group. Assessment of communication, which will influence therapy planning and which can also be applied to young people of all ages from pre-

school to secondary, is shown in the following figure (see figure 2).

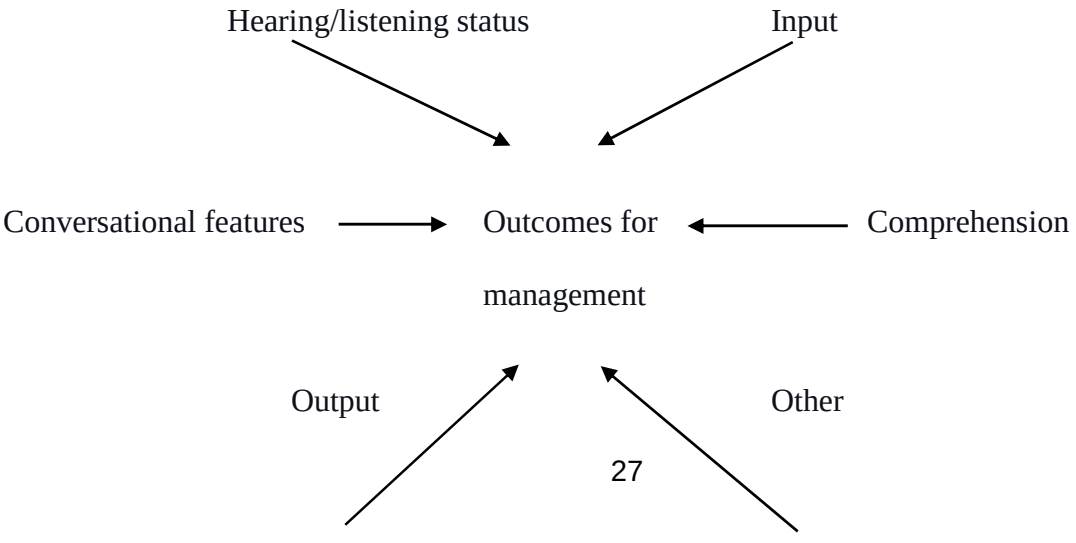


Figure 2: The influence on management planning for YDP of potential enabling/ disabling factors in the communication process (Source: Beazley et al.,2012: 130).

During the assessment process, there is a need to examine barriers and enablers to communication rather than being deficit-based (Beazley et al., 2012). If a young deaf person can use more than one language, such as sign and spoken language, all the languages in the repertoire may need to be assessed separately, although overall communicative competence also needs to be considered (Bebko et al., 2003). Different contextual aspects, like poor acoustic conditions or distracting visual background, may influence the communicative success of a hearing-impaired child. Overall speech intelligibility assessment needs to consider not only such contextual aspects but also listener experience and non-segmental and segmental features (Parker, 1999). Proper records of related ongoing aspects of communication, along with a subsequent set of clear targets, continuous monitoring, and follow-on assessments, are key to allowing precise measures of efficacy and effectiveness to be made (Beazley et al. 2012).

2.4.1 *Hearing/listening status*

To consider the hearing status of a hearing-impaired child, the child's medical description, child and family description, and therapist observation are very important to know.

2.4.2 *Child and family description*

It is important to know what the family feels about their child. If the child can hear loud sounds or is not able to hear in a noisy environment like a classroom. This information is helpful for

speech and language therapists to determine hearing impaired children's views of their hearing and listening, and how these match the comments of family and others.

2.4.3 *Medical descriptions*

Most therapists are familiar with the types of hearing loss (Madell and Flexer, 2008), but some significant factors are:

Conductive hearing loss reduces the overall volume of input, whereas sensorineural hearing loss distorts speech signals. Some speech sounds become inaccessible as difficulties lie in the auditory pathway. By using audiometry, it is possible to diagnose where exactly difficulties lie in the auditory pathway, and hence these losses can now be defined as either sensory-neural or mixed in an organ. Hearing-impaired children with similar audiograms may have different listening and communication skills, related to both internal and external resources, which may be developed into functional resources (Beazley et al. 2012). However, the age of onset of hearing loss, diagnosis, and receiving hearing aids also impact on prognosis for the development of spoken language.

To make a proper decision, a speech and language therapy needs to establish the hearing-impaired child’s medical history by considering all these factors.

2.4.4 *Therapist’s observation*

It is essential for assessing functional communication as well as listening skills to make a range of natural contextual observations of hearing-impaired children. Observation should include: whether the present implemented amplification machine is working properly or not; whether the responses of the hearing-impaired child are consistent or not; the way of response to sound and

speech, and when the child is responding, according to acoustic, social, and linguistic context, does the child's response vary or not (Beazley et al. 2012). To grade the listening environment, such types of information are helpful.

2.4.5 *Conversational features*

Conversational development is influenced by a number of factors, including the acoustic environment, conversational partners (whether deaf or hearing/using the same modality or not), and so on (Carlile & Keidser, 2020). This type of information helps a speech and language therapists to determine, in which area support is needed for a specific child and how to help him.

2.4.6 *Input*

For a hearing-impaired child, the type of language being used at home or school needs to be considered by a speech and language therapists. In addition, counseling about input patterns is important as it is not so rare for people to reduce the overall amount of conversation with their hearing-impaired child or use a restricted amount of vocabulary, a variety of syntactic structures, pragmatic speech, or sentimental conversation (Moeller and Schick, 2006).

2.4.7 *Comprehension and speech perception*

It is important for a therapist, whether the child is suffering from perception problems or comprehension difficulties. Hence, if the family members or people in the surrounding environment of the child are used to more than one language, it is necessary to understand whether the hearing-impaired child understands more in one language than in another. In addition, a speech and language therapists needs to find out if there is any speaker that the hearing-impaired child finds easier to understand. However, what type of supportive

environment (quiet/noisy) or effective cues (visual/intonation/speech or other) is helpful for the child, is also effective to identify.

2.4.8 *Output*

Some assessment tools are available to measure output or development after providing speech and language therapy. For example, PETAL (Phonological Evaluation & Transcription of Audio-Visual Language) (Parker 1999), may be appropriate for hearing impaired children. Moreover, many hearing-impaired children sometimes use a variety of techniques over time to make their conversation more intelligible, such as gestures or posture, finger-pointing or writing, etc. To explore the effectiveness of hearing-impaired children, some techniques can be used; they need to observe whether only the familiar person of the hearing-impaired child can understand his language or whether an unfamiliar hearing person is also able to perceive it. However, it is important to know whether the hearing-impaired child is able to use complex semantic or lexical structures in spoken language or sign language or not. Development in phonology or grammar needs to be considered as well.

2.4.9 *Other influences*

Other areas, such as motivation, social skills, self-esteem, etc., need to be explored by a speech and language therapists to influence the communication process. Self-identity (Kelly, 2018) and theory of mind (Chilton & Beazley, 2010) can influence therapy focus and style.

2.5. Factors affecting speech and language therapy outcomes: evidenced by research

Despite the various therapy and outcome measurement processes, many other types of research focused on various factors that could directly or indirectly support achieving a better speech and language therapy outcome.

2.5.1. Therapist and client collaboration

In an article, Buttny (1996) focused on how a therapist and a client should co-consult on a client's problems during a primary therapy consultation. One of the terms he uses in his article that refers to collaborative achievement through discussion between client and therapist is reframing. Here conversational movement is important to identify the problem and reform, redefine, or reconfigure the therapy approach to fulfill the needs of a client (Monk et. al., 2003). The relationship between therapist and client is a part of the research of Weiste et al. (2016), where they focused on this aspect of the relationship and its positive outcome for both the patient and his therapist as a border aspect.

2.5.2 Environmental factors

According to Beazley et al. (2012), when a speech and language therapists initially considers an appropriate therapeutic approach for a young hearing-impaired child, they need to think about how it will be best delivered, by whom, where, and when it will be most effective. For these, consideration of environmental factors is very important. In this article, close community, speech, and language therapy, educational context and other influences, other agencies, and technology are identified as environmental factors that can affect choices made in the process of therapy and its outcomes. The type of support that might be given to a specific hearing-impaired child by a speech and language therapists is also talked about in this article. Here, researchers show that the therapist should focus on the needs of the child. However, the types of needs differ depending upon the age group. When assessing communication, hearing status, input, conversational features, output, and other factors may influence therapy planning and can be applied to young people of all ages, from preschool to secondary, for their therapy planning and communication process.

2.5.3 Early intervention

In the research article "Early intervention for children with permanent hearing loss: Finishing off the EHDI revolution," White (2006), the researcher showed the importance of not only early identification of hearing-impaired children but also the need to provide effective treatment. This research proved that there are many infants and young children who are not benefiting due to a lack of proper intervention. Moreover, this research has presented different reasons why many children are missing out on the benefits of the provided therapy program. In addition, this article also focused on how Early Hearing Detection and Intervention (EHDI) programs could be improved by the close attention of therapists and other communities.

2.5.4 Professional and Parent Participation

Turan (2012), in his article ‘Early Intervention with Children Who Have a Hearing Loss: Role of the Professional and Parent Participation', discussed the management and practical aspects of intervention and the exact role of professionals. Here the researcher emphasized the parents' training. The parents of the hearing-impaired child should accept responsibility for the hearing loss. A therapist has to convince the parents. Although therapy sessions can happen in the center or home-based; home-based therapy has some advantages in knowing families' real lives and planning the intervention accordingly. Educational materials should be available at home because intervention efforts are enhanced when families participate in early childhood programs. The role of a therapist is complex and challenging. Parents should observe professionals' work and follow their way of working. However, a professional should also understand the uniqueness of each family and the need to keep it in mind when working. Nowadays, the interpersonal connection between family members and professionals has gained significant attention as one of the vital aspects of an effective intervention process.

Children who have received appropriate forms of speech and language therapy from an early age, as well as proper treatment and equipment, are able to enter mainstream society. They can then be able to enter a normal school. In the research "Outcomes for Young Children with Hearing Loss in an Auditory-Verbal Therapy Program", a comparison between two groups is shown by Dornan (2007). Here, one group consists of hearing-impaired children who are having AVT for their intervention, and the other group consists of typically hearing children. They studied for over 50 months and discovered that language skill development progressed at the same rate as the typical hearing group (Dornan, 2007). But researchers have proved that moderate to severe congenital bilateral hearing loss has a slight impact on a child's schooling, but that depends on the grade of retention. It is evident that children with moderate bilateral hearing loss who are using hearing aids and receiving speech and language therapy are now fit for regular schooling (McKay et al., 2008).

2.5.6 Home-based guidance

Cook et al. (2021) discussed the impact of the home visits on implementing therapy for children with hearing impairment in their book. This book explains how home visits can assist in determining the actual situation of an HI child and his family's needs, as well as conducting an actual assessment of the child's developmental stages and progress, structured parent-child activities, family goal setting, crisis or problem resolution assistance, coordination with needed community services, or emotional support during stressful times. Harden (2010) depicts the importance of home visit services to high-risk families and their young children in his paper.

2.5.7 Integrated therapy

How the integrated therapy approach helps to meet the needs of children with hearing impairment in a functional way while simultaneously working on several communication skills

areas is discussed by Bally (1996) in his book. It is evidenced by the author that this approach has assisted clients in becoming more successful communicators while also increasing their flexibility and independence in tough communication situations.

2.5.8 Frequency of Therapy

Sommers et al. (1966) discussed the effectiveness of group therapy and individual therapy sessions for children with hearing impairment. The frequency of therapy per week depends on the child's needs; individual therapy sessions can last 30 minutes, and group therapy should be 45 minutes. The frequency of speech and language therapy sessions per week is determined by the child's needs, but two sessions per week are preferable.

2.5.9 Settings of therapy place

The required acoustical environment for children with hearing impairment was specified by Iglehart et al. (2020). A room's or other interior space's acoustics have an essential effect on how easily and comfortably one can hear. The term "good acoustics" refers to a space's ability to reflect sound waves in a way that allows for distinct hearing. For a person with hearing loss, being in a room or location with high levels of noise is difficult and potentially highly uncomfortable. Carpets, curtains, and soft chairs are examples of soft furnishings that can help to improve the environment by reducing eco. Speech clarity is improved by proper acoustical design in therapy rooms and other learning settings, which also reduces background noise and protects speech quality.

A sitting poster is being discussed by Hartwig et al. (1966); according to this researcher, any child with a hearing impairment should be allowed to sit close to the teacher, but not so close that he has to look up to lip-read. If the teacher takes a seat adjacent to the front chairs, the child should be seated in the second row from the front seat.

2.5.10 Evidence-based practice

Nowadays, it is required that the implementation of speech and language therapy be evidence-based. The meaning of evidence-based practice relates to different things for different people (Dodd, 2007). One of the popular definitions of "evidence-based practice" is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients (Sackett et al., 1997). Here, evidence refers to the latest information from applicable valid research about the impacts of different health care and support. Although this definition focuses on the latest research findings, other definitions stress integrating individual clinical expertise. Clinical expertise means the efficiency and expertise that an individual acquires through clinical experience and practice (Dodd 2007).

While some articles only highlight the implementation of valid research and the acquisition of knowledge, other researchers argue that without integrating information from the patient and his family along with clinical context, implementation of evidence-based practice is not appropriate (Gillam and Gillam 2006).

In addition, research conducted by Watts-Papas et al. (2006) indicated the importance of client preference therapy procedures. Every person is born with different values and beliefs that are shaped by culture, context, and religious influence. Moreover, different factors like individual experience, ability, and social support affect the patient’s health-related goals and decisions. So, a patient's preference needs to be included in the total consideration.

So, the basic four components of evidence-based practice collected from literature are clinical state and circumstances, clinical expertise, research evidence, and patients’ preference, as shown

in the following figure (see figure 3)

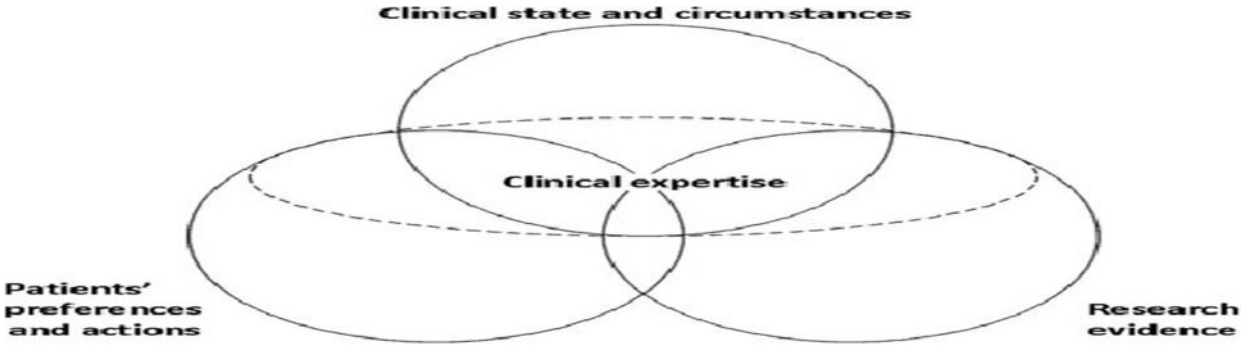


Figure 3: Four Components of the evidence-based practice process (Source: Drisko & Grady, 2019: 115).

