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Pragmatic speech and language therapy in the Bangladeshi context for children with hearing impairment

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Abstract

Speech and Language Therapy (SLT) is crucial for children with hearing impairment (CHI) to develop speech and language skills. Researchers globally have explored different methods to enhance SLT effectiveness for CHI. This study aimed to identify gaps between parents' and therapists' perspectives on implementing pragmatic therapy to uncover barriers to effective therapy for CHI in Bangladesh. Understanding these gaps and barriers sheds light on the current state of SLT for CHI in Bangladesh. Addressing these issues can improve SLT quality and accountability, and raise awareness among therapists and authorities about pragmatic SLT for CHI in Bangladesh. The study involved Speech and Language Therapists (SALT) and parents of hearing-impaired children. Data was gathered through semi-structured questionnaires from 12 SALT and 24 parents whose children received therapy for at least a year. Qualitative analysis of their experiences, research, and observations revealed obstacles affecting SLT effectiveness for Bengali-speaking CHI in Bangladesh. While some factors identified in literature were implemented by therapists, others faced barriers due to negligence or contextual challenges. Overcoming these barriers could enhance the pragmatic features of SLT for Bengali-speaking CHI. Addressing these findings could significantly improve SLT quality, benefiting language acquisition and speech development for HI children in Bangladesh, and positively impacting their overall life. Thus, this research contributes to enhancing SLT quality for Bengali-speaking HI children in Bangladesh.

Keywords: hearing impaired speech therapy, pragmatic therapy in Bangladesh, effective communication for HI children, overcoming speech therapy barriers, language development in HI children

1. Introduction

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. By using hearing aids, children with severe

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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. 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). 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 play a vital role in cooperative interdisciplinary teamwork (ASHA n.d). 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, explores the pragmatic issues of implementing proper need-based therapy.

1.1. 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 based on 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 that 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.

Need-based speech therapy for hearing-impaired children can ensure tailored intervention strategies; it focuses on individual requirements (Johnson & Smith, 2019). By addressing each child's specific needs, this approach ensures the development of communication skills (Jones & Brown, 2020). Therapists closely monitor progress and adjust techniques to ensure improvement (Lee & Kim, 2021). Children feel supported and motivated

throughout their therapy journey when they get personalized attention, (Smith & Wilson, 2018).

1.2. Literature review

Research findings shows that rehabilitation plays a crucial role in helping individuals adapt to new sounds and regain lost skills. The review underscores the role of speech and language therapists in enhancing speech comprehension and production for hearing-impaired individuals.

The choice of communication modality for Deaf and Hard-of-Hearing individuals depends on various factors. Different communication modes, such as total communication, auditory-oral, AVT, and cued speech, are used worldwide. AVT is gaining popularity for young hearing-impaired patients, but other approaches are also beneficial depending on the patients' physical and financial conditions. Sign language is a complete language with its own grammar and is used by deaf individuals, particularly those with deaf parents (Marschark & Hauser, 2008). Total communication combines manual signs with spoken language (Soman et al., 2012), while auditory-oral communication emphasizes the acquisition of spoken language skills (Mitchell & Karchmer, 2004). These categories represent simplified options for communication interventions for hearing-impaired children.

Individuals participate in different programs based on their specific needs and environmental requirements, these are the common ways therapists follow to design personalized therapy.

The decision-making process of speech and language therapists working with hearing-impaired children involves a two-stage approach. Firstly, therapists consider environmental factors that may create barriers and influence the need for therapy (Beazley et al., 2012). These factors include the close community, educational context, other agencies like rehabilitation centers or special schools involved, and the impact of technology (Beazley et al., 2012; De Raeve, 2010). Collaboration with families, professionals, and agencies is crucial to ensure effective communication and interdisciplinary teamwork (Beazley et al., 2012). Secondly, therapists need to determine the preferred communication mode of the child, which could be spoken language, sign language, or the dominant language of the culture (Marschark & Spencer, 2010). This decision can be emotionally charged and requires sensitivity to conflicting messages and the needs of the family (Marschark & Spencer, 2010). Keeping up with technological advancements is important for therapists to provide appropriate advice and support, as many hearing-impaired children prefer various forms of communication through email, the internet, text, and video phones (Beazley et al., 2012). Overall, the decision-making process considers these factors to tailor the therapeutic approach and address the unique needs of each hearing-impaired child.

The communication process and therapy planning for hearing-impaired children require careful consideration of various factors. The assessment of communication needs, which applies to children of all ages, involves examining barriers and enablers to communication rather than focusing on deficits (Beazley et al., 2012). The assessment includes evaluating conversational features, input patterns, comprehension and speech

perception, and output development (Beazley et al., 2012; Carlile & Keidser, 2020; Moeller & Schick, 2006; Parker, 1999). Understanding the child's hearing/listening status, including medical descriptions, child and family descriptions, and therapist observations, is essential in determining appropriate support (Beazley et al., 2012; Madell & Flexer, 2008). The therapist also considers the influence of contextual factors, such as the acoustic environment and conversational partners, on conversational development (Carlile & Keidser, 2020). Additionally, factors like motivation, social skills, self-esteem, self-identity, and theory of mind are considered in therapy planning (Beazley et al., 2012; Chilton & Beazley, 2010; Kelly, 2018). Proper assessment and understanding of these factors contribute to effective therapy planning and support for hearing-impaired children.

Factors influencing speech and language therapy outcomes encompass diverse aspects explored in qualitative research. Collaboration between therapists and clients emerges as crucial, as highlighted by Buttny (1999) and Weiste et al. (2016). Environmental factors, such as community support and familial involvement, also significantly impact outcomes (Beazley et al., 2012).

Tthe importance of therapists and clients co-consulting during therapy sessions are emphasizes by Buttny (1999). The term "reframing" is used to denote collaborative achievement through discussion between the client and therapist (Monk et al., 2003). Weiste et al. (2016) underscore the positive outcomes resulting from a strong therapist-client relationship.

Beazley et al. (2012) stress the significance of environmental factors when determining therapeutic approaches for young hearing-impaired children. Factors such as community support and educational context influence therapy choices and outcomes.

The importance of early intervention for children with permanent hearing loss are emphasizes by White (2006). The lack of proper intervention leads to many children missing out on therapy benefits.

Turan (2012) discusses the crucial role of professionals and parents in therapy. Home-based therapy offers advantages in understanding families' real-life situations (Cook et al., 2021). Parents' participation enhances intervention effectiveness.

The therapy outcomes comparison between hearing-impaired and typically hearing children was one of the discuss topic of Dornan (2007). He highlighted the importance of early intervention and appropriate treatment.

Cook et al. (2021) discuss the impact of home visits on therapy implementation, emphasizing the assessment of the child's developmental progress and family needs.

How integrated therapy approaches meet the needs of children with hearing impairment, enhancing their communication skills and independence are explores by Bally (1996).

Sommers et al. (1966) discuss the effectiveness of group and individual therapy sessions for children with hearing impairment, emphasizing the importance of tailored therapy frequency.

The significance of acoustical environments in therapy settings for children with hearing impairment was one of the highlight point by Iglehart et al. (2020).

Dodd (2007) stresses the importance of evidence-based practice in speech and language therapy, integrating current best evidence with clinical expertise.

