

**Factors influencing telepractice in Speech and Language Therapy and Audiology during
COVID-19 pandemic in Bangladesh**

Submitted By

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Supervisor's Statement

As supervisor of Nabagata Das's MSc thesis work, I certify that I consider his thesis "**Factors influencing telepractice in Speech and Language Therapy and Audiology during COVID-19 pandemic in Bangladesh**" to be suitable for examination.

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Declaration Form

- This work has not previously been accepted in substance for any degree and is not concurrently submitted in candidature for any degree.
- This dissertation is the result of my own independent work/investigation, except where otherwise stated. Other sources are acknowledged by giving explicit references. A Bibliography is appended.

I confirm that if anything identified in my work that I have done plagiarism or any form of cheating that will directly awarded me fail and I am subject to disciplinary actions of authority.

- I confirm that the electronic copy is identical to the bound copy of the Thesis.

Signature:.....

Name:.....

Date:

We the undersigned certify that we have carefully read and recommended to the Faculty of Medicine, University of Dhaka, for acceptance of this thesis entitled, **“Factors influencing telepractice in Speech and Language Therapy and Audiology during COVID-19 pandemic in Bangladesh”** Submitted by Nabagata Das, for the partial fulfillment of the requirements for the degree of M. Sc. In Rehabilitation Science.

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Abstract

Purpose: This study was conducted to find out the factors that influence telepractice in Speech and Language Therapy during Covid -19 pandemic in Bangladesh.

Aim: To identify the influencing factors of telepractice and it's potential as a service delivery method in Speech and Language Therapy practice during Covid -19 pandemic in Bangladesh.

Methods: Mixed Method Research Design (Convergent Parallel Design) in which simultaneous collection of quantitative and qualitative data has been collected from clinicians and parents of children with special needs respectively about telepractice and these multiple data sources has been combined and compared for interpretation. Quantitative data collected from clinicians were analyzed using descriptive analysis with SPSS, and qualitative data was reviewed and analyzed using content analysis.

Sampling: Purposive sampling was used in accordance of inclusion and exclusion criteria.

Data collection: A structured questionnaire containing 23 questions and 5 sub questions was formulated after reviewing previous studies conducted in other countries to collect data from Speech and Language Therapists and Audiologists. The questionnaire was sent via google forms using whatsapp, facebook messenger and emails. 63 clinicians responded to the questionnaire. To collect data from parents of children with special needs, a semi structured questionnaire was developed and Zoom video conferencing software was used to interview them with the semi structured questionnaire.

Results: In the quantitative part of the study, out of 63 participant clinicians, 48 reported to have provided telepractice sessions during covid-19 pandemic. Most of the participants (20.45%) who did not provide telepractice reported that they thought the effectiveness of telepractice was questionable. Majority of the clinicians who provided telepractice had an experience of less than 3 months (39.6%) and mostly considered patients' communication ability (40.00%) while selecting patients for telepractice. 39.58% of the clinicians reported to have somewhat uncomfortable feelings while providing telepractice service, and 41.67% thought telepractice was not equivalent to face-to-face or standard clinical care. 47.92% of the clinicians believed that telepractice appropriateness depends on clinical population and 75% of them also believe that

telepractice should always be a real-time interaction between clinician and patient. In the qualitative part of the study, 5 themes were identified from the interviews of 7 parents. 6 of the parents were female and only 1 parent was male. Most of the parents had preference for on-site or face-to-face therapy in this study. It was revealed that child's capability to engage in telepractice session depends on child's developmental age, their eye contact and attention, sitting habit and patience, child's interest and their understanding of language.

1.1 Introduction

Innovations in technological advancements have resulted in various forms of telecommunication systems. These telecommunication systems are now being used in the medical sectors also. The significant facility that telecommunication systems provide is enabling medical service providers to provide services to a long distance. Telemedicine or telehealth is the term used to describe diagnostic and treatment services offered online from a distance by medical doctors, nurses, or other health professionals (Mohan, Anjum& Rao, 2017). Globally, speech and language therapy services were generally delivered in-person or face-to-face before the Covid 19 outbreak. According to a survey conducted by American Speech-Language-Hearing Association reported 95% SLPs were solely engaged in face-to-face therapeutic services prior to the pandemic. Social distancing interrupted in-person services, resulting in clients encountering reduced service or total service loss. The disruption of face-to-face therapeutic services has resulted in the deterioration of wellbeing in children with special needs. Studies showed that more severe emotional and behavioral issues (for example, hyperactivity) were observed after the pandemic outbreak in children with neurological disorders rather than a group of children with similar characteristics. Also, other studies reflected that the parents of children with disabilities are usually in higher stress levels than parents of typically developing children and are more prone to mental health problems. It can be assumed that the COVID restrictions may have intensified the parental stress due to the challenges faced in a challenging environment with children with special needs (Hao et al., 2021).