However, when a speech and language therapists needs to work with a hearing-impaired child, they need to understand a range of complex factors surrounding him. It is important to think about the severity of the disability and other related factors. To develop successful communication skills, we need to emphasize information and education equally.

Evidence-based practice is one of the required approaches for clients at present. Dodd (2007) focuses on the evidence-based practices acquired through clinical experience and practice. Through the research, Dodd tried to make assumptions about the appropriate meaning of evidence-based practice and evaluate the methods by which therapists may base their practice on evidence. However, Gillam and Gillam (2006) have a more advanced point of view about evidence-based practice. According to their research, without integrating information from the patient and his family along with clinical context, implementation of evidence-based practice will not be appropriate.

2.5.11. *Qualifications of the Speech and Language pathologists*

Special post-qualifications are needed for a therapist who works regularly with young hearing-impaired children. A therapist's attitude or view towards deafness, sign language, and technology can play a vital role in decision-making (Wylie et al., 2016). According to Beazley et al. (2012), a speech and language therapists needs to acquire knowledge about: child context by working with other professionals; ways of language development of HI children; up-to-date research about deafness and impairment, including cochlear implantation, the current intervention of evidence-based therapy; and almost all types of available amplification devices.

In addition, to work with a HI child, speech and language therapists needs to be able to transcribe speech detailed by narrow transcription, including vowels and non-segmental features, apply to comprehensive auditory training programs; and recognize specific adaptations necessary for a specific communication environment (Beazley et al., 2012). However, the therapist must continually reflect on his ability to carry out his skills (Skeat and Roddam, 2010).

2.5.12 *Methods of outcome evaluation*

Different methods of outcome evaluation of therapy have been discussed by Weiste and Perakyla (2015) in their research, where they assumed that to evaluate the effectiveness of speech and language therapy, perhaps a popular way is therapy session processing and post-therapy outcome measurement. However, apart from this outcome measurement process, the qualitative method has been discussed as another way to identify the change in the client after therapy. In addition, dialogical sequence analysis (DSA; e.g., Leiman, 2004), therapeutic collaboration coding system (TCCS; Ribeiro et al., 2013), verbal response mode (VRM) developed by Stiles et al. (1988), and the therapeutic cycle model (TCM) have been analyzed as a therapy and outcome measurement process.

To get the best outcome from speech therapy, we must ensure that therapists and other professionals have the skills to meet challenges. They need to be flexible, consistently update themselves by acquiring knowledge from science and altering expectations (ongoing expert training), furnish surroundings that will help the child to utilize listening capacity, fulfill linguistic and curricular needs of the child, meet the psycho-social wishes as the child grows through adolescence, and work with other professionals collaboratively.

However, the most frequently discussed factors in providing therapy are: considering a patient's needs, reframing—which refers to the reconfiguring therapy approach, considering environmental factors, providing training to parents or caregivers, and implementing evidence-based practice. In addition, to ensure the best intervention according to the client's needs, along with the therapist's proficiency, the importance of family support and willingness is also unavoidable.

2.6 The Present Study

Till now, various research has been conducted on speech and language therapy procedures. Many of the studies highlight the therapist's role and decision-making processes (Chaix, 2016). However, limited documentation has been found on the applied approach of speech and language therapy for children with hearing impairment. As proper therapy heavily depends on various factors, including early intervention, environmental factors, integrated therapy approach, parent-therapist & patient-professional condition, evidence-based practice, frequency of therapy, family awareness, and therapy sitings, it is essential to provide therapy by considering these factors (Buttny, 1996; Beazley et al., 2012; White, 2007; Turan, 2012; Cook et al., 2021; Bally, 1996; Sommers et al., 1966; Laura et al., 2020; Dodd, 2007). Along with academic qualification, a speech and language therapists requires an understanding of the above-mentioned pragmatic

factors that might influence the treatment and management (Beazley et al. 2012; Skeat & Roddam 2010). Therefore, the present study explores the pragmatic scenario of speech and language therapy for children with hearing impairment in Bangladesh based on the above research outcomes and participants' opinions. This research attempts to determine the awareness of speech and language therapists about factors that could impact proper treatment. As the current scenario suggests no published and limited unpublished research in Bangladeshi contexts, this study is expected to work as baseline documentation to apply a pragmatic therapy approach to children with hearing impairment in Bangladesh. Finally, this study could be added to the existing literature in the field of speech and language therapy for children with hearing impairment. Thus the objective of this research are-

a) Identify the necessity of high quality and more accountability of speech and language therapy for children with hearing impairment in the context of Bangladesh.

b) Make the therapists as well as concerned authorities aware about the pragmatic approach of speech and language therapy for children with hearing impairment.

CHAPTER THREE

Research Method

The research method that has been used to meet the goals of this research will be discussed here. Moreover, the reason for choosing the method is justified too. In addition, the data collection method along with inclusion criteria, way of analysis, ethics of the study, validity, and reliability of this research are mentioned thoroughly.

3.1 Method

A qualitative approach has been chosen to find out the different considerations and proper implementation of speech and language therapy for Bengali-speaking hearing-impaired children in the Bangladeshi context. Qualitative data is defined as being rich and contextual (Tavener et

al., 2016). One of the strengths of using qualitative data is that it enables the researcher to develop a level of detail in the data from participants (Crewsell, 1999).

3.2 Reasons for choosing the qualitative method

The qualitative approach has been chosen for this research study. One of the main reasons for choosing the qualitative approach is that it can be carried out with detailed and descriptive data to interpret information (Tavener et. al., 2016). Qualitative analysis is particularly useful for exploring how and why things have happened.

Though this research attempts to understand the pragmatic scenario of speech and language therapy for children with hearing impairment in the context of Bangladesh by collecting detailed opinions from parents of children with hearing impairment and therapists as well. A semi-structured questionnaire was used to gather the actual information about how speech and language therapists is implemented, the expectations of clients, the gap between parents and professionals, barriers they are facing, etc. Some close-ended questions help to know the absolute answers to their views, and other open-ended questions create an opportunity where participants can explain all their expectations and dissatisfaction with reasons and possible solutions. No numeric answers were there. Using this questionnaire, it will be possible to extract factual information from parents and therapists, which will be more acceptable to analyze through qualitative methods. In addition, current research requires detailed analysis and explanations of collected data; qualitative analysis will help to meet the goal. As a large part of the questionnaires were designed on the basis of found factors affecting speech and language therapy outcomes derived from the literature review; that is why the correlation between theory and collected information from the current context could be required to be analyzed. To do this

required analysis of descriptive data. The qualitative method best fits this research to fulfill the aims.

3.3. Questionnaire

Minimal research has been done on the chosen topic for the current study. Besides, no scale has been developed in Bangladesh to verify the quality of therapy offered to hearing-impaired children or to test the children with hearing impairment's language developmental skills. That is why the questionnaire used in the research is being prepared based on obtained data extracted from the literature review (Factors affecting speech and language therapy outcomes: evidenced by research) and keeping in view the research objectives. A semi-structured questionnaire has been designed to fulfill the research objective. Two separate questionnaires have been designed, one is for parents of children with hearing impairment, and the other is for therapists. Although two different questionnaires were designed to extract information from two different groups, these two questionnaires were designed to find out the perspectives of two different groups (parents and therapists) on almost the same subjects.

The questionnaires were prepared by keeping the research objectives and the targeted participants in mind. After designing the questionnaires, they were first verified by an expert who is experienced in the relevant field. The questionnaires were edited as per the advice of the experts. Then the questionnaires were translated into the Bangla language by two concerned people, and the most fluent translation was chosen according to the expert's opinion. After the completion of the English and Bengali versions of the questionnaires, the questionnaires were provided to some MA students to read. After reading the questionnaires, MA students were asked to know which questions meant what to them. Through this process, the comprehensibility

of the questionnaires was verified. A pilot test was then performed on some parents and therapists to get their views. Required changes were made in the questionnaires step by step based on the participants' feedback in each step mentioned above. Again, after a thorough examination by an expert in the relevant field, the questionnaires were finalized for use in this present study.

3.4 Design of the study

3.4.1 Research Subject Area

This study has been carried out in different renowned intervention centers and hospitals for hearing-impaired children in Dhaka. Both therapists and parents, who were the participants in this research, are from these organizations.

3.4.2 *Participants*

There were a total of 36 participants. Twelve of them were speech therapists who had provided speech therapy to hearing-impaired children and adults. However, the rest of the 24 participants are parents of hearing-impaired children who have been in therapy under the supervision of those speech therapists for at least one year. Data has been collected from the caregivers or parents of a total of 24 patients who have been receiving speech therapy for at least one year under each of these 12 therapists. As a result, 14 of the children of 24 parents use hearing aids; those with moderate to severe hearing loss; and the remaining 10 are cochlear implant patients.

3.4.3 Criteria for inclusion

In this research, participants have been chosen following some criteria. The inclusion criteria for therapists are:

- providing speech therapy for hearing-impaired children.
- therapists with work experience ranging from 25 years to at least 3 years.
- people who are attached to the chosen rehabilitation center or hospital.

Inclusion criteria for parents

- Child who is a maximum of 10 years old.
- Taking therapy for at least one year.
- Regular patients of the therapists taking part in this study.

3.5 Procedure for Data Collection

3.5.1 Sampling method

Purposive sampling is used in this research. Research objectives have been prioritized by purposive sampling. Environmental factors, integrated therapy, the relationship between parent and therapist, needs of patients, frequency of therapy, family awareness, and therapy sitings were also considered.

3.5.2 *Ethical consideration*

Before going through all these processes, permission has been managed by the organization's

In-Charge through the proper channel. Ethical facts, rules, and privacy policies have been strictly followed.

3.5.3 *Procedures*

Semi-structured questionnaires have been used to collect data. To verify the transparency of collected data from the participants in this study, their therapy sessions, settings, places, and atmosphere have been observed for at least one week.

3.6 Data analysis

A descriptive statistical analysis was computed for the data collected from both parents and therapists. To analyze the data, SPSS V-23 (IBM SPSS, statistics, New York, USA) was used. Thematic analysis was conducted to extract parents' and therapists' views as well. As a semi-structured questionnaire is being used to collect data, both closed-end and open-ended questions were asked of the participants. Close-ended questions are analyzed by descriptive statistical tools and thematic analysis for open-ended questions.

As large portions of the questionnaires were designed on the basis of found factors affecting speech and language therapy outcomes-derived from the literature review; the collected data is analyzed into small groups based on these influencing factors and other ancillary factors such as barriers, advice, etc.

The participants (both parents and therapist) answered according to the questionnaires, and the data collectors wrote down their answers exactly as they said on the question paper. Their answers were also recorded on Huawei GR5 mobile phones for extra awareness. To ensure intrajudge reliability, the investigator transcribed the data again after reading it at home to ensure two different time periods. All of the transcriptions were prepared in a silent room using JBL Tune 110 in-ear earphones. In most cases, a few questions from different perspectives have been asked in different ways to get accurate information about an influencing factor. All these

questions have been analyzed in small tables and presented through a histogram. Other ancillary issues have also been analyzed separately.

The qualitative data analysis could explore the actual scenario of implementing speech and language therapists for children with hearing impairment in the context of Bangladesh by analyzing the gap between parents' and therapists' views, the barriers they are experiencing, and their suggestions. By addressing all identified shortcomings, we can ensure higher quality and more accountability in speech and language therapy, as well as raise awareness among therapists and relevant authorities about the pragmatic approach to speech and language therapy for children with hearing impairment in the Bangladeshi context, which is the main goal of this research.

CHAPTER FOUR

Results

The results of this research are presented in the following sections. The result is reported based on the views of two groups of people who are closely associated with speech therapy for children with hearing impairment. There were a total of 34 participants, where 12 were speech therapists, and the other 24 were parents of hearing-impaired children. This descriptive study was carried out to describe an appropriate implementation of speech and language therapy for Bengali-

speaking hearing-impaired children. In addition, factors that affect the success rate of speech therapy for hearing-impaired children are also considered. The results of this research are reported here.

4.1 Analysis of parents' views

Data has been collected from parents through a questionnaire to understand parents' views of hearing-impaired children in Bangladesh. Data has been collected from parents through a questionnaire. Here, ten were parents of cochlear implant children, and the other fourteen were parents of HI children who were using hearing aids. The children's mean age was below ten years (n = 24); everyone has been in therapy for at least one year and visits different organizations to receive speech therapy. To ensure the best outcome of speech and language therapy for children with hearing impairment, there are some factors, including early intervention, environmental factors, integrated therapy approach, parents-therapist & patient-professional condition, evidence-based practice, frequency of therapy, family awareness, and therapy sitings (Buttny, 1999; Beazley et al., 2012; White, 2006; Turan, 2012; Cook et al., 2021; Bally, 1996; Sommers et al., 1966; Laura et al., 2020; Dodd, 2007;). Based on these factors, parents were asked several questions to understand the actual phenomena of speech therapy for children with hearing impairment in Bangladesh. There were two separate questionnaires, one was for parents, and the other was for therapists. Questionnaires can be found in the Appendix. In the questionnaires for parents, questions one to six were asked to collect basic information about the participants and to ensure that they met inclusion criteria; questions 7 to 17 were close-ended, and the rest of 18, 19, and 20 were open-ended questions. The questionnaires for therapists had a total of fourteen questions, where one to three were for primary information

collection, four to fourteen were close-ended questions, and the rest of fifteen to seventeen were open-ended questions.

Type of Treatment	n	%	Mean age
Hearing Aid	14	58.33	8.015
Cochlear Implant	10	41.67	6.07

Table 1. Demographic Information (N=24)

The parent's responses to the closed-ended questions are summarized below; asked to know the actual scenario of implementing speech and language therapy for children with hearing impairment in Bangladesh is summarized in table 2, eleven questions on eight topics are being asked. Percentages of total responses (n = 24) to each question help to depict a clear view of parents'

thoughts and experiences on each topic.

Topic	Q.N	Q	yes%	No%	Sometimes%
Child-SALT Relation	7	Does your child like to receive therapy from this therapist?	62.5	37.5	0

Parent- SALT relationship	8	Can you stay with your child while giving therapy or get any opportunity to observe from a distance?	25	16.67	58.33
	9	Does the therapist include you in the therapy session?	45.83	33.33	20.83
Homebased therapy	10	Dose the therapist advise you on any work to do at home with your baby?	75	4.167	20.83
	11	Dose the therapist ever come to your home to monitor the overall condition of your home?	12.5	87.5	0
Environmental factors	12	Do you think that the therapist has planned the therapy after considering your financial status, surroundings and so on?	29.17	70.5	0
Integrated therapy approach	13	Does your current therapist consult with another therapist if your child needs any therapy other than speech therapy?	8.33	91.67	0
	14	Does the center have facilities to get other therapy if required rather than speech therapy?	8.33	91.67	0
Therapy sating	15	Do you think the room and environment in which your child receives speech therapy is appropriate?	62.5	37.5	0
Need-based therapy	16	Does the therapist ever change the type of therapy based on the child's changing behavior or not being able to learn well?	54.17	45.83	0
Outcome-assessment	17	Has the therapist ever taken any steps to measure the child's progress, such as what the	16.67	83.33	0

		child has learned or how much progress has been made?			