Some other factors are also mentioned by participants. They mentioned some obstacles, that they face on the way to the improvement of their child or their patients. Both parents and therapists also provide some advice, that they believe can bring improvement. In this article, mentioned obstacles are defined as barriers and advice as suggestions.

Barriers refer to obstacles that may hinder progress. Parents are mentioned about the Time duration of each session. Some of the parents believe the time limits of each session are not adequate for their children. Some others are disappointed about the frequency of therapy. They believe more therapy sessions can bring better improvement for their child. Cost is another talked issue among parents, they believe low cost could inspire parents to bring improvement. On the other hand, therapists mentioned lack of awareness, discontinuity, quality of hearing aid, and delay starting of treatment as barriers.

Suggestions generally refer to recommendations something to help make decisions to improve a situation. Both parents and therapist mentioned some suggestions that they believe can bring improvement. Parents believe proper sincerity and effective training for therapists could bring improvement to their children. At the same time, the therapist also believes more training and Research facilities could be helpful for their professionalism. Moreover, they also mentioned parents' training and the collaboration of professionals can play a better role to bring improvement for hearing impaired children.

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'; 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.

1.4. 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; 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). 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) to 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) to make the therapists as well as concerned authorities aware about the pragmatic approach of speech and language therapy for children with hearing impairment.

2. Methodology

A qualitative approach has been chosen to find out the different considerations and proper implementation of speech and language therapy as qualitative data is defined as being rich and contextual. 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.

2.1. 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 almost the same inquiries were done from two different groups of people; questionnaires were designed in different modes. So that it will be convenient for the targeted group. The questionnaires were prepared by keeping the research objectives and the targeted participants in mind.

Several factors were considered including early intervention, environmental factors, integrated therapy approach, parent-therapist and patient-professional condition, evidence-based practice, therapy frequency, family awareness, and therapy settings. Two separate questionnaires were used to gather data from parents and therapists, with a total of 14 questions for therapists and a combination of closed-ended and open-ended questions for parents. Attached in Appendix 1.

The closed-ended questions provided insights into parents' perspectives on different aspects of speech therapy. The percentages of responses to each question helped understand the parents' thoughts and experiences. Topics covered in the questionnaire included child-SALT relation, parent-SALT relationship, home-based therapy, environmental factors, integrated therapy approach, therapy settings, need-based therapy, and outcome assessment.

2.2. Participants

A total of 36 participants were involved in the study. Twelve were speech therapists providing therapy to hearing-impaired children and adults, while the remaining 24 were parents of hearing-impaired children who had received therapy from these therapists for at least one year. Out of the 24 parents, 14 children used hearing aids for moderate to severe hearing loss, and the remaining 10 were cochlear implant patients.

Therapists were included based on their experience in providing speech therapy to hearing-impaired children, with a range of 3 to 25 years of work

experience. Although (3 to 25 years) long range of experience variation was chosen to get varieties of therapy implementation. Parents were included if their child was a maximum of 10 years old, had received therapy for at least one year, and were regular patients of the participating therapists.

2.3. 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 can bring changes to implementing therapy and its outcomes; that is why these factors were also considered.

2.4. Data Collection Procedures

Semi-structured questionnaires were utilized to collect data. Additionally, therapy sessions, settings, places, and atmosphere were observed for at least one week to ensure transparency in participants' responses.

2.5. Data analysis

Descriptive statistical analysis was conducted using SPSS V-23. Thematic analysis was employed to extract views from parents and therapists. Closed-ended questions were analyzed using descriptive statistics, while thematic analysis was applied to open-ended questions. Data was analyzed based on factors derived from the literature review, including influencing factors and ancillary aspects such as barriers and advice. Participants' responses were transcribed, cross-checked for intra-judge reliability, and analyzed using small tables and histograms. Ancillary issues were also analyzed separately. Qualitative data analysis aimed to explore the implementation of speech and language therapy, identify gaps between parents' and therapists' views, uncover barriers, and elicit suggestions. By addressing identified shortcomings, this research seeks to enhance therapy quality, and accountability, and raise awareness among therapists and authorities about the pragmatic approach.

3. Findings

3.1. The analysis of the parents' views

Data were collected from 24 parents of hearing-impaired children in Bangladesh to understand their views on speech therapy. The parents consisted of 10 parents of children with cochlear implants and 14 parents of children using hearing aids. The mean age of the children was below ten years, and they had been receiving therapy for at least one year from various organizations.

Table 1
Demographic Information (N=24)

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

The parents' perspectives on different topics, such as the child-SALT relationship, parent-SALT relationship, home-based therapy, environmental factors, integrated therapy approach, therapy setting, need-based therapy, and outcome assessment are measured.

Regarding the child-SALT relationship, 62.5% of the parents reported that children happily accept therapy in most cases, but 37.5% disagreed. For the parent-SALT relationship, 25% of the therapists provided an opportunity for parents to observe therapy sessions, and 45.83% included parents or caregivers in the therapy sessions. In terms of home-based therapy, 75% of the therapists assigned responsibilities to parents of hearing-impaired children at home, and 12.5% visited children's homes to verify the actual condition of the child and their family.

When it comes to considering environmental factors, 29.75% of parents reported positively whereas 70% provided negative feedback on designing therapy for a hearing-impaired child by taking into account their surroundings. However, form parents view only 8.33% of therapists planned speech therapy in consultation with other therapists if the child needed additional therapies, and 91.67% of therapists had no facilities for other therapies apart from speech therapy.

The parents' opinions on the suitability of therapy settings varied. 62.5% of parents believed that the interior decoration of the therapy room was suitable for hearing-impaired children. In terms of need-based therapy, 54.17% of parents reported redesigning the therapy approach based on the changing needs or opportunities of the child over time. Regarding outcome assessment, only 16.67% of therapists used a scale to assess the level of language acquisition in hearing-impaired children after a specific period.

Thematic analysis of the open-ended questions revealed two main themes: barriers and suggestions. Barriers, that parents refer to as obstacles to improving positive therapy outcomes and the factors they suggest can bring improvement are mentioned, are considered as barriers and suggestions. Under the theme of barriers, three subthemes were identified: time duration of each session, frequency of therapy, and cost; which are summarized in Table 2.

Table 2
Themes and subthemes of Barriers; Parents' view

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)

Note: T = theme, ST = subtheme

Parents expressed concerns about the allocated time for therapy sessions, with 30 or 45 minutes being deemed insufficient. They also highlighted the infrequency of therapy sessions, with some parents receiving therapy only once every 15 days or even once a month. Cost was another significant barrier mentioned by parents, including the high price of hearing aids, maintenance costs, and the expense of speech therapy sessions.

Regarding suggestions, two subthemes were identified: sincerity and training facilities. Parents emphasized the importance of therapists showing sincerity and a cordial approach towards hearing-impaired children to enhance their engagement and regular attendance. They also expressed a desire for more comprehensive training for themselves to support their child's language development and communication skills; summarized in Table 3.

Table 3
Themes and subthemes of suggestions; parents view

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

Note: T = theme, ST = subtheme.

These findings indicate that realistic factors create barriers to the effective implementation of speech therapy in Bangladesh for children with hearing impairment. Parents' suggestions provide valuable insights into improving the quality of speech therapy, emphasizing the importance of sincerity and the provision of training facilities.