Historically, communication through technology includes email, text messages, and even the telephone, have often been regarded as a difficult way to interpret the true meaning of a message. Still, the emergence of Covid-19 or the Novel coronavirus disease showed the need for physical distancing and subsequently established the necessity of swift change in the Speech and language therapy service delivery model. Speech and Language Therapists (SLTs) required to adopt new professional functional approaches for maintaining social distancing during this pandemic situation (KuvačKraljević et al., 2020). Although the transition from face-to-face services to

telepractice is obvious, it is still unclear how telepractice can compensate for reduced physical proximity (Hao et al., 2021). In this study, the term telepractice is used as it can be used interchangeably with telehealth to describe speech & Language Therapy services delivered through the internet. The concept of using the internet as a means of communication in Speech and Language Therapy is relatively new; which results in a limited number of existing studies. The Pubmed database recently revealed that approximately 82% of all papers published on telepractice were published between 2010 and 2020; where only 1% of was published during the 1990s (KuvačKraljević et al., 2020). In the field of Speech and Language Pathology, currently telepractice is receiving increasing attention due to greater access opportunities for underserved populations and the clients with linguistic and cultural diversity. It also increases the collaboration among multidisciplinary team and saves time and cost of clients. According to various research studies, Speech and Language therapy telepractice service has multiple benefits for patients with a variety of disorders. According to McCue, Fairman & Pramuka (2010), a considerable amount of evidence indicates that telepractice may enhance better quality of care, ultimately enhancing the quality of life of people with disabilities. Telepractice has the prospective to optimize the timing, intensity, and sequencing of intervention, leading to the greatest functional outcome (Winters & Winters, 2004). Favorable response was reported in 25% of the studies after assessing the client's reaction to telepractice (Theodoros 2011).

As telepractice is a relatively new service delivery model, it is crucial to study professionals' attitudes towards telepractice. American Speech and Hearing Association (ASHA) published a survey report in 2002 which was conducted among audiologists and Speech-Language pathologists, revealing 11% of respondents using telepractice as service delivery model and another 43% showed interest in using it in future (Mohan, Anjum& Rao, 2017).

Although the adaptation of telepractice is increasing as a service delivery method, various stakeholders believe differently about telepractice. Even though many studies showed positive results regarding telepractice, several surveys showed that school-based SLTs have doubts about this service delivery model's effectiveness. However, parental perception and satisfaction of telepractice are not well understood worldwide as the studies provided mixed results. It is necessary to explore both clinician and parental views to identify factors that may influence the use of telepractice as a service delivery model in low-resource settings. The therapy effectiveness

and future adaptation of this telepractice service may be affected by these factors which need to be investigated (Lam et al., 2020).

1.2 Justification

The increasing usage of technology was reviewed in a recent study as a feasible option to provide health education and counseling to the various population who requires support. It concluded that to implement best therapeutic practices for children with disability and to support their families with information and counseling; available communication technologies might be well suited (Camden et al. 2019).

World health organization defined telepractice as the delivery of health care services with the help of information and communications technology (ICT). In exceptional settings and situations, telepractice facilitates services, and the ongoing Covid-19 pandemic is definitely such a situation. Speech and Language Therapists (SLTs) required adopting new professional functional approaches to maintain social distancing during this pandemic situation. In contrast, parents of children with developmental delay became solely responsible for their children's care and education due to the coronavirus disease (Covid-19) lockdown. During this COVID-19 situation, children with special needs become more anxious due to social distancing and sudden deviation from daily designed practices. Discontinued professional support and closed special schools contributing to developmental delays due to less language stimulation.

Samadi et al., (2020), stated that telepractice can be a good alternative in future lockdowns and it can be used along with the face-to-face services delivered by speech and language therapists; and this will encourage parents to engage in the child's intervention program.

A successful establishment of telepractice in Bangladesh will require in-depth consideration to identify needs for the service, assessment of the environment, and practitioner preparation, including confidence and competence along with a selection of compatible technologies and accessories, as well as identifying eligible clients for the service. Studies reported that lack of appropriate technical equipment, insufficient independence in service delivery and doubts of the effectiveness of telepractice are the main reasons client refuse telepractice (KuvačKraljević et al., 2020).

Telepractice has not been the research interest in Bangladesh, and the use of this service delivery model is still irregular.

To measure the efficacy of speech and language therapy, whether on-site practices or telepractice, collecting data on the perception of the service's effectiveness from both clinician and parents is essential. Previous studies focused on parental satisfaction with research-oriented telepractice focused chiefly, but very few studies focused on parents' preferences for different modes of practice. As the speech and language therapy service delivery model has expanded since the pandemic, in low resource settings, exploring clinician and parental view towards telepractice will help to identify factors that may influence the establishment of the service by designing future service delivery models.

1.3 Research Question

What are the factors that influences telepractice in Speech and Language Therapy during Covid-19 pandemic in Bangladesh?

1.4 Operational Definition

Telepractice is the delivery of services using telecommunication and Internet technology to remotely connect clinicians to clients, other health care providers, and/or educational professionals for screening, assessment, intervention, consultation, and/or education.