Table 2. Parents' view on pragmatic speech and language therapy

Questions 18 to 20 were open-ended questions to extract detailed views, expectations, and barriers faced by the parents of children with hearing impairment in the Bangladeshi context. Their opinions were analyzed using thematic analysis. Thematic analysis of these questions revealed two main themes to address: (1) barriers and (2) suggestions. Thus, parents implied similar aspects when talking about their perceptions of barriers and struggles they are suffering from and their suggestions or expectations of them (see Tables 1.2 and 1.3). However, the subthemes for each theme varied as the parents' narratives included diverse examples and personal details.

The theme "Barriers" implied three subthemes: (a) time duration of each session, (b) frequency of therapy, and (c) cost—these three main themes address the suffering of parents with hearing impaired children in Bangladesh. In contrast, the two main themes address parents' suggestions to improve the quality of speech therapy in Bangladesh. The theme "suggestions" was subdivided into (e) Sincerity and (f)Training Facilities.

4.1.1 Barriers from the parents' view

Note: T = theme, ST = subtheme.

ST No.	T1 Barriers (n=24)	Support

ST1	Time duration of each session	(Sommers et al. 1966)
ST2	Frequency of therapy	(Sommers et al. 1966)
ST3	Cost	(Oudesluys et.al 1996)

Tables 3: Themes and subthemes of Barriers; parents view

After analyzing all the data collected from parents of children with hearing impairment, it is revealed that some realistic factors create barriers to the proper implementation of speech and language therapy in the Bangladeshi context.

4.1.1.1 The length of each session

In a therapy session, the time allocated by a therapist to a hearing-impaired child makes their parents unhappy. Usually, the therapist assigns 30 or 45 minutes for each child's therapy session. Within the allocated time, the therapist registers the patient's name and reviews his previous work or description details. Most of the time, patients are young and it takes time for them to settle down. Sometimes they show tantrums, and the therapist becomes unable to adapt to the child within a short time. After settling into a session, the therapist has little time to work with the child. In addition, at the end of the session, the therapist prescribes a task to do at home and gives an appointment for the next session within this short-selected duration of therapy as per the parents' described. That is why allocating 30 or 45 minutes for children with hearing impairment to parents appears insufficient.

4.1.1.2 Therapy frequency

Increased frequency of speech therapy was another demanding issue mentioned by most of the parents. Many parents said that they rarely get one therapy per week. Mostly, they get the opportunity to take each therapy after at least fifteen days, and sometimes it happens in a month. On the other hand, another parent of a HI child believed more therapy brought more improvement.

4.1.1.3 Cost

Most parents are frustrated with the cost of treatment; according to them, the cost of their children's treatment is high. The price of each hearing aid is mostly unaffordable for middle-class people. Maintenance of hearing aids is also costly. In addition, patients have to continue speech and language therapy for a long time, and the cost of each speech therapy session is also high. Although in most cases, the government bears all the cost of a cochlear implant for young HI children, the cost of post-operation treatment is also expensive. In very few hospitals, there are some opportunities to continue speech therapy at a low cost, but it isn't easy to get an appointment there. Many parents with children with hearing impairment are unable to continue treatment and therapy regularly, which hampers their children's improvement.

4.1.2 Suggestions from parents' view

Note: T = theme, ST = subtheme.

ST No.	**T2 Suggestions (n=24)**	**Support**
ST1	Sincerity	(Young et al., 2006)
ST2	Training facility	(Northern et al., 2002)

Tables 4: Themes and subthemes of suggestions; parents view

Hence, for the well-being of hearing-impaired children, parents have provided some suggestions on how speech therapy for children with hearing impairment could be more effective-

4.1.2.1 Sincerity

The parents expect sincerity and a cordial approach to hearing-impaired children. Sincerity could attract children and parents to continue their therapy sessions regularly. Lack of sincerity is one of the major concerns of the parents of children with hearing impairment.

4.1.2.2 Training Facility

Parents wanted to make themselves proficient; they wanted to know the basics of speech therapy to support their hearing-impaired child. According to these parents, professionals provide little information and knowledge about how a parent can build up an actual capacity to help their child learn the language and make them able to communicate well.

4.2 Therapist view

Topic	Q.N	Q	yes%	No%	Sometimes%
Child-SALT Relation	4	Do children happily accept therapy in most cases?	87.5	0	12.5
	5	Are you provide an opportunity to observe therapy sessions for Parents?	79.17	0	20.83
Parent- SALT relationship	6	Do you include parents or caregivers in the therapy session?	20.83	8.333	70.83
	7	Do you assign responsibilities to parents of hearing-impaired children at home?	91.67	0	8.33
Homebased therapy	8	Do you visit children's homes to verify the actual condition of a hearing-impaired child and his / her family to design appropriate therapy?	33.33	45.83	20.83
Environmental factors	9	Do you design therapy for a hearing-impaired child by considering his or her surroundings before planning a therapy?	100	0	0
Integrated therapy approach	10	If the HI child needs any other type of therapy such as occupational therapy or psychological counseling, do you plan your speech therapy in	20.83	8.33	70.83

		consultation with all these therapists?			
	11	Does the center have facilities to get other therapy if required rather than speech therapy?	12.5	79.17	8.33
Therapy setting	12	Do you think that the interior decoration of the room where you are giving therapy to a hearing-impaired child is suitable for them?	87.5	12.5	0
Need-based therapy	13	Do you redesign the therapy approach based on the childes' changing needs or opportunities, over time?	100	0	0
Outcome-assessment	14	Do you use any scale to assess the level of language acquisition of HI children after any specific time period?	8.33	91.67	0

Table 4: Therapists' view on pragmatic speech and language therapy

Questions 15–18 were open-ended questions designed to elicit detailed perspectives, expectations, and barriers encountered by the speech and language therapists in the Bangladeshi context. Their opinions were analyzed using thematic analysis. Thematic analysis of these questions revealed two main themes to address: (1) barriers and (2) suggestions. Thus, therapists implied similar aspects when talking about their perceptions of barriers and struggles they are suffering from and suggestions or expectations of them (see Tables 1.5 and 1.6). However, the

subthemes for each theme varied as the therapists' narratives included diverse examples and personal details.

The theme "Barriers" implied four subthemes: (a) Early intervention, (b) Continuity, (c) Quality of Hearing Aids and (d) Awareness. In contrast, the three main themes address therapists' suggestions to develop the quality of speech therapy in Bangladesh. The theme "suggestions" was subdivided into (e) parents' training, (f) training and research facilities, and (g) collaboration of professionals.

4.2.1 Barriers from parents' view

Note: T = theme, ST = subtheme.

ST No.	**T1 Barriers (n=12)**	**Support**
ST1	Early intervention	(White, 2007)
ST2	Continuity	(Yucel et al., 2008)
ST3	Quality of Hearing aid	(Stacey et al.,2006)
ST5	Awareness	(Northern et al., 2002)

Tables 5: Themes and subthemes of Barriers; Therapists' view

4.2.1.1 Early intervention

Most of the speech and language therapists talks about early intervention for children. In the context of Bangladesh, most hearing impaired children pass this critical age and then come to receive speech therapy, which is responsible for their lagging behind in language acquisition.

4.2.1.2 Continuity

Continuous therapy plays an essential role in the language learning of hearing-impaired children. According to them, in the context of Bangladesh, most children become irregular or drop out after only a few days of therapy.

4.2.1.3 Hearing Aid Quality

The appropriate configuration of a hearing aid plays a vital role for each hearing-impaired child. When purchasing hearing aids, parents are frequently duped by unscrupulous scammers. The cost, quality, and maintenance of hearing aids often become unaffordable for parents of hearing-impaired children. The use of inappropriate hearing aids is one of the leading causes of falling behind in many children with hearing impairment.

4.2.1.4 Awareness

Lack of awareness and knowledge about the positive impact of speech therapy for a hearing impaired child is another reason to drop out of regular treatment.

4.2.2 Suggestions of parents view

Note: T = theme, ST = subtheme.

ST No.	**T2 Suggestions (n=12)**	**Support**
ST1	Parents training	(Lund, E. 2018)
ST2	Training & Research facility	(Beazley et al. 2012)
ST3	Collaboration of professionals	(Muñoz et al.,2011)

Tables 6: Themes and subthemes of suggestions; Therapists' view

4.2.2.1 Parents' training

Parental behavior can be influenced by training. Without assistance, parents might not keep up these skills. Short-term training can affect long-term outcomes. Language learning and acquisition, as well as their perception, can be developed when parents become able to model adaptable behavior for their children.

4.2.2.2 Research and Training Facility

Frequently updated training facilities increase any professional's efficiency, acknowledgment, and capacity. Whether research and training facilities in Bangladesh are not sufficient In addition, research facilities and implementation research outcomes in Bangladesh are rarely found.

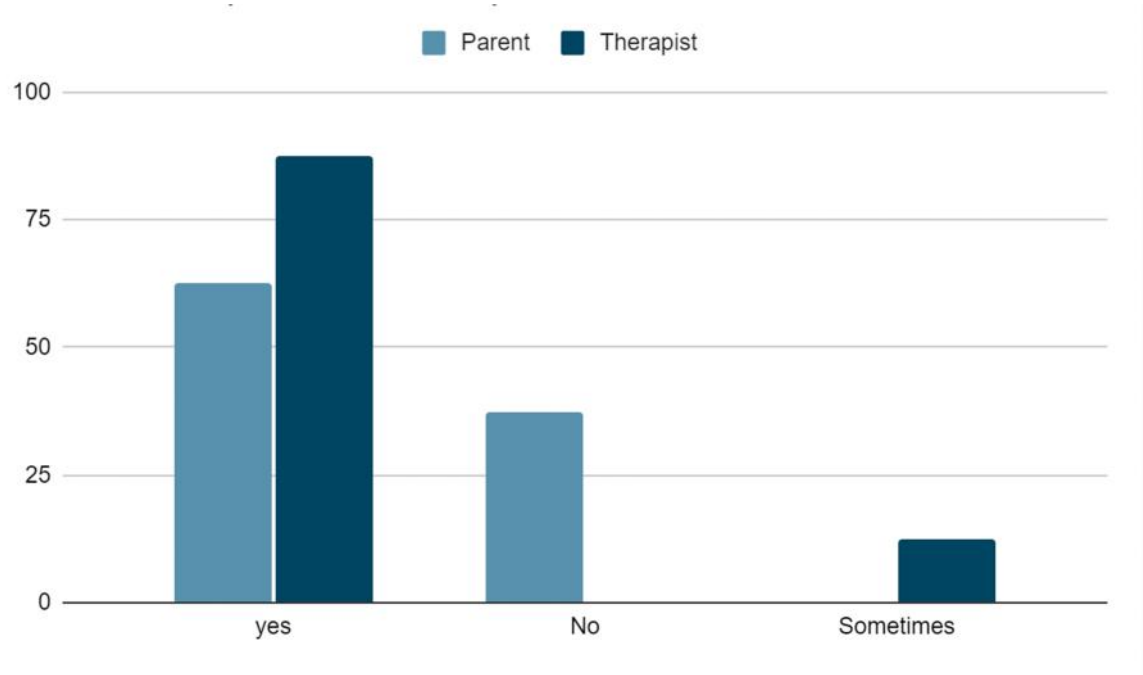
4.2.2.3 Collaboration of professionals

Collaborative working opportunities among different relevant professionals are rarely found in Bangladesh. Parents need to move to various centers and other places. As a result, different professionals' differing opinions and treatment procedures can confuse children and parents.

4.3 Comparison of parents' and therapists' views

4.3.1. Client -Therapist relationship

Question 7 was asked of the parents, and question 4 was asked of the therapists to understand the nature of the client-therapist relationship. They were asked whether or not children with hearing impairments took therapy willingly from the therapist. As shown in graph 1, the responses were significantly different between the two groups.

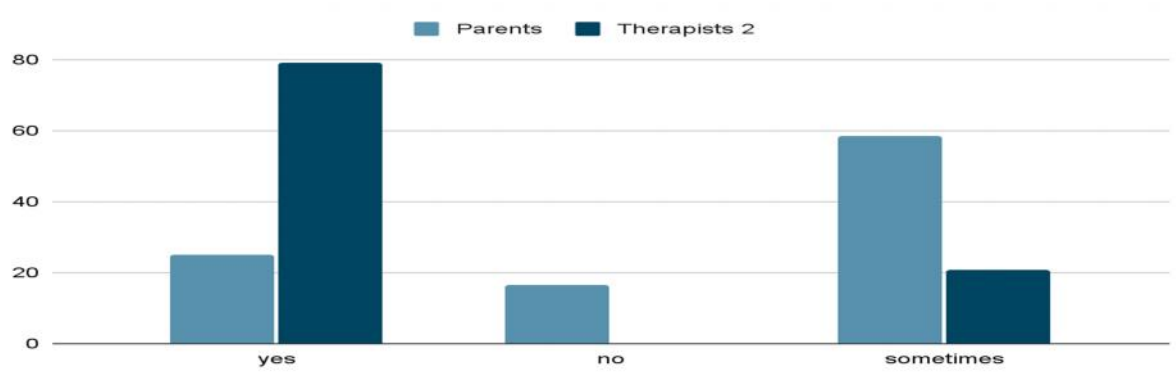


Graph 1: Client -Therapist Relationship (question 7 & question 4)

Graph-1 shows that 62.5 percent of parents and around 87.5 percent of therapists responded positively (yes). The rest of the therapists (12.5 percent) choose the answer sometimes. In contrast, 37.5 percent of parents respond negatively (no), whereas none of the therapists choose the answer "no" at all.

4.3.2. Parent-Therapist relationship

To understand the parent-therapist relationship, questions 8 & 9 were asked of the parents, and therapists were asked questions 5 & 6 to know whether parents get the opportunity to observe therapy sessions or not, and whether the therapist includes parents in the therapy session or not. To gather information about whether parents get the opportunity to observe therapy sessions or not, questions 8 and 5 were asked of the parents and therapist consecutively. Found responses are showed in graph two and graph three sequentially.