3.2. Therapist View

In this section, the therapists' views on various aspects of pragmatic speech and language therapy are presented. The results are based on the responses provided by the therapists to a set of questions attached in Appendix 1.

The therapists' perspectives on different topics, such as the child-SALT relationship, parent-SALT relationship, home-based therapy, environmental factors, integrated therapy approach, therapy setting, need-based therapy, and outcome assessment are measured. Regarding the child-SALT relationship, 87.5% of the therapists reported that children happily accept therapy in most cases, while none of them disagreed with this statement. For the parent-SALT relationship, 79.17% of the therapists provided an opportunity for parents to observe therapy sessions, and 70.83% included parents or caregivers in the therapy sessions. In terms of home-based therapy, 91.67% of the therapists assigned responsibilities to parents of hearing-impaired children at home, and 33.33% visited children's homes to verify the actual condition of the child and their families.

When it comes to considering environmental factors, all therapists (100%) reported designing therapy for a hearing-impaired child by taking into account their surroundings. However, only 20.83% of therapists planned speech therapy in consultation with other therapists if the child needed additional therapies, and 12.5% of therapists had facilities for other therapies apart from speech therapy.

The therapists' opinions on the suitability of therapy settings varied. 87.5% of therapists believed that the interior decoration of the therapy room was suitable for hearing-impaired children. In terms of need-based therapy, all therapists (100%) reported redesigning the therapy approach based on the changing needs or opportunities of the child over time. Regarding outcome assessment, only 8.33% of therapists used a scale to assess the level of language acquisition in hearing-impaired children after a specific period.

Thematic analysis was conducted on open-ended questions to explore the detailed perspectives, expectations, and barriers faced by the therapists. Two main themes emerged from the analysis: barriers and suggestions. The subthemes under the theme of barriers included early intervention, continuity, quality of hearing aids, and awareness.

Table 4
Themes and Subthemes of Barriers; Therapists' view

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)
ST4	Awareness	(Northern et al., 2002)

Note: T = theme, ST = subtheme

Under the subtheme of early intervention, therapists emphasized the importance of timely intervention for hearing-impaired children, as delayed therapy negatively affects their language acquisition. The subtheme of continuity highlighted the significance of consistent therapy, with therapists noting that many children in Bangladesh become irregular or drop out of therapy after a short period. The quality of hearing aids was identified as a barrier, as parents often face difficulties in obtaining appropriate hearing aids due to scams and financial constraints. Lack of awareness about the benefits of speech therapy was also identified as a barrier.

The theme of suggestions was subdivided into parents' training, training and research facilities, and collaboration of professionals.

Table 5
Themes and subthemes of suggestions; Therapists' view

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)

Note: T = theme, ST = subtheme

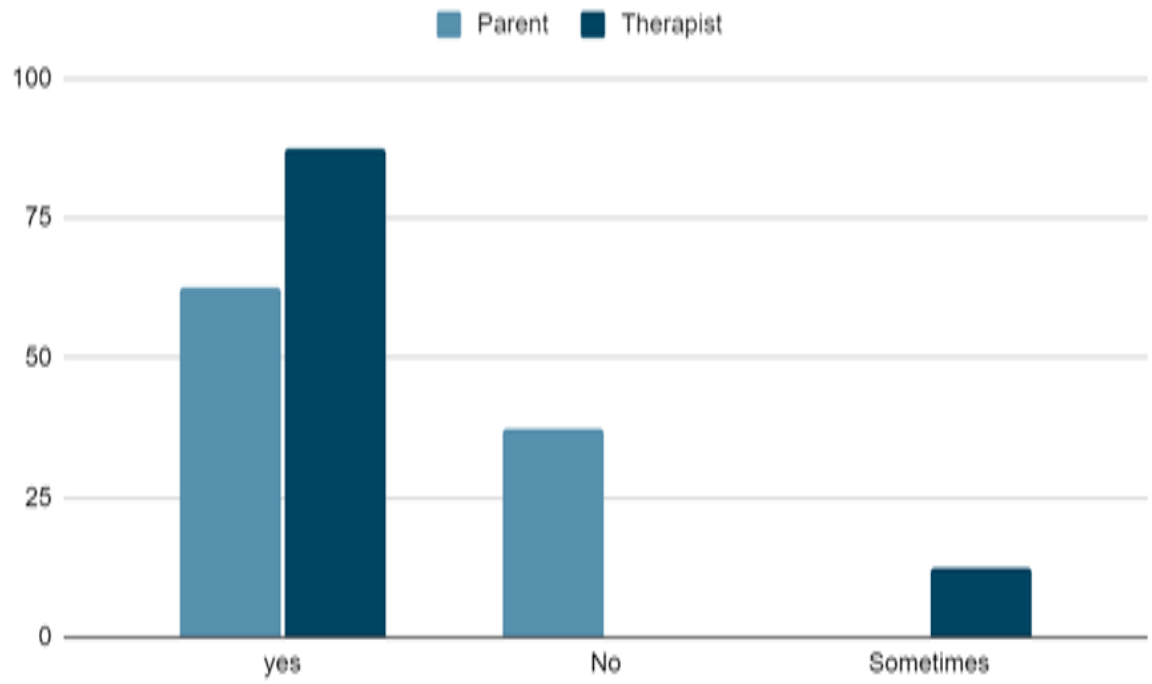
In terms of suggestions, therapists recommended providing training to parents to enhance their skills in supporting their children's language learning. They emphasized the need for improved training and research facilities to enhance professionals' capabilities. Collaborative working opportunities among professionals were also suggested to provide comprehensive and coordinated care.

Overall, the therapists' views highlighted the importance of early intervention, continuity of therapy, quality hearing aids, and raising awareness. They also emphasized the significance of parents' training, access to adequate research and training facilities, and collaboration among professionals to improve the quality of speech therapy in Bangladesh (Tables 5 and 6).

3.3. Comparison of Parents' and Therapists' Views

3.3.1. Client-Therapist Relationship

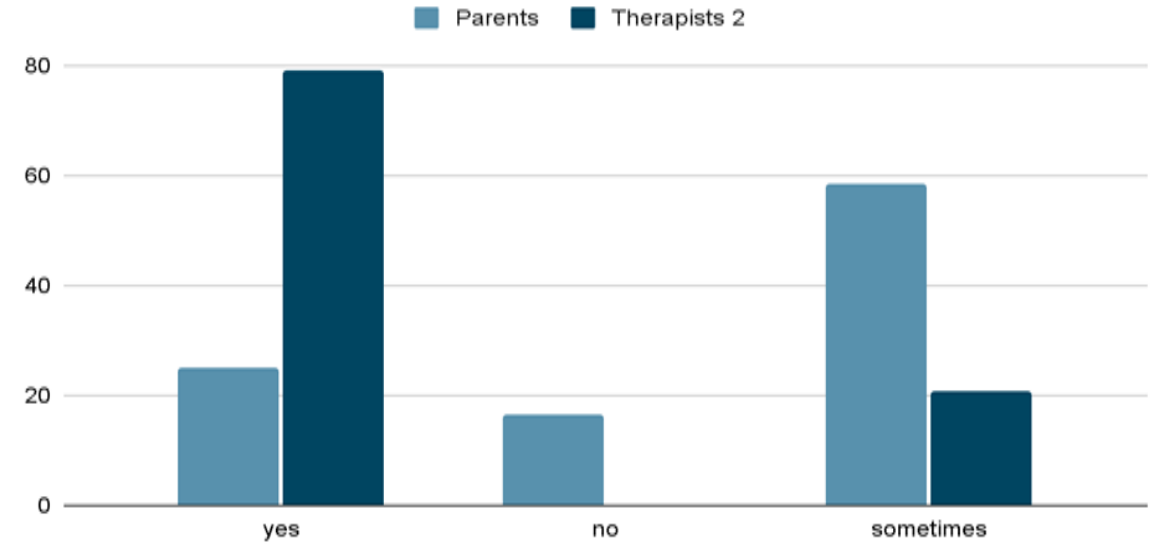
The nature of the client-therapist relationship was explored by asking parents and therapists about the willingness of children with hearing impairments to participate in therapy. The responses differed significantly between the two groups. Graph 1 shows that 62.5% of parents and approximately 87.5% of therapists responded positively (yes), while none of the therapists chose the answer "no" at all, and 37.5% of parents responded negatively (no).