Speech and language therapy provides treatment, support and care for children and adults who have difficulties with communication, or with eating, drinking and swallowing.

Audiology is the study of hearing disorders, including evaluation of hearing function and rehabilitation of patients with hearing impairments.

Factor is a circumstance, fact, or influence that contributes to a result.

Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus.

Regarding accessing quality health care services, there are significant disproportions amongst Bangladesh's rural and urban population. The place of residence of the service receiver is an important factor to receive the opportunity to access quality healthcare service conveniently, adequately, speedily and at a reasonable cost. People living in the urban areas are more privileged to access the best health care facilities, where rural people are not so fortunate (Fairweather et al., 2016).

This inequity to services extends to the availability of allied health care professionals in rural areas. The number of health care professionals working and living in remote areas is far lower than the number of professionals working in urban or metropolitan areas worldwide (World Report On Disability, 2011).

According to the world bank, 63.3% of Bangladesh's population resides in rural areas; and there are only six doctors per 100,000 citizens, which is very low. The number of qualified speech and language therapists is even lower. A prevalent scenario is that a client who needs speech and language therapy service living in remote areas of Bangladesh and not getting proper consultation on time (Khan et al., 2021).

Shortage of Speech and Language Therapists (SLP) in rural or remote areas have been reported even in countries with the advanced economic condition which have extensive government and privately funded health systems, including the United States of America, and Australia (Scheideman-Miller et al., 2002).

In 2003, although 34% of the population used to reside in remote areas in Australia, only 3.9% of Australian speech and language pathologists (SLPs) were primarily employed in those areas, implying the rest of the SLPs were employed in those metro areas (Workforce Australia, 2014).

For the children with special needs and their carers, who reside in remote areas, travel is a substantial issue to access SLT service in rural areas as the child may get tired and less attentive during assessment or therapeutic intervention sessions (Scheideman-Miller et al., 2002).

Therapists who travel a long distance to provide service may also become fatigued. Furthermore, the cost involved in transportation is another issue to consider. These factors may influence irregular visitation, ultimately affecting effective therapeutic intervention. Telepractice can play a massive role to somewhat fulfil this huge gap between availability of professional speech and language therapist and health care facilities in the rural area.

Challenges associated with distance can clearly result in inequity in accessing speech and language therapy services for people living in remote areas from metropolitan cities. Recently another challenge appeared in service delivery. The worldwide spread of coronavirus disease (COVID-19) and its recent declaration of being a pandemic have radically changed the service delivery procedures of speech and language therapists. A lot of professionals have adapted to the new circumstances and providing therapeutic service via telepractice during this pandemic to ensure social distancing (Aggarwal et al., 2020).

In this pandemic situation, social distancing has been implemented worldwide, and telepractice has been adopted as the most viable option as this can ensure the delivery of essential healthcare without compromising the client's / patient's and clinician's safety (Aggarwal et al., 2020).

Like the rest of the world, speech and language therapists in Bangladesh have started using telepractice to provide therapeutic service (Khan et al., 2021).

The first-ever telemedicine or telepractice project in Bangladesh was initiated by the Center for Rehabilitation of Paralyzed (CRP) with the collaboration of Swinfen Charitable Trust, UK. This first telemedicine service was e-mail based, which used a digital camera to capture still pictures and was sent via e-mail to the specialist medical personnel. This project was reported to be very successful and cost-effective. Based on its success, the Swinfen Charitable trust delivered digital cameras and tripods in other developing countries of the world. In the year 2014, In Bangladesh, 12 patients received telemedicine service from expert medical professionals from around the globe regarding their diagnosis and management plans (CRP Annual report, 2013); (Nessa et al., 2008).

From organization to organization, the telemedicine or telepractice procedure changes. In Bangladesh, there is a distinction between government-funded telemedicine projects and privately-funded telemedicine projects (Khan et al., 2021); (Chowdhury et al., 2020). Synchronous and asynchronous technologies are being used in telepractice by speech and

language therapists to treat various conditions, including child's speech and language delay and disorders, voice disorders, neurogenic communication disorders, and swallowing difficulties. Synchronous telepractice includes using real-time technologies that use online video-conferencing for assessment, intervention, and consultation. In asynchronous telepractice, audio/video recordings of client/ patients' complaints are used for viewing at any point in time. It also includes recordings/videos of therapeutic intervention techniques that are available for viewing later (Aggarwal et al., 2020).

Keck & Doarn (2014) reported that a hybrid method that combines both synchronous and asynchronous technologies is majorly used by practitioners to overcome infrastructural barriers and to have optimal decision-making. The government and several non-government organizations attempted to provide medical services online in remote areas over the years where quality health care service is not easily accessible (Khan et al., 2021). Still, a developing country like Bangladesh faced different challenges that slowed down the progress, and people could not utilize the full benefits of e-health facilities. But, during this covid-19 spread-out, telemedicine or telepractice has become an essential service delivery model from an optional service (Chowdhury et al., 2020).