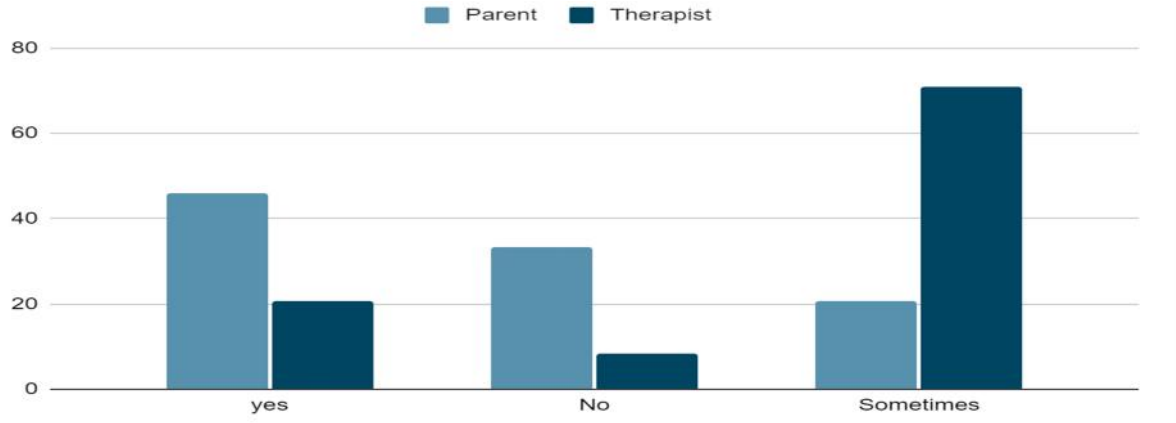


Graph 2: Parent-Therapist relationship (question 8 & question 5)

Graph 2 shows that a favorable response was received from 79.17 percent of therapists and 25 percent of parents (yes). 20.83% of therapists and 58.33% of parents responded to the answers sometimes. At the same time, none of the therapists chose the response "no," whereas 16.675% of parents gave a negative response ("no").

Questions 9 and 6 were asked to the parents and therapist consecutively to know does the therapist

include parents in the therapy session or not. Found results of asking these questions are shown in graph 3.

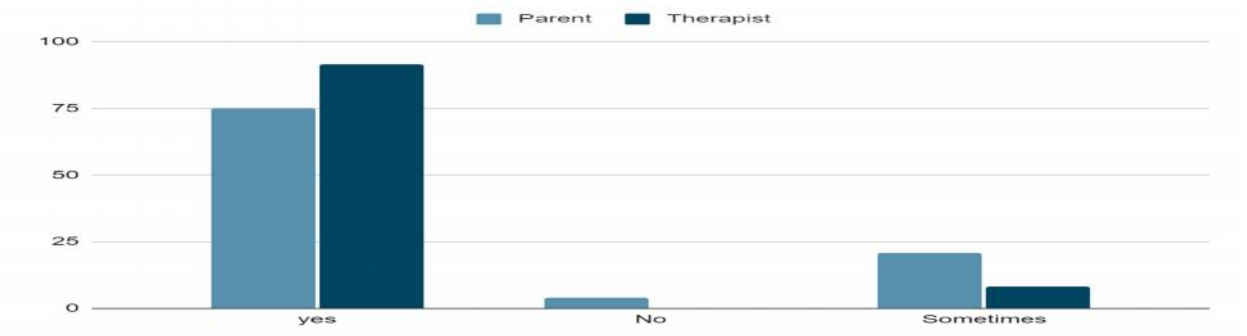


Graph3: Parent-Therapist relationship (question 9 & question 6)

Graph-3 shows that 45.83 percent of parents and around 20.83 percent of therapists responded positively (yes). In contrast, 33.33 percent of parents and 8.33 percent of therapists responded negatively (no), whereas 20.83 percent of parents and around 70.83 percent of therapists responded to the answers sometimes.

4.3.3. **Homebased therapy**

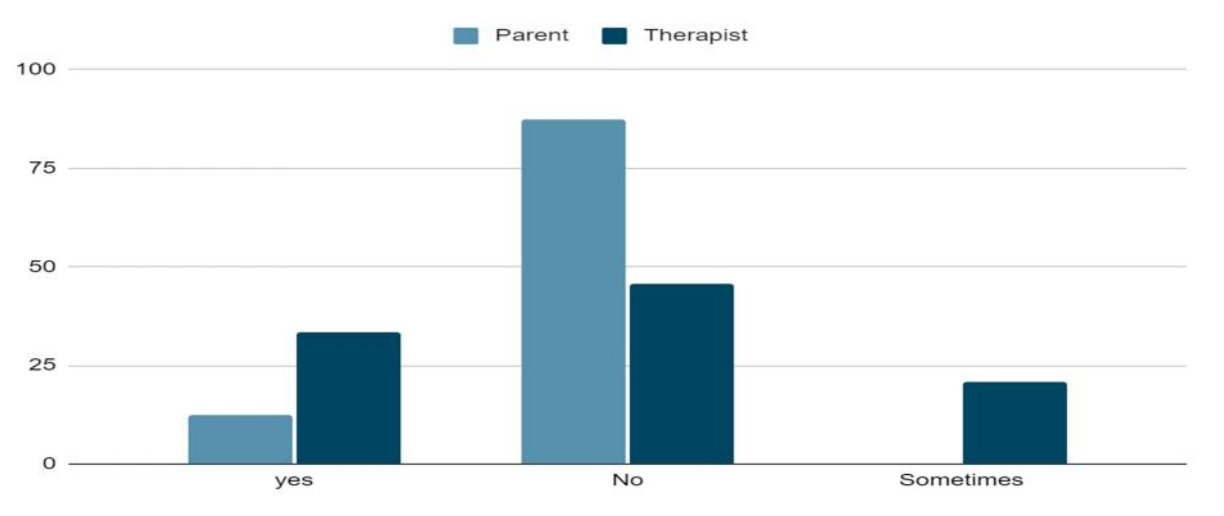
Some questions were asked to understand whether home-based therapy is being implemented in the Bangladeshi context or not. Parents were asked questions 10 and 11, as well as questions 7 and 8, and were asked by the therapists to investigate this fact. To know whether the therapist gave parents advice on tasks to do at home for their child, they (parents and therapists) were asked questions 10 and 7 consecutively. The results of asking questions 10 and 7 are shown in graph 4.



Graph-4: Homebased therapy (question 10 & question 7)

By graph-4, it is seen that 75 percent of parents and around 91.67 percent of therapists responded positively (yes). At the same time, 20.83 percent of parents and about 8.83 percent of therapists responded to the answers sometimes. In contrast, 4.17 percent of parents respond negatively (no).

Questions 11 and 8 were asked to the parents and therapist consecutively to know whether the therapist ever visited the clients' home to monitor the overall condition of the home environment to batter development of the patient or not. Answers to these questions could help understand the actual home-based therapy scenario in Bangladesh. Found results of asking questions 11 and 8 are shown in graph 5.

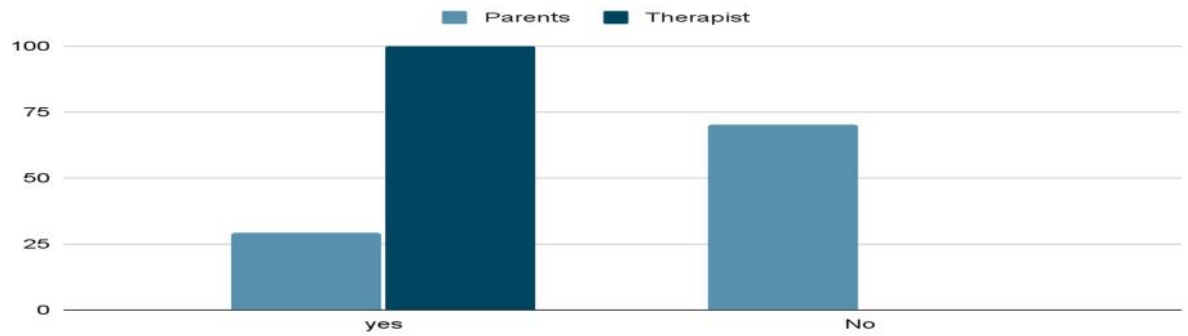


Graph 5: Homebased therapy (question 11 & question 8)

Graph-5 depicts that 12.5 percent of parents and around 33.33 percent of therapists responded positively (yes). In contrast, 87.5 percent of parents and 45.83 percent of therapists responded negatively (no), whereas 20.83 percent of therapists responded to the answers sometimes.

4.3.4 **Environmental factors**

Questions 12 and 9 were asked to the parents and therapist consecutively to know whether the therapist planned the therapy after considering the clients' financial status, education level, and other environmental benefits surroundings or not. Found results have been shown in graph 6.

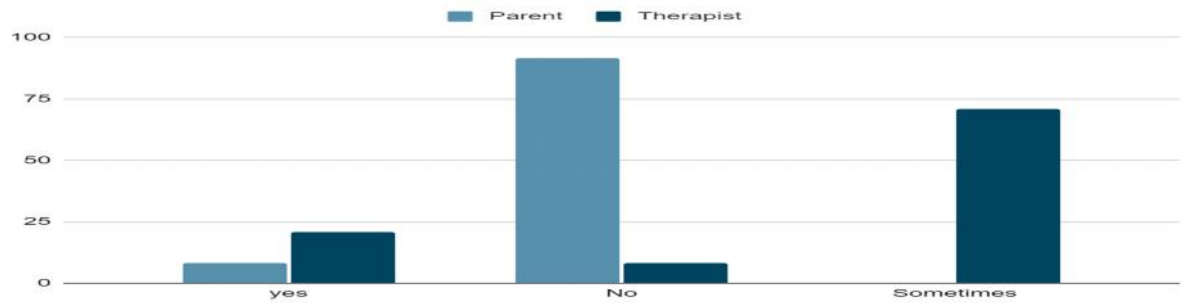


Graph-6: Environmental factors **(**question 12 & question 9)

In graph-6, it is seen that there is some noticeable conflict between parents and therapists. 29.15 percent of parents and 100 percent of therapists responded positively (yes). In comparison, 70.05 percent of parents respond negatively (no).

4.3.5 **Integrated Therapy Approach**

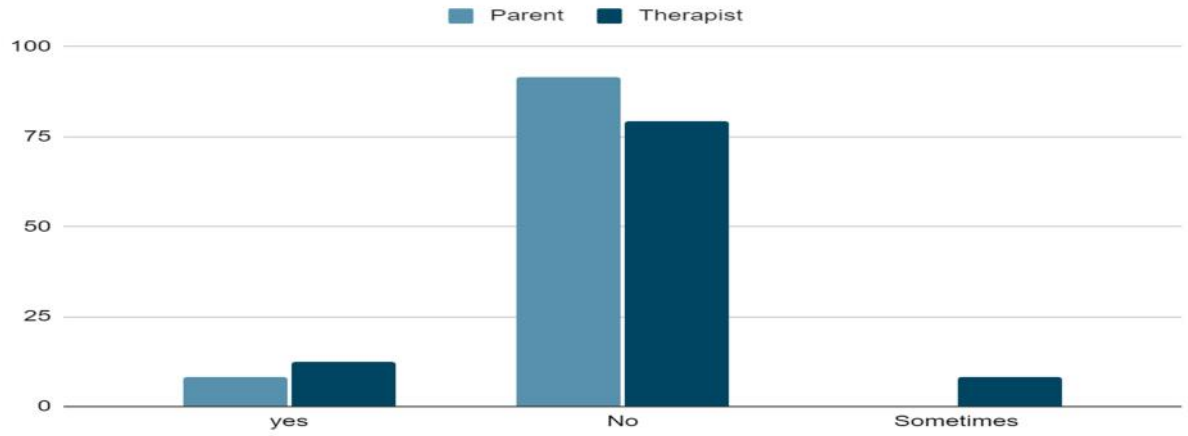
Some questions were asked to understand whether the Integrated therapy approach is being implemented in the Bangladeshi context or not. Parents were asked questions 13 and 14, as well as questions 10 & 11, were asked to the therapists. Questions 13 and 11 were asked to the parents and therapists consecutively to know whether the therapist consults with other therapists if the client needs any therapy other than speech therapy. Found results of asking questions 13 & 11 are shown in graph 7.



Graph-7: Integrated Therapy Approach (question 13 & question 10)

Graph-7 depicts that 8.33 percent of parents and around 20.83 percent of therapists responded positively (yes). In contrast,91.67 percent of parents and 8.33 percent of therapists responded negatively (no), whereas 70 percent of therapists responded to the answers sometimes.

Questions 14 and 11 were asked to the parents and therapist consecutively to know whether the center has facilities to get other therapy if required (except speech therapy). Answers to these questions could help to understand the actual scenario of the integrated therapy approach in Bangladesh. Found results of asking questions 14 and 11 are shown in graph 8.

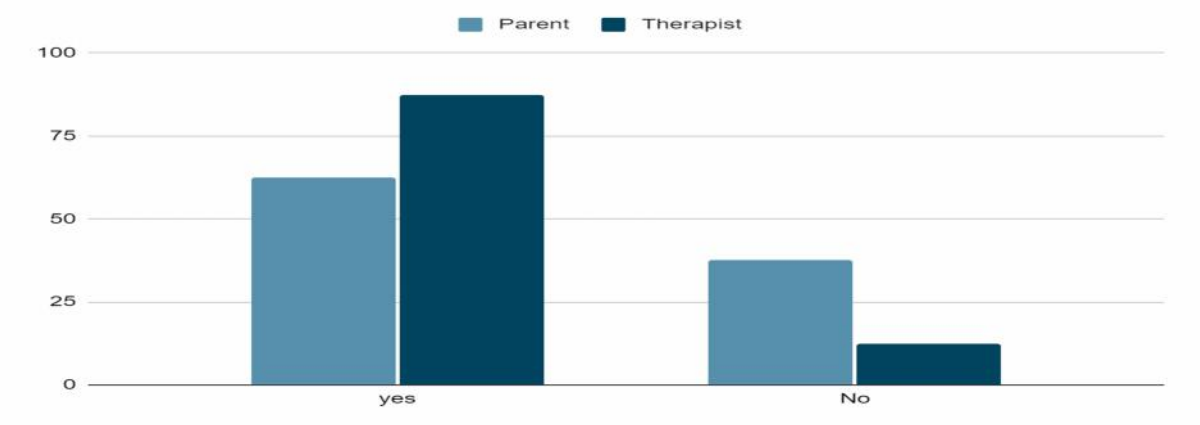


Graph-8: Integrated Therapy Approach (question 14 & question 11)

Graph-8 depicts that 8.33 percent of parents and around 12.5 percent of therapists responded positively (yes). In contrast,91.67 percent of parents and 79.17 percent of therapists responded negatively (no), whereas 8.33 percent of therapists responded to the answers sometimes.

4.3.6 **Therapy sating**

Questions 15 and 12 were asked to the parents and therapist consecutively to know whether the room atmosphere and environment where the child receives speech therapy is appropriate or not. Found results have been shown in graph 9.