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

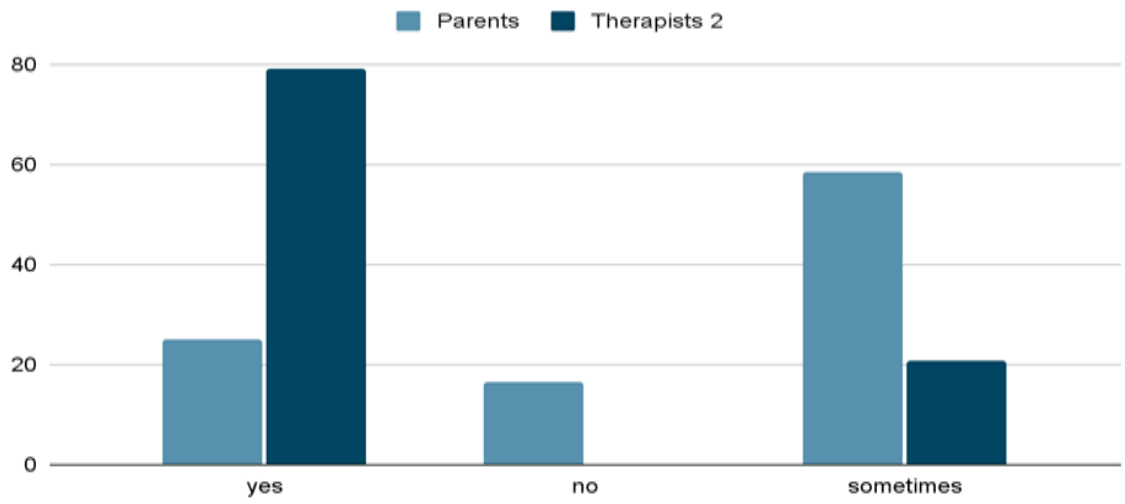
3.3.2. Parent-Therapist Relationship

To understand the parent-therapist relationship, questions were asked to both parents and therapists regarding the opportunity for parents to observe therapy sessions and the inclusion of parents in therapy sessions. Graph 2 reveals that 79.17% of therapists and 25% of parents responded positively (yes) to the opportunity to observe therapy sessions, while 20.83% of therapists and 58.33% of parents responded sometimes. In contrast, 16.675% of parents responded negatively ("no").



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

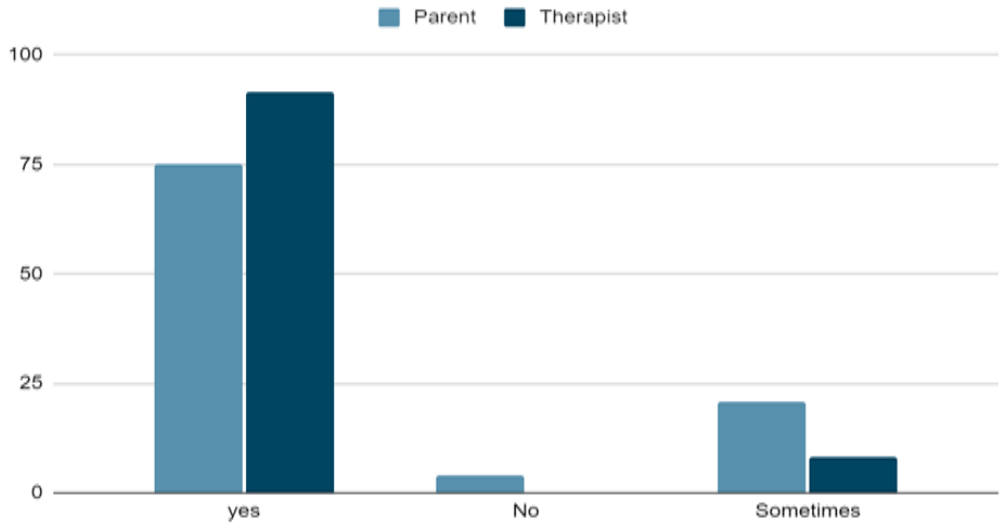
For the inclusion of parents in therapy sessions, graph 3 shows that 45.83% of parents and approximately 20.83% of therapists responded positively (yes), 33.33% of parents and 8.33% of therapists responded negatively (no), and 20.83% of parents and around 70.83% of therapists responded sometimes.



Graph 3. Parent-Therapist relationship (question 9 & question 6)

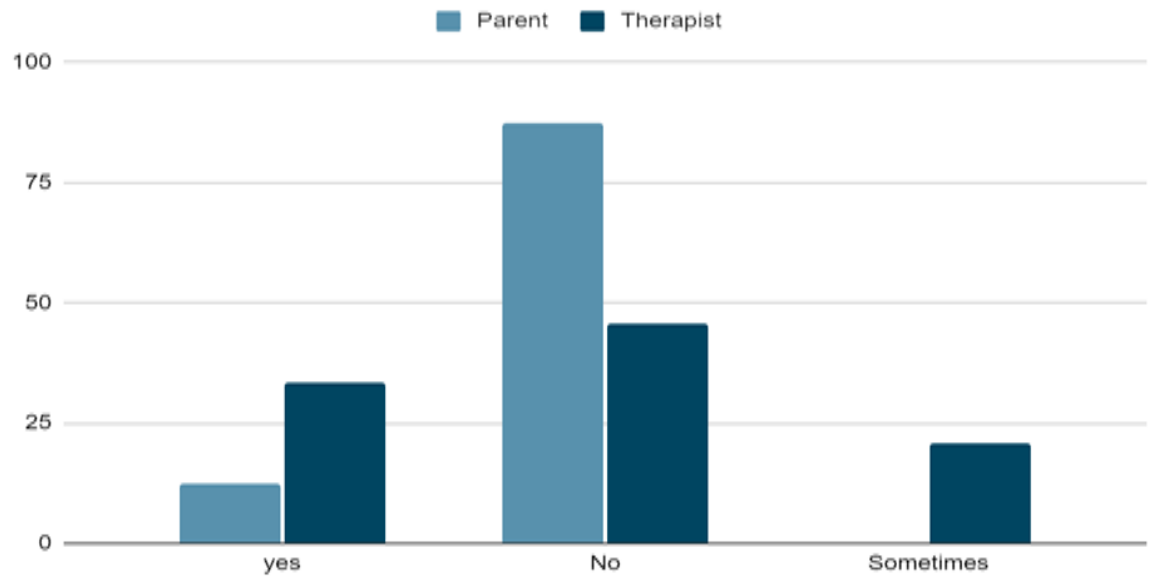
3.3.3. Home-based Therapy

To assess the implementation of home-based therapy, questions were asked to both parents and therapists regarding the provision of tasks for parents to do at home and therapists visiting clients' homes. Graph 4 illustrates that 75% of parents and approximately 91.67% of therapists responded positively (yes) to giving parents advice on tasks at home. In comparison, 20.83% of parents and about 8.83% of therapists responded sometimes, and 4.17% of parents responded negatively (no).