Although, telepractice has many positive sides, barriers to implement telepractice are also mentioned in several studies. In 2002, a survey report on telepractice in USA reflected that the most common barrier audiologist and speech and language therapists faced to use telepractice was lack of knowledge on telepractice. Other barriers were cost of equipment, lack of data on efficacy and cost-effectiveness and concerns about patient confidentiality. Another factor which was considered as barrier was the clinicians' preference of face-to-face interaction with client. Other studies pointed to lack of reliable technology as an additional barrier (Watts and Willis, 2017). Similar barriers were reported in a study conducted in Mississippi-USA, where Hao et al. (2021) explored the impact of COVID-19 on pediatric speech-language services by interviewing 10 Speech and Language Pathologists and conducting a statewide survey. In this study, 51 SLPs participated. Client reduction was reported in the early stage of the pandemic, in both interview and surveys. Findings of the study focused a light on the transition from face-to-face service delivery to telepractice. Out of 10 SLPs who participated in the interview only one frequently used telepractice before the pandemic. But after the pandemic hit the world, 96% of the surveyed

SLPs reported that they were using telepractice. This suggests a huge change in service delivery in a very short time. In the interview, most of the clinicians reported poor internet connection as the greatest barrier while implementing telepractice. Half ($n=5$) of the interviewed clinicians did not receive any prior training on telepractice and the percentage for surveyed clinician was higher (69%). Many of the interviewed clinicians admitted their uncomfortable feelings while conducting teletherapy sessions and claimed that they were not confident enough at the beginning of the pandemic, but all felt confident enough several months after they started telepractice. Out of 137 barriers of telepractice, Macoir et al., 2021 identified seven barriers in their study as most influencing and limited technical equipment ($n=33$; 24.1%), unavailability of stable internet connection ($n = 23$; 16.8%) and problems related to audio and bandwidth ($n = 21$; 15.3%); were the three most common problems according to the study respondents. A survey of audiology students pre- and post-telepractice conducted by Watts and Willis (2017) at Auburn University, Alabama, USA found out that the preference for a face-to-face interaction was the most cited barrier by the students.

Numerous studies suggested that the usefulness of telepractice is highly dependent upon attitudes of both parents and practitioners and the attitudes regarding implementation of telepractice have been mixed. In a qualitative study in USA conducted by Akamoglu, Y., Meadan, H., Pearson, J. N., & Cummings, K. (2018) which was aimed to identify speech and language pathologists' perceptions of building rapport via telepractice reflected that the SLPs value rapport and building rapport with children and their parents in telepractice is important to them for successful sessions. Zughni, Lisa A., et al. (2020) stated that for a variety of disorders including neurogenic voice disorders, vocal fold nodules, dysarthria and dysphagia, telepractice in speech and language therapy telepractice has shown significant benefits. A systematic review on telepractice intervention of Spanish speaking children with cleft palate provided useful guidelines for providing SLP interventions. The study indicated that audiovisual materials are extremely useful for families receiving telepractice intervention. Interactive educational videos for Spanish speaking children and their parents can make complex ideas clearer (Palomares-Aguilera, Inostroza-Allende & Solar, 2021).

Very few studies investigated the efficacy of telepractice in Speech and Language Therapy before the Covid-19 pandemic, as service delivery was mostly focused on face-to-face sessions. In 2016, 4 years prior to the pandemic, a study in Australia aimed to investigate the efficacy of speech-language pathology tele-therapy program for school going children in rural areas of New South Wales revealed that for both primary school going children and children in early childhood can be benefitted from telepractice using low-bandwidth videoconferencing. The quantitative part of the study indicated that majority of the treatment goals were achieved as expected by SLP, although some of the children did not meet the expectations. The qualitative portion of the study indicated that parents of children with speech language difficulties viewed telepractice as a feasible option (Fairweather, Lincoln & Ramsden, 2016). Mohan, Anjum & Rao, (2017) conducted a study in India which surveyed Speech- Language Pathologists and Audiologists about the use of telepractice. In that study, among two hundred and five professionals (both Speech- Language Pathologist and audiologist) 12.19% reported using telepractice as service delivery model. 95.5% of the respondents were reported to be aware about telepractice as a service delivery model. Participants of the study indicated that there is a shortage of professionals in India against the need, and that shortage can be met through the use of telepractice. The study also revealed that although India has experienced a remarkable rise of internet users; improved infrastructure is required for the widespread use of telepractice throughout the country.