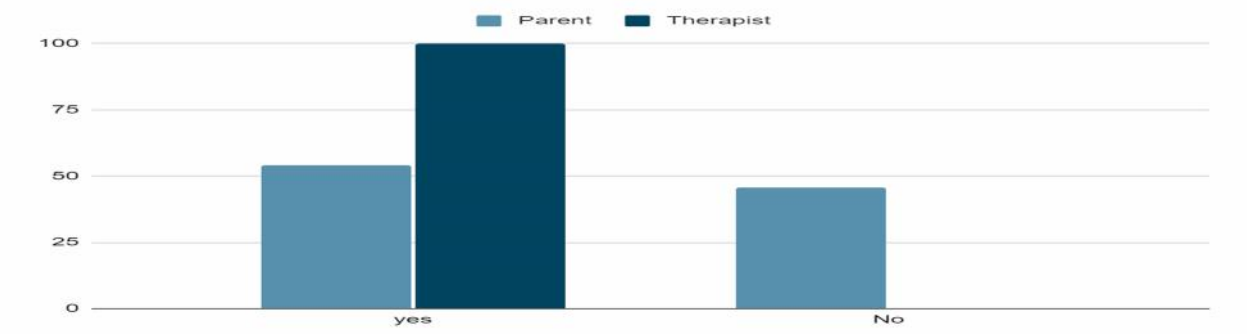


Graph-9: Therapy sating **(**question 15 & question 12)

By this Graph-9, it is seen that 62.5 percent of parents and around 87.5 percent of therapists responded positively (yes). In contrast,37.5 percent of parents and 12.5 percent of therapists respond negatively (no).

4.3.7 **Need-based Therapy**

Questions 16 and 13 were asked to the parents and therapist consecutively to know whether the therapist ever changed the type of therapy based on the child's changing behavior or not being able to learn well; in other words, does the therapist redesign the therapy approach based on the childes' changing needs or opportunities, over time or not? Found results have been shown in graph 10.

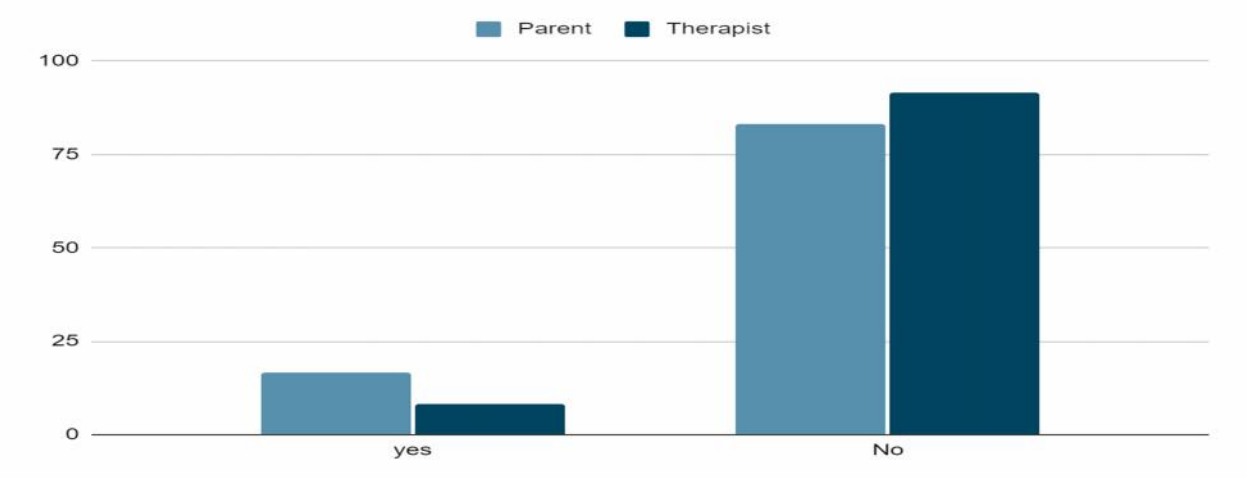


Graph-10: Need-based Therapy **(**question 16 & question 13)

Graph-10 shows that 54.17 percent of parents and around 100 percent of therapists responded positively (yes). In contrast, 45.83 percent of parents respond negatively (no).

4.3.8 **Outcome-assessment**

Questions 17 and 14 were asked to the parents and therapist consecutively to know whether the therapist use any scale to assess the level of language acquisition of HI children after any specific time period or not. Found results have been shown in graph 11.



Graph-11: Outcome-assessment **(**question 17 & question 14)

Graph-11 shows that 16.67 percent of parents and around 8.33 percent of therapists responded positively (yes). In contrast, 83.33 percent of parents and 91.67 percent of therapists respond negatively (no).

CHAPTER FIVE

Discussion

This study investigated how speech and language therapy implements speech and language therapy for children with hearing impairment in the Bangladeshi context. The factors that could potentially impact the outcome of speech and language therapy for children with hearing impairment are evidently considered by many research studies that have been considered ideal to compare the Bangladeshi content. The demands of parents and therapists are being considered as well. One of the posed research questions was aimed at finding out the views of parents and therapists on implementing speech and language therapy according to the child's needs. Analysis of accumulated data presents the gaps among the views of parents and therapists that present the answer to the second research question. Extracting the views of two participants and gaps between them depicts the actual scenario of speech and language therapy for children with hearing impairment in the context of Bangladesh.

Descriptive statistical analysis and thematic analysis are being used to answer these three research questions. A large portion of the questionnaires was developed based on the factors that

affect the outcome of speech and language therapy derived from the literature review, such as the client-therapist relationship, parental involvement, environmental factors, early intervention, home-based counseling, integrated therapy, frequency of therapy, therapy settings, evidence-based practice, outcome assessment, etc. The obtained data is divided into small groups based on these influencing elements and other ancillary aspects such as barriers, suggestions, etc., to extract the views of two groups of participants. Additionally, comparing parents' and therapists' views helps to depict the gap between them (parents and therapist). The views of two participants, gaps in their views about the same facts, expectations of them, and barriers they are facing in the context of Bangladesh reflect the pragmatic scenario of speech and language therapy for children with hearing impairment in the context of Bangladesh. The following sections discuss the results of the research questions in detail.

5.1 Gaps between parents' and therapists' views

5.1.1 Client-Therapist Interaction

It has been found that the relationship between patients and therapists can significantly affect the outcomes of therapeutic interventions (Kelley et al., 2014). They assessed it based on emotional and cognitive care, where approaches like trust and empathy included emotional care, helping to manage expectations, and educating the patient in mental care (Judisch, 2017). The parents and therapists were questioned about the relationship between the patients or clients (children with hearing impairment) and the therapist. A high percentage of therapists (87.2%) and around 62.5% of parents believed that clients were taking therapy willingly. Although none of the therapists responded negatively, 37.5 percent of parents responded that their children don't feel happy to be in therapy. This contradiction indicates that therapists are unaware of the gap

between clients and themselves. If they are not aware of the effort they are paying for hearing-impaired children, they will not be able to improve the quality of their relationships. As these patients are not mature enough, without a good relationship between client and therapist, the patient may not be cooperative with the therapist, and they may become annoyed about this process. It could be an important cause of not continuing speech therapy regularly or dropping out earlier.

5.1.2.Parent-Therapist relationship

Family members and therapists need to act like partners to achieve the appropriate goal of solutions (Broggi & Sabatelli, 2010). Therapists should guide and support patients' family members; if all family members develop their skills, the benefit to the child will be greater (Listen, Learn, and Talk, 2005). When parents can observe therapy sessions and are allowed to become a part of the sessions, they can understand every step of therapy and know the technique and reasons for each step, which also helps to develop understanding between the therapist and parents. The responses of the two groups of participants were remarkably contradictory. When a high percentage of therapists (79.17%) claimed that they give opportunities to observe therapy sessions, fewer than one-fourth of the parents (25%) agreed, which means 54.17 percent of parents showed disagreement. As 20.83% of therapists and 58.33% of parents responded to the answers sometimes, it shows the uncertainty of regular observation of each therapy session. In addition, 16.675% of parents reacted negatively, which refers to few opportunities to observe their children's therapy sessions, whereas none of the therapists confessed this truth.

However, both groups of participants were asked if the therapist included parents in the therapy session or not. The result showed a dramatic scenario. 45.83 % of parents agreed that therapists include them in therapy sessions, but less than half (20.83%) of the therapists (compared to the parents who responded yes), which creates confusion. In contrast, a few therapists responded negatively, whereas four times more parents responded negatively. Moreover, a very high percentage of therapists showed uncertainty (70.83%) by responding sometimes; compared to the therapists, fewer parents (20.83%) answered sometimes. By observing all the answers, it could be assumed that parents are allowed to attend some therapy sessions but not at every session in most cases.

5.1.3 Homebased therapy

It is evident that, for effective intervention, therapy should be appropriate, timely, and family-centered, which includes audiological, medical, therapeutic, and pedagogical services (WHO, 2016). Holzinger et al. (2016) proved by their research that language acquisition outcomes could vary up to 60% due to child and family-related factors. Homebased therapy help child to become habituated to every technique of therapy procedures. Moreover, when parents follow all the suggested tasks at home, children's learning becomes exhilarated. Some questions were asked to know whether therapists suggest tasks to parents at home, and the answers were optimistic. A large portion (parents 75 % and therapists 91.67%) of participants of the two groups answered positively, and some participants (parents 20.83 % and therapists 8.83%) of both groups responded to the option 'sometimes' which refers that therapists are suggested tasks to do at home inconsistently. However, a few (4.17) parents responded negatively.

Regular home visits of professionals for preschool hearing-impaired children can be very effective (Beazley, 2012). In addition, for hearing-impaired children, a quiet environment is also

essential in the initial stage of listening (Listen, learn and Talk, 2005). Moreover, it was asked whether the therapist ever visited the clients' homes to monitor the overall condition of the home environment. A large portion of parents (87.5%) and nearly half of the therapists responded negatively (45.83%). In addition, a few parents' (12.5%) and one-third of the therapists' (33.33%) answers were positive. Hence, 20.83 of present therapists' report inconsistency of home visits by answering 'sometimes.'

By the response of participants, it can be assumed that although therapists suggest parents do tasks at home in most cases, they rarely visit patients' homes.

5.1.4 Environmental factors

Environmental factors can affect the progress of children with hearing impairment. When therapists design therapy, they take environmental facts into consideration (McLeod, 2006) and set long-term and short-term goals to make therapy effective for the patient. Whether therapists considered the environmental factors of each child or not, a question was asked to the parents and therapist to know the aforesaid facts. The results are highly contradictory. All of the therapists responded positively, meaning they considered environmental factors for every children with hearing impairment. However, 29.25 percent of parents believe that therapists consider environmental factors when designing therapy for their children; the rest, 70.5 percent, believe that therapists do not consider environmental factors. This result creates a huge gap or conflict between both groups of people.

5.1.5. Integrated Therapy Approach

Collaboration among professionals is thought to be extremely important in enhancing the development of skills and abilities in children with special needs (McWilliam & Young, 1996; Barnes & Turner, 2001). Integrated therapy helps a lot for every client. When two or more professionals design therapy for a client, they can discuss it among themselves, and the client doesn't need to move to different places; no overlapping or contradiction is created. Some questions were asked to understand whether parents are getting facilities for integrated therapy in Bangladesh or not. The findings were highly contradictory. Only 8.33% of parents and 20.83% of therapists agreed that children with hearing impairment is getting integrated therapy facilities, while 91.67% of parents and 8.33% of therapists disagreed. Where a very high percentage of parents responded to 'No' and a large portion of therapists (70%) also agreed on the inconsistency of providing integrated therapy by answering 'sometimes'. Moreover, to predict the same fact (Integrated Therapy Approach in Bangladesh), another question was asked; whether the center has facilities to get other therapy if required; a large portion of both groups' answers was 'NO' (91.67% of parents and 79.17 % of therapists). A few therapists (8.33%) indicated inconsistency in providing this aforementioned facility by responding "sometimes," and some participants (8.33% of parents and 12.5% of therapists) agreed that they have integrated therapy facilities. The answers of both questions demonstrate the poor situation of integrated therapy facilities in the Bangladeshi context.

5.1.6 Therapy sating

The soundproof therapy room is recommended for the initial stage of listening **(**Listen, Learn, and Talk, 2005). That is why therapy settings for children with hearing impairment are important to stabilize children's attention to therapists' activities and the sound produced by the therapist. In addition, room size and equipment or design of a room help to learn children with hearing

impairment and their parents better. To know whether the room atmosphere and environment are appropriate or not, where the children with hearing impairment receives speech therapy, questions were asked to the participant groups. The received result shows that a large portion (87.5%) of therapists and more than three-fifths (62.5%) of parents think the therapy setting is OK, but nearly two-fifths (37.5%) of parents and some (12.5%) of therapists also believe therapy settings should be improved. The result refers to the necessity of improving the therapy setting for children with hearing impairment.

5.1.7 Need-based Therapy

Effective and efficient diagnosis, the identification and compassionate use of individual patients' predicaments, rights, and preferences in making clinical decisions are important parameters of evidence-based practice (Sackett et al., 1997). A need-based therapy or evidence-based therapy approach has the potential to progress intervention for people with communication disorders (Dodd, 2007). Need-based therapy is the conscientious and judicious use of the current best evidence for individual patient care (Dodd, 2007). Questions were asked of two groups of people to know whether the therapist ever changed the type of therapy based on the child's changing behavior or not; the result was a bit contradictory. Although more than half of the parents (54.17%) and all of the therapists (100%) agreed that therapists change the approach of therapy if required by the changed situation, nearly half (45.83%) of the rest of the parent groups' participants believed therapists didn't change the approach. These results create confusion about actual scenarios for need-based therapy implementation in the Bangladeshi context.

5.1.8 Outcome-assessment

The outcome measurement helps to identify the change in the client after a certain numberof therapy is implemented and evaluate improvement (Enderby et. al., 2013). In addition, it helps to find out which skills should be emphasized more for the children with hearing impairment or where the difficulty is. Questions were asked to know if the therapists use any scale to assess the level of language acquisition of HI children after any specific time period or not, and the result seems pathetic. A small number of parents (16.67%) and a few (8.33%) therapists responded positively, whereas most of the parents (83.33) and therapists (91.67%) disagreed, meaning they do not use any tool for assessment.

5.2 Barriers and suggestions by the participants

5.2.1 Barriers

5.2.1.1 Duration of each session

According to parents, the duration of each session is not satisfactory for parents of hearing-impaired children. Some of them said that, in general, each session is designed for 30 to 45 minutes per patient. During this time, at the first session, the therapist has to do screening, note down the previous history and present condition, complete an assessment, and prescribe primary guidelines for parents. The therapist needs to check whether the child learned the previous task or not, add tasks to improve the previous one, have to do new tasks by grasping the child's attention if needed, and counsel the parent or caregiver of the children with hearing impairment about all these factors in the next session. A speech and language therapists does the assigned

task with the help of parents so they can learn. Rarely, there is an assistant therapist to assist him. So, it is really difficult for an speech and language therapists to do all these tasks properly within a short time frame, and they need to handle patients continuously one after another. These inadequate times for each session create problems, reduce the quality of work, and can affect both therapists' and patients' mental health. Parents found this fact as a barrier to the language acquisition process for their children.