Graph 4. Home-based therapy (question 10 & question 7)

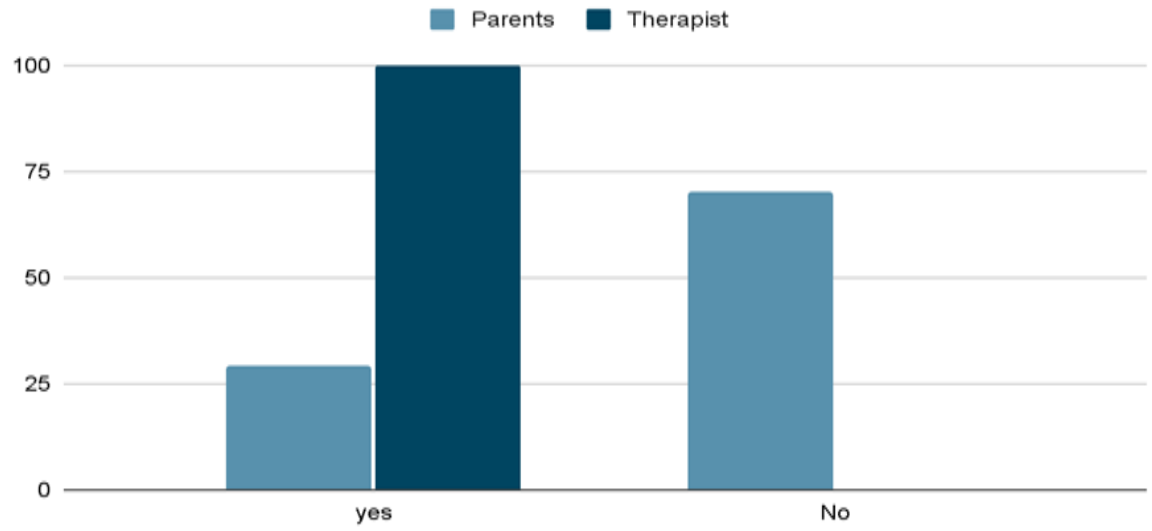
Regarding therapists visiting clients' homes, graph 5 shows that 12.5% of parents and approximately 33.33% of therapists responded positively (yes), 87.5% of parents and 45.83% of therapists responded negatively (no), and 20.83% of therapists responded sometimes.



Graph 5. Home-based therapy (question 11 & question 8)

3.3.4. Environmental Factors

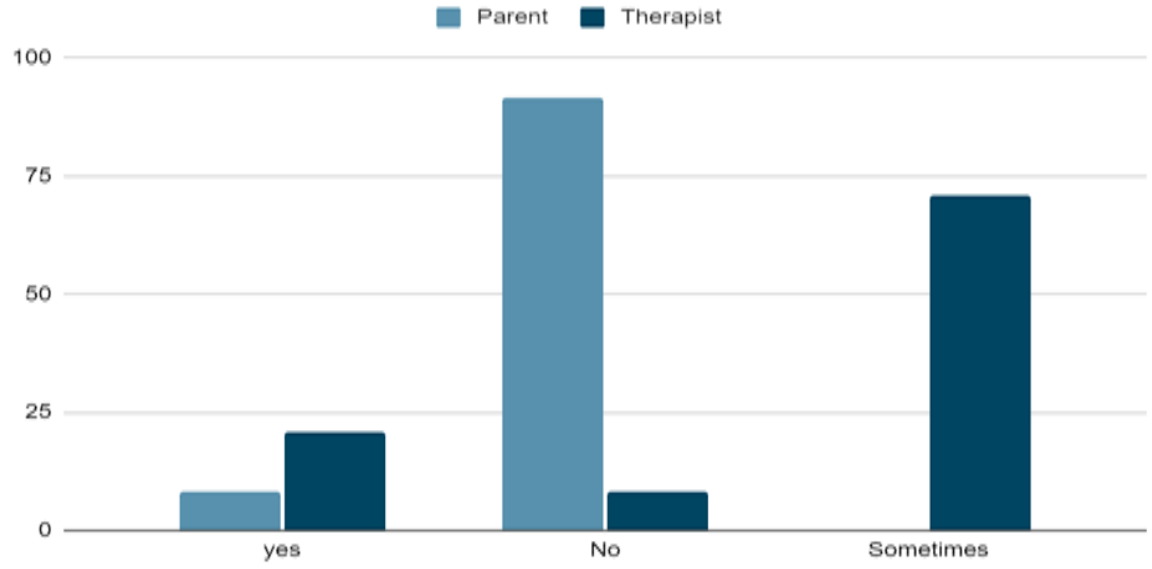
The consideration of environmental factors in therapy planning was examined by asking parents and therapists about whether therapy is planned considering the clients' surroundings. Graph 6 indicates that 29.15% of parents and 100% of therapists responded positively (yes), while 70.05% of parents responded negatively (no).



Graph 6. Environmental factors (question 12 & question 9)

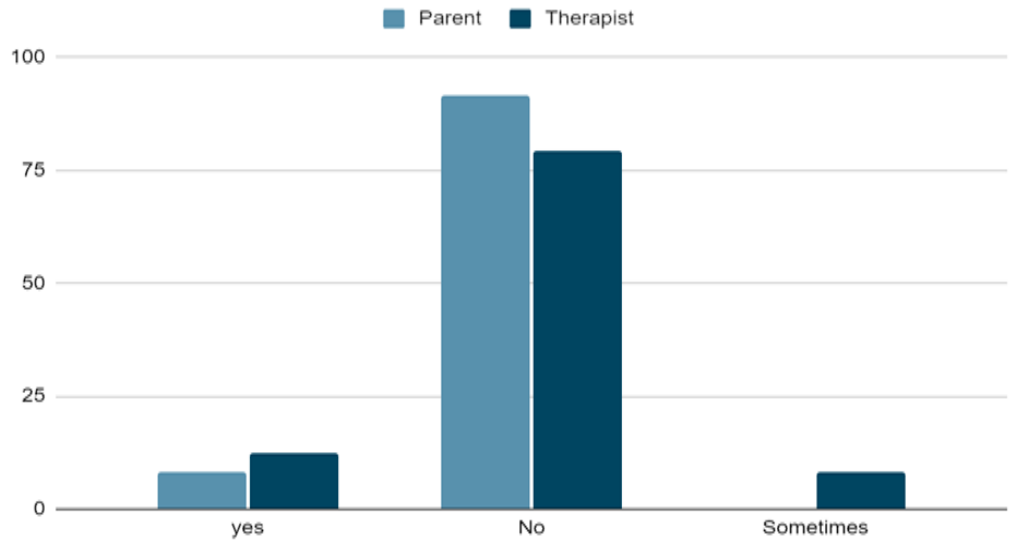
3.3.5. Integrated Therapy Approach

To understand the implementation of an integrated therapy approach, questions were asked to parents and therapists regarding collaboration with other therapists and the availability of other therapies. Graph 7 shows that 8.33% of parents and approximately 20.83% of therapists responded positively (yes) to collaborating with other therapists, while 91.67% of parents and 8.33% of therapists responded negatively (no), and 70% of therapists responded sometimes.