Number of studies regarding telepractice spiked during the COVID-19 pandemic situation. In a study conducted by KuvačKraljević et al., 2020 during the onset of the pandemic to find out the insights from Croatian SLP settings, 255 SLPs participated in an online survey and the result demonstrated that the main reasons of their clients refusing telepractice includes shortage of equipment and materials, insufficient independence and lack of confidence about the effectiveness of telepractice. The study also reported that over 70% of SLPs expressed satisfaction of telepractice due to its ability to provide undisturbed clinical service during difficult times, although only 3% of SLPs received some formal knowledge of telepractice. In a feasibility study in Iran, Samadi et al. (2020) collected both qualitative and quantitative data from caregivers of children with ASD, daycare center staff, and social welfare organizations to comprehend the satisfactoriness of telepractice and the achieved outcomes. The

low dropout rate and positive parental feedback indicated the usefulness of the telepractice sessions. In the qualitative findings, 42 caregivers (12.5%) who completed all the telepractice sessions and 8 caregivers (9.9%) who dropped out from the sessions responded in both written form and voice messages. All the respondents reported mobile-based social media facilities seemed user-friendly to them. No respondents of the study found the information provided in telepractice useless, and some mentioned that, the information provided was applicable at home. Out of the caregivers who completed all the telepractice sessions, 38 caregivers (93%) expressed that they would like to continue taking the service and will recommend others. However, the rest of the caregivers (7%) were not interested in continuing taking the service as it appeared as an extra financial burden to them and due to frequent technical problems (i.e., internet speed). Some of the dropout caregivers reported that online services appeared to be insufficient for children with ASD. Another issue was highlighted in this study that telepractice imposes extra pressure on caregivers as they have to provide extra efforts to maintain the child during the sessions. Findings indicated some undesired aspects of online services, including sharing child's pictures and videos, although confidentiality was assured. In the quantitative study, parents of children with ASD were asked to rate their perception of telepractice. In the pre-test, only 7.4% of the respondents rated telepractice as positive. Still, the percentage elevated up to 61% in the post-test, which is a statistically significant change ($\chi^2(4) = 71.16, p < 0.001$) in attitude towards telepractice. Parental reactions were investigated in this study and parents of younger children were more satisfied with the course (86%) compared to parents of older children (28%). The caregivers of children who had associated disorders along with autism showed less interest in telepractice (52%) in comparison to those with a single diagnosis of ASD (68%). During the pre-test, younger aged parents were reported to be more positive (10%) towards telepractice, where 2% of the older parents were positive; but afterward, the percentage of positive ratings dropped in younger parents (68%) and increased for older parents (51%). 11% of the caregivers who had assistance in caregiving at home were more positive towards telepractice than those with no assistance (0.5%) before the beginning of the course, but the percentage elevated to 71% and 47% respectively in post-test for both sets of parents. This study indicated that telepractice could be a feasible approach for some caregivers of children with ASD. However, it also indicated that assistance at home is one of the key factors of parental satisfaction towards

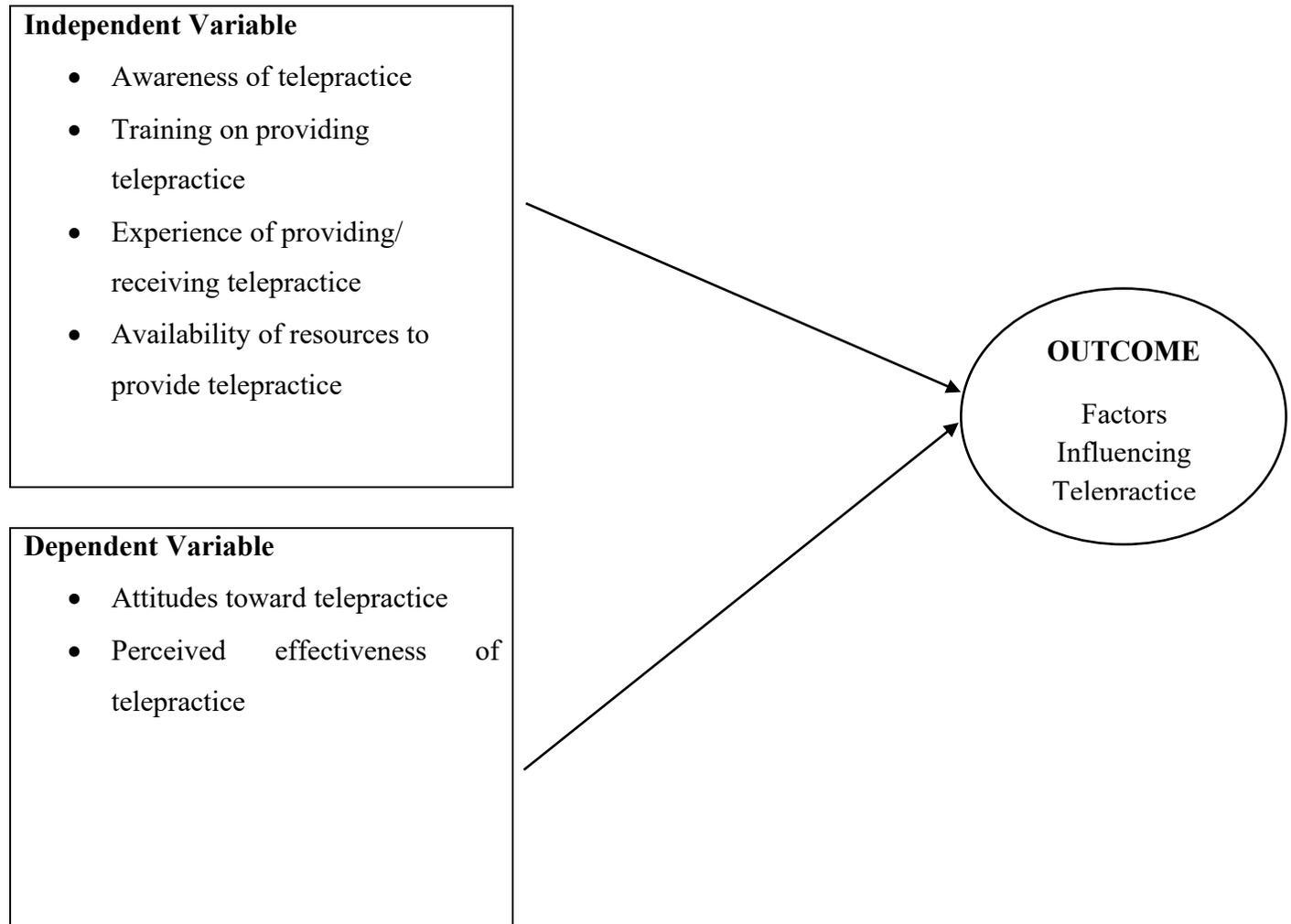
telepractice. Hybrid telepractice that combines both face-to-face contacts and online consultations is better suited for some parents, especially those unfamiliar or unwilling to use technology. Other factors included lack of internet access and its associated costs, especially for families living in rural areas.