5.2.1.2 Frequency of therapy

Roland et al. (2009) demonstrated that shorter but more frequent daily therapy sessions produced the best results with cochlear implanted children. There are fewer hospitals and therapy centers in Bangladesh (Uddin et al., 2019) and in these small numbers of intervention centers, the number of therapists is not sufficient compared to the required services. As a result, to give an opportunity to all, the number of therapies allocated for each patient is not enough. It could be a barrier to language acquisition and continuing the therapy processes for parents as well.

5.2.1.3 Cost

The cost of HI children's treatment is high. The cost of each hearing aid is mostly unaffordable for middle-class people. Maintenance of hearing aids is also costly (Chundu et al., 2021) . In addition, patients have to continue speech and language therapy for a long time, and the cost of each session of speech therapy is also high (121 to). However, although in most cases, the government bears the cost of a cochlear implant for a child, post-surgery treatment is also expensive. In very few hospitals, there are some opportunities to continue speech therapy at a low cost, but it is difficult to get an appointment there. The expense of treatment creates barriers for most middle-class parents.

5.2.1.4 Early intervention

Early intervention (EI) refers to providing intervention earlier; it helps a young hearing-impaired child's language acquisition and develops other important skills. Research shows that early intervention services can greatly improve a child's development. According to ASHA (n.d.), early intervention includes newborns to three-year-old children. It is evident that to minimize language acquisition delays and promote communication, education, and social development, early intervention plays a vital role (WHO, 2016). According to the therapist group participants, due to a lack of knowledge and concern, in most cases, parents bring their children for assessment at a late age. After that, they face some difficulties like money, information gaps about which place will be appropriate, hearing tests, buying hearing aids or doing cochlear implants, machines on and then start therapy for a long time, etc. To follow all these types of procedures, the age of a child grows fast. Early intervention is defined globally as children aged six months to three years, but in Bangladesh, most hearing-impaired children begin therapy after the age of three (according to therapists). This fact may create a barrier to getting better outcomes from speech and language therapy for children with hearing impairment.

5.2.1.6 Continuity

There are some reasons mentioned by therapists for why some children do not continue their therapy. Some of them are family issues, a lack of knowledge, a lack of concern, apathy toward positive effects, or information gaps. Parents are unaware that their children can lead a normal life if they get enough support from proper intervention. In addition, there is a lack of facilities from our government level as well. For example, there are a smaller number of therapy centers all over the country; a poor communication system; an insufficient number of awareness

workshops; costly treatment; etc. The price of hearing aids is also high. Hence, it is difficult to maintain in our country's environment.

5.2.1.7 Quality of Hearing aid

It is important to choose hearing aid configuration and quality according to patient needs (Dillon, 2008). Participants from the therapist group are concerned about the quality and configuration of hearing aids, which are being used by the children with hearing impairment in the Bangladeshi context. As per what the therapists mentioned, maintenance effort is high and durability is poor for the hearing aids. In addition, they are also concerned about the actual gain and price of hearing aids. The mismatch between the configuration of hearing aids according to patients' needs and poor quality worried the participants of the therapist group.

5.2.1.8 Awareness

Some participants of the therapists' group are concerned about parents' and governments' lack of awareness of the importance of speech and language therapy for children with hearing impairment. According to therapists, awareness of family members is important such as they have to be dedicated to continuing treatment although it requires a long-term procedure and maintenance, in addition, they have to follow therapists' instructions such as regular use of hearing aids (at least 15 hours per day). Lack of administrative awareness is another issue. In most therapy centers, a proper setting for the therapy room is not found, lack of equipment, mismanagement, a noisy environment, etc. Insufficient centers and a lack of incentive for research and training facilities are not friendly for the proper intervention of hearing-impaired children in Bangladesh.

5.2.2 Suggestions

5.2.2.1 Sincerity

According to the parents, therapists are required to be sincerer with their clients. As clients are children and they are suffering from hearing impairment, so therapists should be more sensitive and patient with them.

5.2.2.2 Training Facility

Training opportunities help both parents and therapists to become more proficient and up-to-date. The importance of these opportunities was another concerning issue among parents and therapists. Participants of therapist groups mentioned that they get fewer opportunities to do training from the government but not a single parent of hearing-impaired children. They pay for the majority of their own training. They all agreed that training opportunities for both parents and therapists should be made available.

5.2.2.3 Research facility

Research opportunities help to develop the work quality of therapists (Tai et al., 2021). According to the participants of the therapist group, it is important to provide research opportunities and incentives to encourage speech and language therapists to do more research and its implementation. That is why research facilities helps to improve quality of work, as speech therapy is more personalized treatment.

5.2.2.5 Collaboration of professionals

For proper assessment and treatment plans, collaboration among specialists of different wings and professionals is important. Integrated therapy helps to apply different techniques to treat each client's unique issues. But in the Bangladeshi context, there are very few intervention centers that facilitate their HI patients by providing integrated therapy. So, patients have to visit different professionals' chambers separately. As a result, it consumes a lot of money, effort, and time as well. In addition, a lack of collaboration among professionals could be the cause of the lack of coherence in treatment of a HI child. Moreover, all parents don't have that much capacity to spend money or time on their children. So, collaboration of professionals is important for batter implementation of speech and language therapy for children with hearing impairment in Bangladeshi context.

5.3 Scenario of speech and language therapy for children with hearing impairment in the context of Bangladesh

The approach of speech and language therapy depends on the type of hearing impairment and its severity. There are different types of therapy approaches such as AVT, AT, Auditory-Aural, Oral-Aural, etc. Therapists choose any of these approaches according to features and types of hearing impairment. None of them are specific for any type of hearing impairment rather therapists decide which therapy approach will be appropriate for which type of HI child and to decide therapy approach a speech and language therapists considers not only types and features but also the childs' age, reasons for hearing impairments, etc. It is not like if a child does Cochlear Implant, he or she will take AVT, sometimes AT would be appropriate according to the child's age and the surrounding situation. This total procedure refers to following the 'Pragmatic'

approach of treatment, which leads to a procedure that prioritizes the patient practically or on the basis of the patient's needs. This approach identifies each issue and considers them in the broadest sense, which helps to do a research investigation, aims to understand the problem better, and then design therapy for the patient; this procedure ensures the best outcome for the targeted client.

Depending on research findings that could impact the outcome of speech and language therapy for children with hearing impairment, parents, and therapists were asked some questions to know the actual scenario of speech and language therapy in the Bangladeshi context. In addition, both groups of participants mentioned the barriers they are facing and give their valuable suggestions as well. By considering all of this accumulated data it could be assumed the actual scenario of implementing speech and language therapy for children with hearing impairment in Bangladesh.

If we think about child-ST relations, we can observe that a high percentage of therapists (87.2%) and around 62.5% of parents believe that children are taking therapy willingly. Although none of the therapists responded negatively, 37.5 percent of parents responded that their children don't feel happy to be in therapy. This contradiction indicates that therapists are unaware of the gap between clients and themselves. However, a major portion of total participants believes that children with hearing impairment is taking therapy willingly from the speech therapists (ST) so relations may not be that poor between child and therapist in the Bangladeshi context. However, 37.5 percent of negative responses are not negotiable.

The answers to two questions represent the parents-therapist relationship in the Bangladeshi context. The questions concerned whether or not parents could observe and participate in therapy sessions. But, the answers of the two groups lead to a confusing situation. A larger portion

(79.17%) of therapists agreed that parents can observe therapy sessions, whereas a comparatively smaller portion of parents (25%) agreed that they get these facilities. In contrast, a lower number of therapists (20.83%) agreed about including parents in each session, and most of them (70.83%) showed uncertainty. Whereas a comparatively large number of parents (45%) agreed that they get opportunities to be a part of therapy sessions, some of them showed negativity (33.33%), and others showed (20.83%) uncertainty. Here, the notable point is that if a small number of parents (25%) get an opportunity to observe therapy sessions, then how do a comparatively large number of parents (45.83%) become part of therapy sessions? So the parent-therapist relationship situation leads to an ambiguous understanding.

Home-based therapy is another important issue. Two questions were asked to understand the situation of home-based therapy in Bangladesh. The questions concerned whether or not parents are assigned tasks to do at home and whether therapists visit clients' homes to observe the situations in their home environment. When it was about assigning tasks to the parents to do at home, a high number of participants in both groups responded positively (91.67% of therapists and 75% of parents), which suggests the practice of assigning tasks to the parents at home is actively followed in the Bangladeshi context, although some of the participants responded negatively as well. But when it is about home visit of clients, most of the parents and therapists responded negatively (87.5% of parents and 45.83% of therapists), although some of them had positive respond (12.5% of parents and 33.33% of therapists). These scenario depicts that assigning tasks to parents to do at home is quite conventional, but visiting home is not that much common in Bangladeshi context.

The participants of both groups were asked whether or not therapists considered the environmental factors of each client. The results lead to a very contradictory situation. Whereas

100% of participants in the therapist group answered positively, 70.05% of parents responded negatively, and only 29.17% agreed with the therapist group. Although considering environmental factors is important for each children with hearing impairment, the results show that in the Bangladeshi context, consideration of environmental facts by therapists when planning therapy for each children with hearing impairment is ambiguous.

Integrated therapy is one of the important factors in implementing speech therapy for each children with hearing impairment properly. Two questions were asked to know the actual situation of the integrated therapy approach in Bangladesh. Questions were asked to know whether or not speech and language therapists consult with other therapists if required, as well as if there are any facilities to get other therapy at a time in the same center. The results lead to a huge contradiction. When the question is about whether therapists consult with other therapists if required, around 20.83% of therapists responded positively and 70.83 % of them chose the answer "sometimes", which leads to uncertainty, whereas 91.67% of parents responded negatively and the rest of them chose positive answers, which is a poor percentage (8.33). However, when it comes to the facilities of a therapy center to provide integrated therapy, a large portion of participants in both groups responded negatively (79.17% of therapists and 91.67% of parents). The results of these questions reveal a poor situation in which to practice integrated therapy in the Bangladeshi context.

The participants of both groups were asked whether or not they were satisfied with the settings where the children with hearing impairment does speech and language therapy. A large portion of both groups' participants (87.5 % of therapists and 62.5% of parents) answered positively. But at the same time, although a few participants of the therapist group responded negatively, the parent groups' (37.5%) negative response percentages are not negligible at all. So, although most

of the participants are satisfied with therapy settings in the Bangladeshi context, it needs to be considered more.

Need-based therapy is another concerning point in implementing speech therapy for each children with hearing impairment properly. The participants of both groups were asked whether or not therapists changed their therapy approach based on the child's changing behavior over time. All of the participants (100%) of the therapists' group and around half (54.17%) of the participants of the parents' group responded positively, but the participants (45.83%) who responded negatively in the parents' group were not negligible. Results show that in the Bangladeshi context, the practice of need-based therapy is not that poor but needs to be enriched.

The participants of both groups were asked whether or not therapists use any scales to assess the level of language acquisition of children with hearing impairment. The results lead to a very poor situation in the Bangladeshi context. A large portion of participants of all groups (91.67% of therapists and 83.33% of parents) responded negatively. A few participants in therapists' groups and parents' groups were positive, but the percentages are too poor to be satisfactory. In the Bangladeshi context, the use of scales to measure the improvement of the patient needs to be considered important.

However, both speech and language therapists and parents of HI children mentioned some important factors that are creating barriers to getting the best outcome of speech and language therapy for children with hearing impairment in the context of Bangladesh. At the same time, they suggest how we can improve the present situation of speech and language therapy in the Bangladeshi context. The barriers mentioned by the participants need to be considered with importance to improve the quality of speech therapy as well as fulfill the client's centered

expectations. These include the duration of each therapy session; frequency of therapy; cost of continuing treatment; ensuring early intervention; continuity of treatment, ensuring the quality of hearing aids; and improving overall awareness in the context of Bangladesh. In addition, suggestions from all the participants should be considered to achieve further improvement. The suggestions like the sincerity of professionals, training facilities for both parents and therapists; research facilities to improve knowledge; collaboration among professionals are very important factors in implementing speech and language therapy for children with hearing impairment and fulfilling client-centered needs to get the best outcome.

CHAPTER SIX

Conclusion

This study seeks to determine the best approach to implementing speech and language therapy and raise awareness among speech and language therapists about factors that may influence proper treatment for children with hearing impairment. Every person with hearing loss has a unique experience, which is why the therapy model should be personalized, and the therapy approach should be client-centered. The present research proposes a pragmatic approach focusing on implementing speech and language therapy by considering the patients' circumstances reasonably and logically. This research has considered all the research findings

that could directly or indirectly ensure the proper implementation of speech and language therapy and solve the barriers mentioned by participants, which are regarded as elements of the pragmatic approach for children with hearing impairment in the Bangladeshi context. Analysis of collected data shows that all of the factors found in the research are not appropriately implemented. Furthermore, to some extent, the actual scenarios are ambiguous in the context of Bangladesh; participants also mention some barriers; some suggestions are also provided to participants. By overcoming these shortcomings, it could be possible to get the best outcome when providing speech and language therapy for Bengali-speaking hearing-impaired children in Bangladesh. Proper implementation of speech and language therapy could positively change a hearing-impaired child's future life. They can integrate themselves with mainstream people. Dornan (2007) proved that those children with hearing impairment who are facilitated with proper intervention could acquire the same skills as typically hearing children. Islam (2022) investigated whether speech and language therapy impacts positively on hearing-impaired children or not and proved the importance of speech and language therapy for HI children. Hence, the present research investigates how to improve the quality of speech and language therapy in the Bangladeshi context so that it could be beneficial for Bengali-speaking hearing-impaired children. The present research will let therapists and authorities know the expectations of clients and the gap between reality and what needs to happen. Actual scenarios of implementing speech and language therapy in Bangladesh have been revealed here that could make the concerned people aware and let them take the necessary steps.

6.1 Limitations and Recommendations

One of the limitations of this study is, all the organizations chosen for this study are situated in Dhaka city and all participants (both speech and language therapists and parents) are from these

intervention centers. Although some parents came from different districts and they provide their opinion including those experiences as well but if it could be possible to collect data from all over the country then more variable data could be found.

In addition, more participants could enrich this research but unfortunatly at the time data collection procedure started, Covid-19 outbreak started around the world and lockdown started across the country. Due to the outbreak of the epidemic, it was not possible to get proper cooperation from the data providers. A very limited number of visitors were visit therapy centers. Moreover, organiations were very concern about the safety that create a formidable barrier to collect data and observe therapy sessions.

However, a number of limitations may have influenced the results. The study's most significant flaw is its limited sample size. As a result of this study's narrow focus, it is challenging to identify the generalizability of the result. Moreover a few socio-economic factors that might influence perception of participants were not considered in the course of the study.