Graph 7. Integrated Therapy Approach (question 13 & question 10)

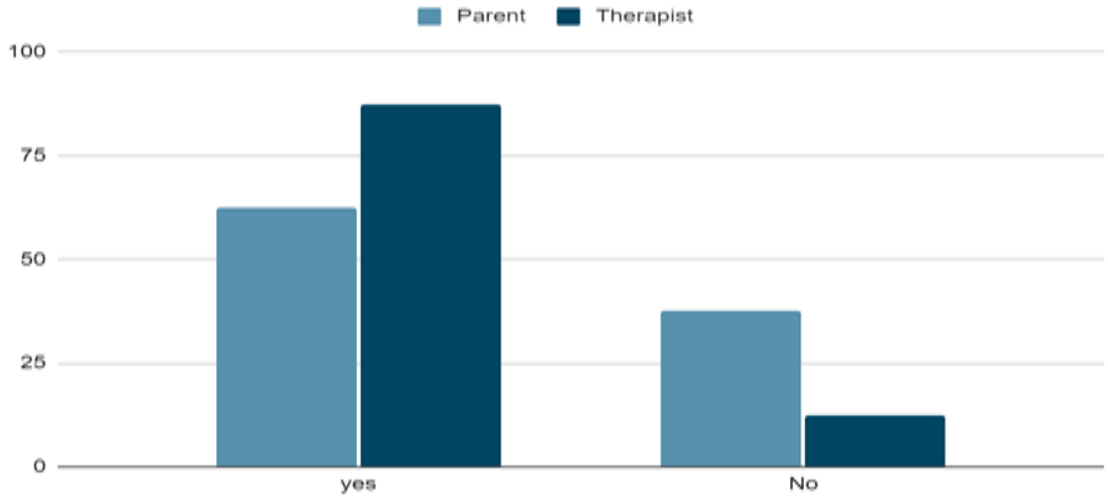
Regarding the availability of other therapies, graph 8 reveals that 8.33% of parents and around 12.5% of therapists responded positively (yes), while 91.67% of parents and 79.17% of therapists responded negatively (no), and 8.33% of therapists responded sometimes.



Graph 8. Integrated Therapy Approach (question 14 & question 11)

3.3.6. Therapy Setting

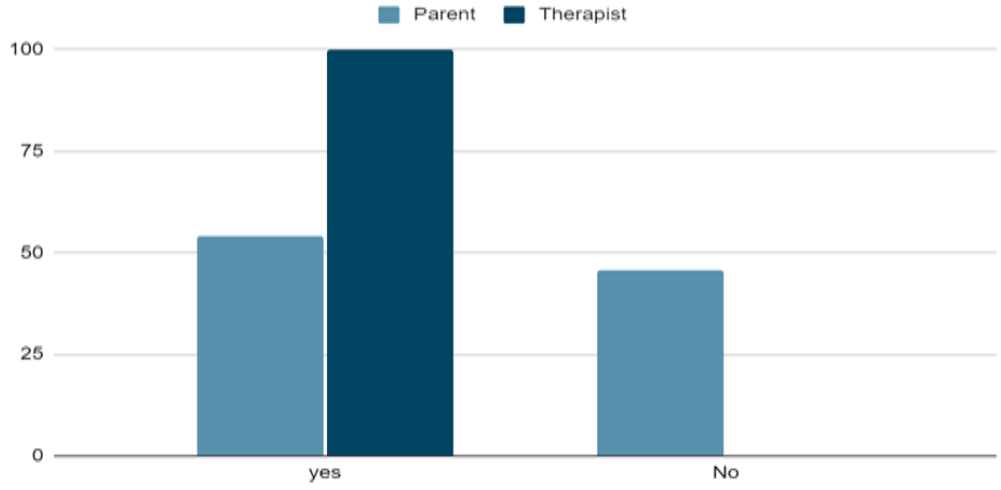
The appropriateness of the therapy setting was assessed by asking parents and therapists about the atmosphere and environment of the room where speech therapy is conducted. Graph 9 shows that 62.5% of parents and approximately.



Graph 9. Therapy sating (question 15 & question 12)

3.3.7. Need-based Therapy

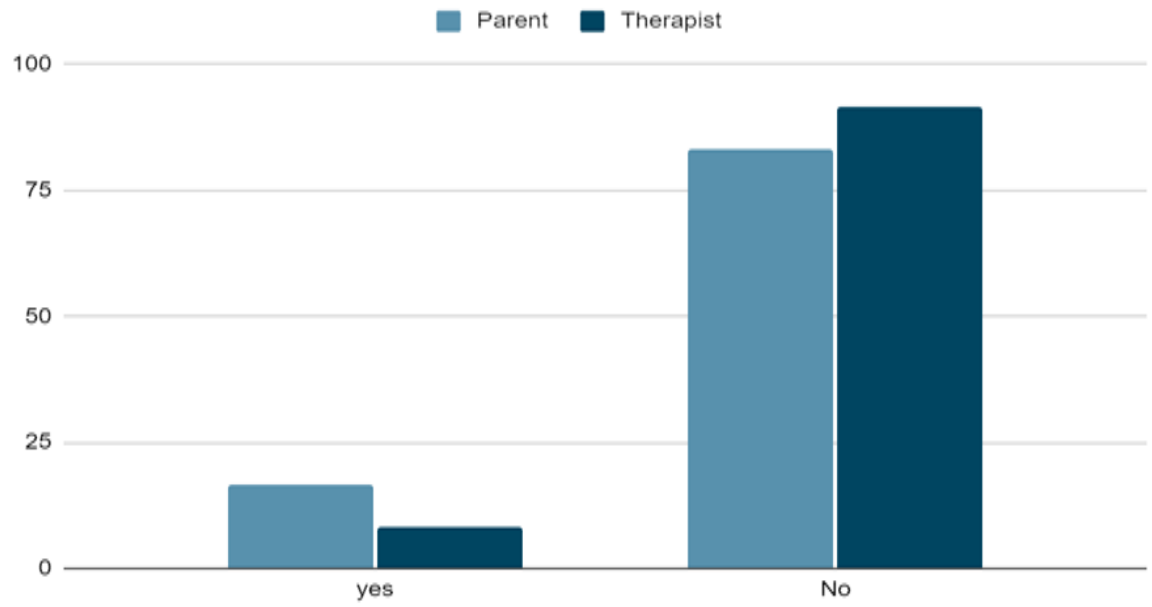
The flexibility of therapy approaches based on changing needs was examined. Graph 10 reveals that 100% of therapists and 54.17% of parents responded positively to the question of therapists adjusting therapy based on changing behavior or learning difficulties. Conversely, 45.83% of parents responded negatively.