Eighty-four SLTs participated in an online survey regarding uptake of telepractice in India during COVID-19 pandemic in 2020. The participants indicated that they shifted their services from face-to-face to telepractice at that time. Descriptive analysis summarized that 49% of SLTs conducted more than 11 telepractice sessions where 89% of them conducted individual sessions only. Mostly pediatric caseloads were handled by 85% of the SLTs and 75% of them were working with language disorders of children. Only 25% of the participants received formal education for telepractice where 19% of them learned from colleagues, 18% from social media, 8% from reading and 8% from experience. The most common platform used for telepractice was WhatsApp video calling service (82%). Reports of internet network issues and child's lack of cooperation was 38% and 27% respectively as the biggest challenges during implementing telepractice sessions. Despite the challenges, the study highlighted the acceptance of telepractice among the SLTs in India (Aggarwal et al., 2020).

An online survey conducted approximately 4 months after the first wave of Covid-19 pandemic portrayed a sketch of the use of telepractice among SLPs in Quebec, Canada. A total of 85 SLPs participated in the online survey and their average length of SLP practice was 11.3 years. Out of 85 respondents, 70 (84%) initiated using telepractice as a service delivery method during the pandemic. 13 of the respondents who started providing telepractice before the pandemic, 7 reported that they had more than one year of experience where remaining 6 respondents reported to have six months of experience. In the study, respondents were invited to give their opinion about telepractice. For most of the clinical activities, including therapeutic interventions and reporting, telepractice was judged as appropriate by the respondents. It was also considered as appropriate for dealing with articulation difficulties, reading and spelling disorders and language processing skill development. However, less appropriateness was reported in clinical practices that requires direct touch and proximity including oral peripheral exercises, feeding and swallowing difficulties (Macoir et al., 2021).

Though in most of the studies worldwide indicated that telepractice is generally accepted by both clinicians and service recipients, two different studies conducted in Hong Kong indicated slightly different scenarios. In the first study regarding telepractice in Hong Kong was conducted by Fong et al. (2020) in which one hundred and thirty-five ($n=135$) speech and language pathologists responded to a survey on the implementation of telepractice during the early stage of COVID-19 pandemic. One third of the respondents reported to provide services via telepractice. 72.3% of the respondents had started providing telepractice for less than 3 months at that time and half of them reported that face-to-face service is better effective than telepractice. Unsuitable patient type and their age were the main reasons for not choosing telepractice for 83% of the among the other participants of the study ($n= 88$). In the study, the majority of the respondents reported as not having prior formal training on telepractice. The researchers concluded that telepractice provision in Hong Kong was different from other countries where telepractice services are well established. Lam et al. (2021) conducted the second study in Hong Kong to explore parents and students' perception towards telepractice who received school based speech and language therapy telepractice during the COVID-19 pandemic. A questionnaire was developed consisting 19 questions which was administered to 41 Hong Kong Chinese students and 85 parents who received telepractice during the pandemic. In the study, both groups rated telepractice efficacy as high, but believed that it was less effective than on-site or face-to-face practices. Moreover, parents preferred on-site practices over telepractice (95%). Significant association was found between telepractice efficacy and telepractice preference among the students ($P<.001$), but not with the parents ($P=.44$). In this study, the students did not prefer one mode of service delivery over the other, but parents clearly preferred on-site or face-to-face services. The study reflects that although telepractice can be an acceptable alternative to face-to-face services, speech and language therapists need to play a proactive role to facilitate effective communication with parents and explain telepractice efficacy to ensure successful sessions.