It should be acknowledged that this study is limited in terms of sample size and data were only collected from Dhaka city. Moreover, an outbreak of the epidemic interrupts the natural procedures of data collection. Future studies should consider using a representative number of participants, representing diversity in the type of hearing impairment, age, gender, socio-economic background, and all the cities of Bangladesh. So that speech and language therapists, as well as authorities, may know the actual situation of providing speech and language therapy for children with hearing impairment in the context of Bangladesh, able to know the expectation and gap between therapy implementation procedures. It will help the authorities to take the

required steps to implement a client-centered therapy approach for the best outcome for children with hearing impairment.

Reference

121 to get costly cochlear at BSMMU for nominal fees. (2018, May 13). *NewAge Bangladesh* Retrieved from https://www.newagebd.net/article/41066/121-to-get-costly-cochlear-at-bsmmu-for-nominal-fees

American Speech-Language Hearing Association. (2015). Effects of hearing loss on development. Audiology Information Series. Retrieved from www.asha.org/uploadedFiles/AIS-Hearing-Loss-Development-Effects.pdf on 8/09/2020

American Speech-Language-Hearing Association (ASHA). (n.d.). Early Intervention for Children with Hearing Loss. Retrieved from https://www.asha.org/public/hearing/early-intervention-for-children-with-hearing-loss/ on 12/11/2020

American Speech-Language-Hearing Association (ASHA). (n.d.). The Audiogram. Retrieved from http://www.asha.org/public/hearing/Audiogram/ on 12/11/2020

Anam, Dr. Nirafat, Ahsan, Mohammod Tarik and Aktar, Nasima (2011). *শ্র প্রতিবন্ধিতা কারণ, প্রতিকার ও উন্নয় সহায়তা.* Dhaka: Centre for Services and Information on Disability

Arístegui, M., & Denia, A. (2005). Simultaneous cochlear implantation and translabyrinthine removal of vestibular schwannoma in an only hearing ear: report of two cases (neurofibromatosis type 2 and unilateral vestibular schwannoma). *Otology & Neurotology*, *26*(2), 205-210.

ASHA, (n.d). *Child Audiologic (Hearing) Habilitation. Retrieved from* https://www.asha.org/public/hearing/Child-Audiologic-Habilitation/ on 12/11/2020

Bally, S. J. (1996). *Communication therapy: An integrated approach to aural rehabilitation with deaf and hard of hearing adolescents and adults*. Gallaudet University Press.

Barnes, K. J., & Turner, K. D. (2001). Team collaborative practices between teachers and occupational therapists. *American Journal of Occupational Therapy*, 55(1), 83-89.

Beazley, S. M., Merritt, R., & Halden, J. (2012). Working with Deaf Children. In M. Kersner, & J. A. Wright (Eds.), Speech and Language Therapy: The Decision Making Process When Working with Children (2nd ed.). Taylor & Francis.

Bebko, J. M., Calderon, R., & Treder, R. (2003). The Language Proficiency Profile-2: Assessment of the global communication skills of deaf children across languages and modalities of expression. *Journal of deaf studies and deaf education*, *8*(4), 438-451.

Broggi, M. B., & Sabatelli, R. (2010). Parental perceptions of the parent-therapist relationship: Effects on outcomes of early intervention. *Physical & Occupational Therapy in Pediatrics*, *30*(3), 234-247.

Buttny, R. (1999). Discursive constructions of racial boundaries and self-segregation on campus. *Journal of language and social psychology*, *18*(3), 247-268.

Carggs-Hinton, C.(2007) *Coping with Hearing Loss*. London: Sheldon Press

Carlile, S., & Keidser, G. (2020). Conversational interaction is the brain in action: Implications for the evaluation of hearing and hearing interventions. *Ear and hearing*, *41*, 56S-67S.

Chaix , Benjamin (2016) *Rehabilitation Overview*. Retrieved from http://www.cochlea.eu/en/rehabilitation on 05/21/2020

Chilton, H., & Beazley, S. (2010). Theory of mind development. *British Association of Teachers of the Deaf Magazine*, *1*(1).

Chundu, S., Allen, P. M., Han, W., Ratinaud, P., Krishna, R., & Manchaiah, V. (2021). Social representation of hearing AIDS among people with hearing loss: an exploratory study. *International Journal of Audiology*, *60*(12), 964-978.

Cook, R. E., Sparks, S. N., Osselaer, C. I., & Wahl, K. (2021). *The art and practice of home visiting*. Brookes Publishing.

Cornish, F., & Gillespie, A. (2009). A pragmatist approach to the problem of knowledge in health psychology. Journal of health psychology, 14(6), 800-809.

Creswell, J. W. (1999). Mixed-method research: Introduction and application. In *Handbook of educational policy* (pp. 455-472). Academic press.

De Raeve, L. (2010). A longitudinal study on auditory perception and speech intelligibility in deaf children implanted younger than 18 months in comparison to those implanted at later ages. *Otology & Neurotology*, *31*(8), 1261-1267.

DesJardin, J. L., Doll, E. R., Stika, C. J., Eisenberg, L. S., Johnson, K. J., Ganguly, D. H., ... & Henning, S. C. (2014). Parental support for language development during joint book reading for young children with hearing loss. *Communication disorders quarterly*, *35*(3), 167-181.

Dillon, H. (2008). Hearing aids. Hodder Arnold.

Dobie RA, Van Hemel S. (ED). (2004). *National Research Council (US) Committee on Disability Determination for Individuals with Hearing Impairments*. Washington (DC):

National Academies Press (US); Retrieved from https://www.ncbi.nlm.nih.gov/books/NBK207838/ doi: 10.17226/11099 on 07/12/2020

Dodd, B. (2007). Evidence-based practice and speech-language pathology: Strengths, weaknesses, opportunities and threats. *Folia Phoniatrica et logopaedica*, *59*(3), 118-129.

Dornan, D. I., Hickson, L., Murdoch, B., & Houston, T. (2007). Outcomes of an Auditory-Verbal Program for Children With Hearing Loss: A Comparative Study With a Matched Group of Children With Normal Hearing. *Volta Review*, *107*(1).

Drisko, J. W., & Grady, M. D. (2019). *Evidence-based practice in clinical social work*. Springer.

Enderby, P., John, A., & Petheram, B. (2013). *Therapy outcome measures for rehabilitation professionals: speech and language therapy, physiotherapy, occupational therapy*. John Wiley & Sons.

Fitzpatrick, E. M., Crawford, L., Ni, A., & Durieux-Smith, A. (2011). A descriptive analysis of language and speech skills in 4-to 5-yr-old children with hearing loss. *Ear and Hearing*, *32*(5), 605-616.

Flexer, C., Madell, J. R., Wofe, J., & Schafer, E. C. (2008). Why is hearing important in children. *Pediatric Audiology: diagnosis, technology and management. New York: Thime Medical Publishers*, 54-64.

Gillam and Gillam (2006). Making evidence based decisions about child-language intervention in schools. Retrieved from

Giolas, T. G., & Wark, D. J. (1967). Communication problems associated with unilateral hearing loss. *Journal of Speech and Hearing Disorders*, *32*(4), 336-343.

Harden, B. J. (2010). Home Visitation with Psychologically Vulnerable Families: Developments in the Profession and in the Professional. Zero to Three (J), 30(6), 44-51.

Hartwig, J. W., & Jones, C. C. (1966). OHIO'S PROGRAM FOR HEARING HANDICAPPED CHILDREN.

Hasselkus, A.(2012) *Habilitation-What it is and why it matters to you.* Retrieved from https://blog.asha.org/2012/01/04/habilitation-what-it-is-and-why-it-matters-to-you/ 13/12/2020

Holzinger, D., Fellinger, J., & Beitel, C. (2011). Early onset of family centred intervention predicts language outcomes in children with hearing loss. *International journal of pediatric otorhinolaryngology*, *75*(2), 256-260.

Huber, A., Linder, T., Dillier, N., Ferrazzini, M., Stoeckli, S., Schmid, S., & Fisch, U. (2001). Intraoperative assessment of stapes movement. *Annals of Otology, Rhinology & Laryngology*, *110*(1), 31-35.

Humphries, T., Kushalnagar, P., Mathur, G., Napoli, D. J., Rathmann, C., & Smith, S. (2019). Support for parents of deaf children: Common questions and informed, evidence-based answers. *International journal of pediatric otorhinolaryngology*, *118*, 134-142.

Iglehart, F. (2020). Speech perception in classroom acoustics by children with hearing loss and wearing hearing aids. *American journal of audiology*, *29*(1), 6-17.

Islam, M. (2022). Expressive linguistic development of Bangla-speaking children with severe congenital hearing impairment. *Journal of Child Language Acquisition and Development-JCLAD*, 476–498. Retrieved from https://science-res.com/index.php/jclad/article/view/57

Judisch, M. (2017). *Parent perspectives on effectiveness of speech language pathologists during home visits for early intervention* (Doctoral dissertation, University of Iowa).

Kelley, J. M., Kraft-Todd, G., Schapira, L., Kossowsky, J., & Riess, H. (2014). The influence of the patient-clinician relationship on healthcare outcomes: a systematic review and meta-analysis of randomized controlled trials. *PloS one*, *9*(4), e94207.

Kelly, A. (2018). *Social skills: Developing effective interpersonal communication*. Routledge.

Klatte, I. S., Lyons, R., Davies, K., Harding, S., Marshall, J., McKean, C., & Roulstone, S. (2020). Collaboration between parents and SLTs produces optimal outcomes for children attending speech and language therapy: Gathering the evidence. *International Journal of Language & Communication Disorders*, *55*(4), 618-628.

Laurìa, A., Secchi, S., & Vessella, L. (2020). Acoustic comfort as a salutogenic resource in learning environments—a proposal for the design of a system to improve the acoustic quality of classrooms. *Sustainability*, *12*(22), 9733.

Lebahn, C. B. (1989). Speech and language training for the hearing-impaired using the auditory-verbal approach.

Lebahn, C. B. (1989). Speech and language training for the hearing-impaired using the auditory-verbal approach.

Leiman, M. (2004). Dialogical sequence analysis. In *The dialogical self in psychotherapy* (pp. 271-286). Routledge.

Leonhardt, A. (1999) Einfuhrung in die Horgeschadigtenpadagogik. [Introduction to the pedagogy of the hearing impaired]. Munchen, Basel: Ernst Reinhardt Verleg

Lund, E. (2018). The effects of parent training on vocabulary scores of young children with hearing loss. *American Journal of Speech-Language Pathology*, *27*(2), 765-777.

Marfoh, A. L. E. X. A. N. D. E. R. (2011). Prevalence of hearing impairment in the Offinso municipality. *Kumasi: Kwame Nkrumah University of Science and Technology*.

Marschark, M., & Hauser, P. C. (Eds.). (2008). *Deaf cognition: Foundations and outcomes*. Oxford University Press.

Marschark, M., & Spencer, P. E. (2010). The promises (?) of deaf education: from research to practice and back again. *The Oxford handbook of deaf studies, language, and education*, *2*, 1-4.

Mathers, C., Smith, A., & Concha, M. (2000). Global burden of hearing loss in the year 2000. *Global burden of Disease*, *18*(4), 1-30.

McKay, S., Gravel, J. S., & Tharpe, A. M. (2008). Amplification considerations for children with minimal or mild bilateral hearing loss and unilateral hearing loss. *Trends in amplification*, *12*(1), 43-54.

McLeod, S. (2006). An holistic view of a child with unintelligible speech: Insights from the ICF and ICF-CY. *Advances in Speech Language Pathology*, *8*(3), 293-315.

McWilliam, R. A. (1996). A program of research on integrated versus isolated treatment in early intervention. In McWilliam, R. A. (Ed.), *Rethinking Pull-Out Services in Early Intervention: A Professional Resource.*

Mitchell, R. E., & Karchmer, M. (2004). Chasing the mythical ten percent: Parental hearing status of deaf and hard of hearing students in the United States. *Sign language studies*, *4*(2), 138-163.

Moeller, M. P., & Schick, B. (2006). Relations between maternal input and theory of mind understanding in deaf children. *Child development*, *77*(3), 751-766.

Monk, G., & Gehart, D. R. (2003). Sociopolitical activist or conversational partner? Distinguishing the position of the therapist in narrative and collaborative therapies. *Family process*, *42*(1), 19-30.

Mourtou, E.(2014). *Hearing Impairment and Cochlear Implants: A Conversation Analytic Study of Teachers' Actions in Response to the Storytelling of Children with Cochlear Implants* (Unpublished Ph. D Dissertation, University of Southern Denmark). Retrieved from

Muñoz, K., & Blaiser, K. (2011). Audiologists and speech-language pathologists: Making critical cross-disciplinary connections for quality care in early hearing detection and intervention. *Perspectives on Audiology*, *7*(1), 34-42.

Northern, J. L., & Downs, M. P. (2002). *Hearing in children*. Lippincott Williams & Wilkins.

Orero, P., Doherty, S., Kruger, J. L., Matamala, A., Pedersen, J., Perego, E., ... & Szarkowska, A. (2018). Conducting experimental research in audiovisual translation (AVT): A position paper. *JosTrans: The Journal of Specialised Translation*, (30), 105-126.

Oudesluys-Murphy, A. M., Van Straaten, H. L. M., Bholasingh, R., & Van Zanten, G. A. (1996). Neonatal hearing screening. *European journal of pediatrics*, *155*(6), 429-435.

Parker, I. (1999). Deconstruction and psychotherapy. *Deconstructing psychotherapy*, 1-18.

Pohel, K-H. (1994) *Grundlagen der Padagogik Horbehinderter.* Potsdam: Potsdamer Studientexte-Sonderpadagogik.

Rezen, V. S., & Hausman, C., (2000) *Coping with Hearing Loss: Plain Talk for Adults about Losing Your Hearing.* Barricade Books

Ribeiro, E., Ribeiro, A. P., Gonçalves, M. M., Horvath, A. O., & Stiles, W. B. (2013). How collaboration in therapy becomes therapeutic: The therapeutic collaboration coding system. *Psychology and Psychotherapy: Theory, Research and Practice*, *86*(3), 294-314.

Roddam, H., & Skeat, J. (2010). Embedding Evidence-Based Practice in Speech and Language Therapy: International Examples.

Roland Jr, J. T., Cosetti, M., Wang, K. H., Immerman, S., & Waltzman, S. B. (2009). Cochlear implantation in the very young child: long-term safety and efficacy. *The Laryngoscope*, *119*(11), 2205-2210.

Sackett, D. L. (1997, February). Evidence-based medicine. In *Seminars in perinatology* (Vol. 21, No. 1, pp. 3-5). WB Saunders.

Salkind, N. J. (Ed.). (2010). *Encyclopedia of research design* (Vol. 1). Sage.

Sataloff, R. T., & Sataloff, J. (2006). *Occupational hearing loss*. CRC Press.