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

3.3.8. Outcome Assessment

The use of assessment scales to measure language acquisition was investigated. Graph 11 shows that 8.33% of parents and approximately 8.33% of therapists responded positively, while 91.67% of parents and 91.67% of therapists responded negatively.



Graph 11. Outcome-assessment (question 17 & question 14)

4. Discussion and conclusion

This study aimed to investigate the implementation of speech and language therapy for children with hearing impairment in the Bangladeshi context. The research questions focused on exploring the views of parents and therapists regarding the implementation of therapy according to the child's needs and identifying gaps between their perspectives. Descriptive statistical analysis and thematic analysis were employed to answer these research questions, utilizing questionnaires developed based on factors derived from the literature review.

4.1. Gaps between parents' and therapists' views

The analysis revealed discrepancies between the views of parents and therapists, highlighting the challenges and opportunities in speech and language therapy for children with hearing impairment in Bangladesh. However, some gaps were found among parents' and therapists' views from the result. In this section, gaps are being cross-sectioned to grasp the extract of actual findings.

4.1.1. Client-Therapist Interaction

This study finds that the relationship between patients and therapists was found to significantly impact the outcomes of therapeutic interventions, as was also found in Kelley et al. (2014) and Judisch (2017). While a high percentage of therapists (87.2%) believed that clients willingly engaged in

therapy, 37.5% of parents expressed that their children were not happy to participate. This discrepancy indicates a lack of awareness among therapists regarding the gap between themselves and their clients. Without a good client-therapist relationship, children may not cooperate with therapy, leading to irregular attendance or dropout.

4.1.2. Parent-Therapist Relationship

Collaboration between family members and therapists is crucial to achieving the goals of therapy (Broggi & Sabatelli, 2010; Listen, Learn, and Talk, 2005). However, there were contrasting responses between therapists and parents regarding opportunities to observe therapy sessions. While 79.17% of therapists claimed to provide such opportunities, only 25% of parents agreed. Similarly, when asked about including parents in therapy sessions, 45.83% of parents agreed compared to only 20.83% of therapists. These findings suggest a lack of consistency in allowing parental involvement in therapy sessions.

4.1.3. Home-based Therapy

Home-based therapy is essential for effective intervention and involves guiding parents in implementing therapeutic tasks at home (Holzinger et al., 2011). The majority of participants indicated that therapists suggest tasks for parents to do at home. However, responses also highlighted inconsistencies in providing home-based counseling, with some therapists suggesting tasks inconsistently and few therapists visiting clients' homes.

4.1.4. Environmental Factors

Consideration of environmental factors is important in designing therapy for children with hearing impairment (McLeod, 2006). While all therapists claimed to consider these factors, only 29.25% of parents believed therapists took them into account. This disparity indicates a significant gap between the perceptions of therapists and parents.

4.1.5. Integrated Therapy Approach

Integrated therapy involving collaboration among professionals is considered beneficial for children with special needs (McWilliam & Young, 1996; Barnes & Turner, 2001). However, the majority of parents (91.67%) and therapists (8.33%) disagreed on the availability of integrated therapy facilities in Bangladesh. This inconsistency indicates a lack of integrated therapy services in the context.

4.1.6. Therapy Setting

The therapy setting plays a crucial role in facilitating attention and learning for children with hearing impairment (Listen, Learn, and Talk, 2005). While most therapists (87.5%) and parents (62.5%) considered the therapy setting to be adequate, a significant proportion of parents (37.5%) expressed the need for improvement.

4.1.7. Need-based Therapy

Need-based therapy, which considers individual patient care, is crucial for effective intervention (Dodd, 2007). Responses showed mixed opinions regarding whether therapists change the therapy approach based on the child's changing behavior. While the majority of parents (54.17%) and all therapists (100%) agreed.

4.2. Barriers and Suggestions by the Participants

4.2.1. Barriers

4.2.1.1. Duration of Each Session

Parents expressed dissatisfaction with the duration of therapy sessions for hearing-impaired children, typically lasting 30 to 45 minutes per patient. The therapists are required to perform multiple tasks during each session, including screening, assessment, task assignments, and counseling. The limited time frame makes it challenging for therapists to address all these tasks effectively, leading to reduced quality of work and potential negative impacts on therapists' and patients' mental health.

4.2.1.2. Frequency of Therapy

Research has shown that shorter but more frequent daily therapy sessions yield better results for cochlear implanted children. However, the availability of therapy centers and therapists in Bangladesh is limited. The insufficient number of therapists compared to the demand results in inadequate therapy sessions allocated to each patient. This lack of frequency poses a barrier to language acquisition and continuity of therapy for parents.

4.2.1.3. Cost

The cost of treatment for hearing-impaired children is high, with hearing aids being mostly unaffordable for middle-class families. Additionally, the maintenance of hearing aids is costly, and the expense of each speech therapy session is also high. While the government often covers the cost of cochlear implants, post-surgery treatment remains expensive. Although a few hospitals are providing low-cost speech therapy, obtaining appointments is challenging. These financial barriers hinder access to treatment for most middle-class parents.

4.2.1.4. Early Intervention

Early intervention plays a crucial role in language acquisition and overall development for young hearing-impaired children. However, parents in Bangladesh often bring their children for assessment at a late age due to a lack of knowledge and concern. This delay leads to difficulties in accessing appropriate interventions, such as hearing tests, acquiring hearing aids or cochlear implants, and starting therapy. As a result, most hearing-impaired children in Bangladesh begin therapy after the recommended early intervention period, which may impede the effectiveness of speech and language therapy.

4.2.1.5. Continuity

Several reasons contribute to the discontinuation of therapy by some children, including family issues, lack of knowledge, apathy towards positive effects, and information gaps. Parents may be unaware that proper intervention can help their children lead a normal life. Furthermore, the lack of facilities, including limited therapy centers, a poor communication system, insufficient awareness workshops, and expensive treatment, hinders continuity. The high price of hearing aids also poses a challenge in maintaining therapy in the Bangladeshi context.

4.2.1.6. Quality of Hearing Aid

Therapists expressed concerns about the quality and configuration of hearing aids used by hearing-impaired children in Bangladesh. They noted high maintenance requirements and poor durability of the hearing aids. The mismatch between the configuration of hearing aids and patients' needs, along with concerns about the actual gain and price of hearing aids, further exacerbates the issues faced by therapists and children.

4.2.1.7. Awareness

Participants highlighted the lack of awareness among parents and the government regarding the importance of speech and language therapy for children with hearing impairment. Family members need to be dedicated to continuing treatment and follow therapists' instructions, including regular use of hearing aids. Insufficient therapy centers, lack of equipment, mismanagement, and noisy environments in therapy centers contribute to the lack of administrative awareness. Moreover, the lack of research and training facilities hinders proper intervention for hearing-impaired children in Bangladesh.

4.2.2. Suggestions

In this section, we discuss the suggestions provided by parents and therapists regarding the implementation of speech and language therapy for children with hearing impairment in the context of Bangladesh. The suggestions highlight key areas of improvement and address various factors that contribute to the effectiveness of therapy.