3.1 Conceptual Framework:



3.2 Study objectives:

3.2.1 General Objectives

To identify the influencing factors of telepractice and its potential as a service delivery method in Speech and Language Therapy practice during Covid -19 pandemic in Bangladesh.

3.2.2 Specific Objectives

- To find out existing service delivery in telepractice in Bangladesh.
- To find out the perceived efficacy of telepractice.
- To find out the influencing factors of telepractice in low resource setting.
- To find out factors that encourages or discourages clinicians and service consumers from using telepractice.

3.3 Study design:

Mixed Method Research Design (Convergent Parallel Design) in which simultaneous collection of quantitative and qualitative data has been collected from clinicians and parents of children with special needs respectively about telepractice and these multiple data sources has been combined and compared for interpretation.

3.4 Study Population:

- Speech and Language Therapist and audiologists working with children with special needs
- Parents of children with special needs

3.5 Sample Size:

$$n = \frac{z^2 pq}{d^2} = \frac{(1.96)^2 * .306 * .694}{(0.05)^2} = 326$$

- Here,

n = Desired sample size

z = Standard normal deviate usually set at 1.96 which corresponds to 95% confidence level.

P = Estimated prevalence. (30.6%)

q = 1-p

d = Degree of accuracy desire, usually set at 0.05

Sampling method: Purposive sampling was in accordance of inclusion and exclusion criteria

3.6 Data collection method and tool:

A structured questionnaire was formulated after reviewing previous studies conducted in other countries to collect data from Speech and Language Therapists and Audiologists (Mohan, Anjum&Rao, 2017) (Akamoglu et al., 2018) (Lam et al., 2021). The questionnaire consists of 23

questions and 5 sub questions. Questions 1-4 focuses on general information, where 5-7 contained questions to collect demographic details of the participants. Questions 8-10 focuses on clinician's awareness about telepractice. Questions 11-15 were formulated to collect information about how clinicians provide telepractice services to clients and how often. To find out the factors clinicians consider while selecting clients for telepractice, question number 16 was formulated. Question 17-19 focuses on received training, available resources and protocols used by clinicians during telepractice. Perception of telepractice has been focused on question number 20- 23; where question number 21 has 5 sub questions. The questions were sent in google forms to the clinicians using email, Facebook messenger and what's app chat. The questionnaire was sent to 112 clinicians, and 63 of them responded (56.25% response rate).

To collect qualitative data from parents of children with disability, online interviews were conducted using a modified semi structured questionnaire. The questionnaires were open ended consisting six questions. Verbal consents were taken from the participants before the initiation of the interviews. Zoom video conferencing software was used to interview the parents and only audio was recorded for transcribing and analyzing.

3.7 Data analysis

- Quantitative data collected from professionals was analyzed using SPSS software and Microsoft excel 2016. Descriptive analysis was used to calculate frequencies, mean, mode, median and standard deviation of data.
- Qualitative data collected from semi-structured interviews from parents were analyzed using content analysis. Codes were developed and category labels or themes were formulated according to the codes. Data were organized according to these labels by identifying similar patterns, relationships, common ideas and disparities. Finally, in-depth analysis of the data was performed to identify the expressed meaning.

3.8 Inclusion criteria

- Clinicians (Speech and language therapist and audiologist) working children with special needs.
- Parents (both male and female)of children with special needs who took at least 10 face-to-face speech and language therapy or audiology sessions at any point of time

anywhere in Bangladesh from a professional speech and language therapist or audiologist.

- Parents who took at least 10 online speech and language therapy sessions or audiology sessions (telepractice) during Covid-19 pandemic situation.

3.9 Exclusion criteria

- Speech and Language Therapist or Audiologist who doesn't work with children with special needs.
- Parents with cognitive or emotional difficulties.
- Parents who lives abroad
- Parents who took only online speech and language therapy sessions or online audiological sessions (telepractice) but no face-to-face sessions from professional speech and language therapist or audiologist

3.10 Ethical consideration

- Ethical permission was taken from the Ethical Committee before starting the collection of data.
- Consent was taken from individual participants
- Participants were allowed to withdraw themselves at any stage of the study
- Data was stored with confidentiality of the respondents.