Sheehey, P. H., & Sheehey, P. E. (2007). Elements for Successful Parent-Professional Collaboration: The Fundamental Things Apply as Time Goes by. *Teaching Exceptional Children Plus*, *4*(2), n2.

Soman, U. G., Kan, D., & Tharpe, A. M. (2012). Rehabilitation and educational considerations for children with cochlear implants. *Otolaryngologic Clinics of North America*, *45*(1), 141-153.

Sommers, R. K., Schaeffer, M. H., Leiss, R. H., Gerber, A. J., Bray, M. A., Fundrella, D., ... & Tomkins, E. R. (1966). The effectiveness of group and individual therapy. *Journal of Speech and Hearing Research*, *9*(2), 219-225.

Stacey, P. C., Fortnum, H. M., Barton, G. R., & Summerfield, A. Q. (2006). Hearing-impaired children in the United Kingdom, I: Auditory performance, communication skills, educational achievements, quality of life, and cochlear implantation. *Ear and hearing*, *27*(2), 161-186.

Steinberg, A. (1991). Issues in providing mental health services to hearing-impaired persons. *Psychiatric Services*, *42*(4), 380-389.

Stiles, W. B., Shapiro, D. A., & Firth-Cozens, J. A. (1988). Verbal response mode use in contrasting psychotherapies: A within-subjects comparison. *Journal of Consulting and Clinical Psychology*, *56*(5), 727.

Tavener, M., Chojenta, C., & Loxton, D. (2016). Generating qualitative data by design: the Australian Longitudinal Study on Women's Health qualitative data collection. *Public health research and practice*, *26*(3), e2631631.

Turan, Z. (2012). Early intervention with children who have a hearing loss: Role of the professional and parent participation. *Hearing loss*, 117-133.

Uddin, S., Khan, A., Hossain, M. E., & Moni, M. A. (2019). Comparing different supervised machine learning algorithms for disease prediction. *BMC medical informatics and decision making*, *19*(1), 1-16.

Venkatesh, K., Karia, D., Jayaprakash, S. G., Nair, R. S., Manalel, L. G., & Arora, M. (2021, April). Design of Response Channels to Augment Speech and Language Rehabilitation in Children with Hearing Impairment. In *Frontiers in Biomedical Devices* (Vol. 84812, p. V001T12A004). American Society of Mechanical Engineers.

Watts-Pappas N, McLeod S, McAllister L, Daniel G (2006) Parental involvement in phonological intervention. Proc 11th Meet ICPLA, Dubrovnik.

Weiste, E., & Peräkylä, A. (2015). Therapeutic discourse. *The international encyclopedia of language and social interaction*.

Weiste, E., Voutilainen, L., & Peräkylä, A. (2016). Epistemic asymmetries in psychotherapy interaction: therapists' practices for displaying access to clients' inner experiences. *Sociology of Health & Illness*, *38*(4), 645-661.

White, K. R. (2006). Early intervention for children with permanent hearing loss: Finishing the EHDI revolution. *The Volta Review*, *106*(3), 237.

World Health Organization. (2013a) *Millions of people living in the world have hearing loss that can be prevented*. Retrieved from www.who.int/pbd/deafness/news/Millionslivewithhearingloss.pdf on 23/12/2020

Wylie, K., McAllister, L., Davidson, B., & Marshall, J. (2016). Communication rehabilitation in sub-Saharan Africa: A workforce profile of speech and language therapists. *African Journal of Disability*, *5*(1), 1-13.

Yucel, E., Derim, D., & Celik, D. (2008). The needs of hearing impaired children's parents who attend to auditory verbal therapy-counseling program. *International Journal of Pediatric Otorhinolaryngology*, *72*(7), 1097-1111.

Appendix

Questionnaire-1

(For parents)

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1. Do you have any hearing impaired child? (আপনার কোন শ্রবণ প্রতিবন্ধী শিশু আছে কি?)

   a) Yes (হ্যাঁ) b) No (না)

3. How old is your baby now? (বর্তমানে আপনার শিশুর বয়স কত?)

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4. How old was your child when he/she was identified as hearing impaired? (আপনার শিশুর বয়স কত ছিল যখন সে শ্রব প্রতিব হিসেবে চিহ্নিত হয়েছিল?)

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5. Which of the following measures have you taken for your baby? আপনার শিশুর জন আপনি নিচের কোন ব্যবস্থা গ্রহ করেছেন-

a) Cochlear implant (ককলিয়ার ইমপ্ল্যান্ট) b) Use hearing aid (শ্রবণয)

6. How long have you been receiving therapy from this therapist? (এইথেরাপিস্টে কাছে আপনি কতদিন যাবৎ থেরাপি গ্রহ করছেন?)

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7. Does your child like to receive therapy from this therapist? (আপনার শিশুবে এই থেরাপিস্টের কাছে থেরাপি গ্রহ করতে পছ করে?)

a) Yes (হ্য) b) No (না)

8. Can you stay with your child while giving therapy or get any opportunity to observe from a distance? (থেরাপি প্রদানের সময় আপনি কি আপনার বাচ্চ কাছে থাকতে পারেন অথবা দূর থেবে পর্যবেক্ষণের সুযোগ পান?)

a) Yes (হ্য) b) No (না) c)Sometimes (কখনো কখনো)

9. Does the therapist include you in the therapy session? (থেরাপিস্ট কি থেরাপি সেশনে আপনাকে অন্তর্ভুক্ত করেন?)

a) Yes (হ্য) b) No (না) c)Sometimes (কখনো কখনো)

10. Dose the therapist advise you on any work to do at home with your baby? (থেরাপি কি শিশুর সাথে করণীয় কাজ আপনাদেরকে বাসায় করতে দেন ?)

a) Yes (হ্য) b) No (না) c)Sometimes (কখনো কখনো)

11. Dose the therapist ever come to your home to monitor the overall condition of your home? (থেরাপি কি কখনো আপনার বাড়িতে এসে আপনার বাড়ির সার্বিক অবস্থা পর্যবেক্ষ

করেছে?)

a) Yes (হ্য) b) No (না)

12. Do you think that the therapist has planned the therapy after considering your financial status, surroundings and so on? (আপনি কি মনেকরেন থেরাপি থেরাপি পরিকল্প করার সময় আপনাদের অর্থনৈতিক অব , পারিপার্শ্বিক সুযোগ-সুবিধা ইত্যাদি বিবেচনা করে অতঃপর থেরাপির নির্ধারণ করেছে?)

a) Yes (হ্য) b) No (না)

13. Does your current therapist consult with another therapist if your child needs any therapy other than speech therapy? (আপনার শিশুর স্পি থেরাপি ছাড়া অন কোন থেরাপির দরকার হলে বর্তমান থেরাপি কি অন থেরাপিস্টের সাথে আলোচনা করে ব্যবস্থা গ্রহ করেন?)

a) Yes (হ্য) b) No (না)

14. Does the center have facilities to get other therapy if required rather than speech therapy? (এই কেন্দ্রে কি স্পি থেরাপির পরিবর্তে প্রয়োজনে অন থেরাপি পাওয়ার সুবিধা আছে?)

a) Yes (হ্য) b) No (না)

15. Do you think the room and environment in which your child receives speech therapy is appropriate? (আপনার শিশুবে রুমে স্পি থেরাপি দেয় হয় সে রু এবং তার পরিবেশ আপনার শিশুর জন উপযু বলে মনে করেন কি?)

a) Yes (হ্য) b) No (না)

16. Does the therapist ever change the type of therapy based on the child's changing behavior or not being able to learn well? (বাচ্চ পরিবর্তিত আচরণ বা ভালোভাবে শিখতে পারা না পারা উপর ভিত্তি করে থেরাপিস্ট কি কখনো থেরাপির ধরণ পরিবর্তন করে?)

a) Yes (হ্য) b) No (না)

17. Has the therapist ever taken any steps to measure the child's progress, such as what the child has learned or how much progress has been made? (কখনোকি শিশুর উন্নি পরিমাপের জন থেরাপি কোন পদক্ষে যেমন শিশু কি কি শিখেছে তা যাচাইয়ের জন অথবা কি পরিমান উন্নি হয়েছে তা যাচাইয়ের জন কোনো পদক্ষে গ্রহ করেছে?)

a) Yes (হ্য) b) No (না)

18. What are the obstacles you think you are facing in the context of Bangladesh? (বাংলাদেশের প্রেক্ষাপ আপনি কী কী প্রতিবন্ধকতা সম্মুখী হচ্ছে বলে মনে করেন?)

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19. In the context of Bangladesh, what benefits do you think can make further progress in the development of your child? (বাংলাদেশের প্রেক্ষাপ কী কী সুবিধা পেলে আপনার শিশুর উন্নয়নে আরও অগ্রগতি হতে পারে বলে আপনি মনে করেন?)

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20. What else do you think should be included in providing therapy? (থেরাপি প্রদানে আরো কী কী বিষয় অন্তর্ভুক্ত করা উচিত বলে আপনি মনে করেন?)

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Questionnaire-2

(For therapist)

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1. Do you provide speech therapy for hearing impaired children? (আপনি কি শ্রবণ প্রতিবন্ধী শিশুদের জন্য স্পীচ থেরাপি প্রদান করেন?)

   a) Yes (হ্যাঁ) b) No (না) c)Sometimes (কখনো কখনো)

2. What are the usual age limits for most hearing-impaired children you mostly provide therapy to? (আপনি সাধারণত যে সকল শ্রবণ-প্রতিবন্ধী শিশুদের থেরাপি প্রদান করেন বেশীরভাগ ক্ষেত্রে তাদের সাধারণ বয়সের সীমানা কী?)

Answer:

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3. Your educational qualifications and training you have received (আপনার শিক্ষাগত যোগ্যতা এবং প্রশিক্ষণ আপনি পেয়েছেন।)-

Answer:

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4. Do children happily accept therapy in most cases? (শিশুর কি বেশিরভা ক্ষেত্রে আনন্দচি থেরাপি গ্রহ করে?)

   a) Yes (হ্য) b) No (না) c)Sometimes (কখনো কখনো)

5. Are you provide opportunity to observe therapy sessions for Parents? (আপনি কি পিতামাতাদের থেরাপি সেশনং পর্যবেক্ষ করার সুযোগ প্রদা করেন?)

   a) Yes (হ্য) b) No (না) c)Sometimes (কখনো কখনো)

6. Do you include parents or caregivers in the therapy session? (আপনি কি থেরাপি সেশনে মাতা পিতা অথবা কেয়ারগিভারকেং অন্তর্ভুক্ত করেন?)

   a) Yes (হ্য) b) No (না) c)Sometimes (কখনো কখনো)

7. Do you assign responsibilities to parents of hearing-impaired children at home? (আপনি কি বাড়িতে শ্রব প্রতিব শিশুদের বাবা-মাকে করণীয় কাজের দায়িত্ব দেন ?)

   a) Yes (হ্য) b) No (না) c)Sometimes (কখনো কখনো)

8. Do you visit children's homes to verify the actual condition of a hearing impaired child and his / her family to design appropriate therapy? (আপনি কি শ্রব প্রতিব শিশু প্রকৃ অব যাচাইয়ের ল এবং তার পরিবারের প্রকৃ অব পর্যবেক্ষ করে থেরাপি ডিজাইন করতে শিশুর বাড়িতে যান?)

   a) Yes (হ্য) b) No (না) c)Sometimes (কখনো কখনো)

9. Do you design therapy for a hearing-impaired child by considering his or her surroundings before planning a therapy? (থেরাপির পরিকল্প করার আগে আপনি কি শ্রব -প্রতিবন্ধী শিশুর আশেপাশের অব বিবেচনা করে তার জন থেরাপি ডিজাইন করেন?)

   a) Yes (হ্য) b) No (না) c)Sometimes (কখনো কখনো)

10. If the HI child needs any other type of therapy such as occupational therapy or psychological counseling, do you plan your speech therapy in consultation with all these therapists? (যদি শ্রব প্রতিব শিশুর অন কোন ধরণের থেরাপি যেমন অকুপেশনাল থেরাপি বা সাইকোলজিক্যাল কাউন্সেলি এর প্রয়োজন হয়, আপনি কি এই সম থেরাপিস্টের সাথে পরামর্শ করে আপনার ি থেরাপির পরিকল্প করেন?)

    a) Yes (হ্য) b) No (না) c)Sometimes (কখনো কখনো)

11. Does the center have facilities to get other therapy if required rather than speech therapy? (এই কেন্দ্রে কি স্পিচ থেরাপির পরিবর্তে প্রয়োজনে অন্য থেরাপি পাওয়ার সুবিধা আছে?)

    a) Yes (হ্যাঁ) b) No (না)

12. Do you think that the interior decoration of the room where you are giving therapy to a hearing impaired child is suitable for them? (আপনি কি মনে করেন যে ঘরে আপনি শ্রবণ প্রতিবন্ধী শিশুকে থেরাপি দিচ্ছেন তার অভ্যন্তরীণ সজ্জা তাদের জন্য উপযুক্ত?)

    a) Yes (হ্যাঁ) b) No (না)

13. Do you redesign therapy based on the needs, opportunities, or disadvantages of a hearing-impaired child? (আপনি কি শ্রবণ প্রতিবন্ধী শিশুর চাহিদা, সুযোগ সুবিধা অথবা অসুবিধাগুলো বিবেচনা করে সেগুলোর ভিত্তিতে থেরাপি ডিজাইন করেন?)

    a) Yes (হ্যাঁ) b) No (না) c)Sometimes (কখনো কখনো)

14. Do you use any scale to assess the level of language acquisition of HI children after any specific time period? (আপনি কি কোনো নির্দিষ্ট সময়ের পরে শ্রবণ প্রতিবন্ধী শিশুদের ভাষা অর্জনের মাত্রা মূল্যায়ন করতে কোনো স্কেল ব্যবহার করেন?)

    a) Yes (হ্যাঁ) b) No (না) c)Sometimes (কখনো কখনো)

15. What is your assumption about the reasons behind those hearing impaired children who are not taking therapy regularly? (শ্রবণ প্রতিবন্ধী শিশুরা যারা নিয়মিত থেরাপি গ্রহণ করে না তাদের পেছনের কারণ সম্পর্কে আপনার ধারণা কী?)

Answer:

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16. What types of problems you are facing regularly in the context of Bangladesh at the time of implementing therapy? (থেরাপি বাস্তবায়নের সময় বাংলাদেশের প্রেক্ষাপটে আপনি নিয়মিত কী ধরনের সমস্যার সম্মুখীন হচ্ছেন?)

Answer:

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17. Do you have any suggestions about anything which could include in speech therapy to develop language acquisition of children with hearing impairments? (শ্রবণ প্রতিবন্ধী শিশুদের ভাষা অর্জনের ত্বরান্বিত করতে স্পিচ থেরাপির অন্তর্ভুক্ত হতে পারে এমন কিছু সম্পর্কে আপনার কি কোনো পরামর্শ আছে?)

Answer:

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