4.2.2.1. Sincerity

Parents emphasized the importance of therapists being sincere in their interactions with clients. They stressed the need for therapists to be sensitive and patient, considering that the clients are children suffering from hearing impairment.

4.2.2.2. Training Facility

Both parents and therapists expressed the significance of training opportunities to enhance their skills and stay up-to-date with advancements in the field. Therapist groups mentioned that they have limited access to government-sponsored training, while parents bear the majority of training expenses. They unanimously agreed that training opportunities should be made available to both parents and therapists.

4.2.2.3. Research Facility

Research opportunities were highlighted as a means to improve the quality of work for therapists. Participants from the therapist group emphasized the importance of providing research opportunities and incentives to encourage therapists to engage in research and its implementation. Research facilities were seen as instrumental in personalizing speech therapy and enhancing its effectiveness.

4.2.2.4. Collaboration of Professionals

Collaboration among specialists and professionals from different domains was identified as crucial for proper assessment and treatment planning. Integrated therapy, which combines different techniques tailored to each client's unique needs, was seen as beneficial. However, the lack of intervention centers in Bangladesh that offer integrated therapy poses challenges for patients, who have to visit multiple professionals separately. This not only consumes more resources but also hampers treatment coherence. Participants stressed the importance of collaboration among professionals to ensure the effective implementation of speech and language therapy for children with hearing impairment in the Bangladeshi context.

4.3. Scenario of Speech and Language Therapy for Children with Hearing Impairment in Bangladesh

The approach to speech and language therapy varies depending on the type and severity of hearing impairment. Therapists choose from various therapy approaches, such as AVT, AT, Auditory-Aural, or Oral-Aural, based on the specific features and types of hearing impairment. The selection of therapy approach also considers factors like the child's age and the reasons behind their hearing impairment. This pragmatic approach aims to prioritize the patient's practical needs, identifying and addressing each issue comprehensively for optimal outcomes.

To understand the current scenario of speech and language therapy for children with hearing impairment in Bangladesh, parents and therapists were surveyed. Their responses shed light on various aspects of therapy implementation and revealed certain challenges and recommendations.

The relationship between children and speech therapists was generally perceived positively, with a significant portion of therapists (87.2%) and parents (62.5%) believing that children willingly participate in therapy. However, some parents (37.5%) expressed that their children do not feel happy during therapy, indicating a gap between therapists and clients that needs attention.

Regarding parent-therapist relationships, responses regarding the ability of parents to observe therapy sessions were contradictory. While a majority of therapists (79.17%) confirmed that parents can observe sessions, a smaller percentage of parents (25%) agreed. Similarly, when asked about including parents in each session, therapists showed uncertainty (70.83%), whereas a considerable number of parents (45%) agreed that they get opportunities to be part of therapy sessions. These responses suggest an ambiguous understanding of the parent-therapist relationship.

The practice of assigning tasks to parents for home-based therapy was found to be common, with a high percentage of both therapists (91.67%) and parents (75%) acknowledging it. However, home visits by therapists to observe the home environment were infrequent, as indicated by negative responses from a majority of parents (87.5%) and therapists (45.83%).

The consideration of environmental factors in therapy planning showed contrasting results. While all therapists (100%) affirmed considering environmental factors, a significant percentage of parents (70.05%) disagreed. This highlights the ambiguous practice of considering environmental factors in therapy planning for children with hearing impairment in Bangladesh.

Integrated therapy, involving collaboration with other therapists and the availability of multiple therapies in a single center, faced challenges. Therapists' responses indicated uncertainty (70.83%) or occasional consultation with other therapists (20.83%), while a majority of parents (91.67%) reported a lack of therapist collaboration and integrated therapy facilities. This suggests a poor situation for implementing integrated therapy in Bangladesh.

Satisfaction with therapy settings was generally high among therapists (87.5%) and parents (62.5%), but a notable percentage of parents (37.5%) expressed dissatisfaction, emphasizing the need for further improvement.

Regarding need-based therapy, therapists were found to adapt their approach based on the changing behavior of children, with all therapists (100%) affirming this practice. However, a significant number of parents (45.83%) indicated dissatisfaction, suggesting room for improvement in implementing need-based therapy.

The use of scales to assess language acquisition levels of children with hearing impairment was limited in the Bangladeshi context. A majority of participants, both therapists (91.67%) and parents (83.33%), reported the absence of scale usage. This highlights the need for incorporating assessment scales to measure the progress of patients effectively.

However, both therapists and parents provided valuable insights into the barriers and suggestions for improving the implementation of speech and language therapy for children with hearing impairment in Bangladesh. Key areas for improvement include therapy session duration, frequency, cost, early intervention, treatment continuity, hearing aid quality, and overall awareness. Additionally, factors such as sincerity, training and research facilities, and collaboration among professionals were identified as crucial for achieving better outcomes and meeting the needs of clients effectively.

5. Conclusion

In conclusion, this study aimed to determine the optimal approach to implementing speech and language therapy for children with hearing impairment in Bangladesh and raise awareness among therapists about relevant factors. The research proposed a pragmatic, client-centered therapy model that considers individual circumstances. The analysis of collected data revealed that the identified factors are not adequately implemented, and the current scenarios in Bangladesh are ambiguous. By addressing these shortcomings, speech and language therapy can have a positive impact on

the future lives of hearing-impaired children, enabling their integration into society.

Previous research by Dornan et al. (2007) and Islam (2022) demonstrated the importance and benefits of proper intervention and speech and language therapy for hearing-impaired children. Building on this, the present study aimed to improve the quality of therapy in the Bangladeshi context, specifically for Bengali-speaking hearing-impaired children. It aimed to bridge the gap between expectations and reality and provide insights to therapists and authorities.

The study acknowledges limitations, such as the limited sample size and data collected only from Dhaka city. The COVID-19 pandemic further affected data collection and therapy observation. Future studies should consider a representative sample from diverse backgrounds, including various types of hearing impairment, age groups, genders, and socio-economic backgrounds across all cities in Bangladesh. This would provide a comprehensive understanding of speech and language therapy implementation and help therapists and authorities implement a client-centered approach to achieve the best outcomes for children with hearing impairment.

Overall, this research contributes to raising awareness, revealing actual therapy scenarios, and highlighting the necessary steps for improving speech and language therapy in Bangladesh. By addressing the limitations and recommendations, therapists and authorities can better understand the expectations of clients and work towards closing the gap between therapy implementation and desired outcomes.

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Appendices

Table 2

Parents' view on pragmatic speech and language therapy

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

	13	Does your current therapist consult with another therapist if your child needs any therapy other than speech therapy?	8.33	91.67	0
Integrated therapy approach	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 child has learned or how much progress has been made?	16.67	83.33	0

Table 4
Therapists' view on pragmatic speech and language therapy

Topic	**Q.N**	**Q**	**yes%**	**No%**	**Sometimes%**
Child-SALT Relation	4	Do children happily accept therapy in most cases?	87.5	0	12.5
Parent- SALT relationship	5	Are you provide an opportunity to observe therapy sessions for Parents?	79.17	0	20.83
	6	Do you include parents or caregivers in the therapy session?	20.83	8.333	70.83
Homebased therapy	7	Do you assign responsibilities to parents of hearing-impaired children at home?	91.67	0	8.33
	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

	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?	20.83	8.33	70.83
Integrated therapy approach	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 child's 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