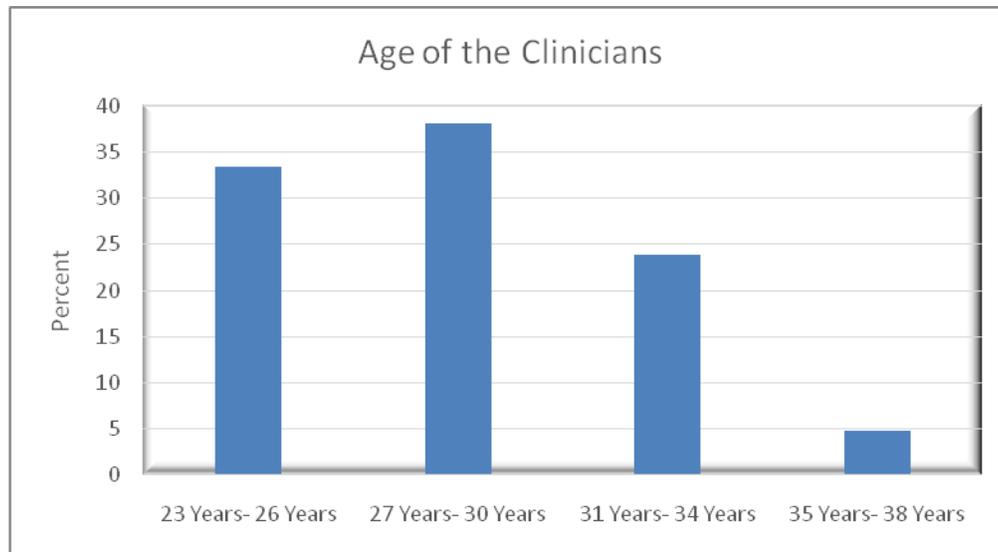
Quantitative results

Figure 1: Age of the clinicians

Figure 1 Shows that majority (n=24, 38.10%) of the clinicians who participated in the study were in age range of 27 years – 30 years. 33.33% (n= 21) of the participants were in age range 23 years – 26 years. The percentage of clinicians on age range 31 years-34 years was 23.81 (n=15). Only 4.76% (n=3) of the clinicians who participated in the study were in age range 35 years – 38 years. The mean age of the clinicians were 28.54 years, median 28.54 and mode 26. Standard deviation (SD) of age was 3.22.

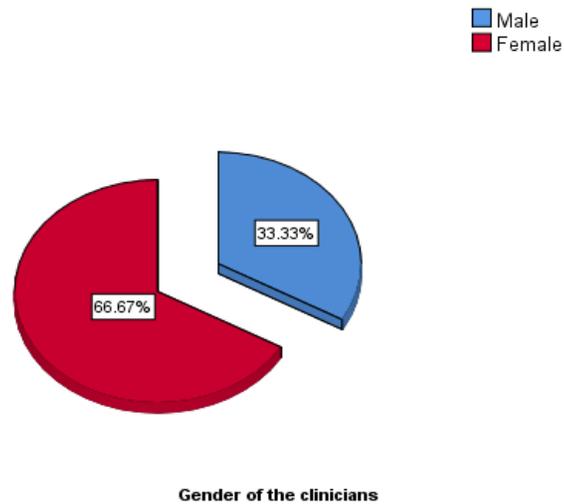


Figure 2: Gender of the clinicians

Figure 2 shows that the majority (n=42) of the clinicians participating in this study were female (66.67%), where 33.33% of the participants were male (n= 21).

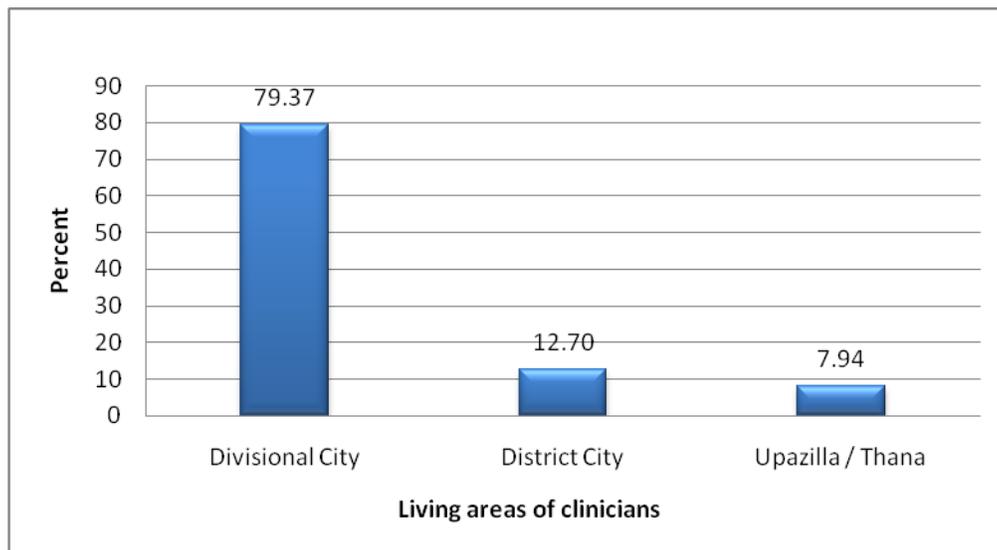


Figure 3: Living areas of clinicians

The bar chart above illustrates that only 7.94% of the clinicians (n=5) live and work in upazilla/thana level; where majority of the clinician (79.37%, n= 50) live in divisional cities. Out of 63 participants, 8 (12.70%) participant reported to be living and working in district cities.

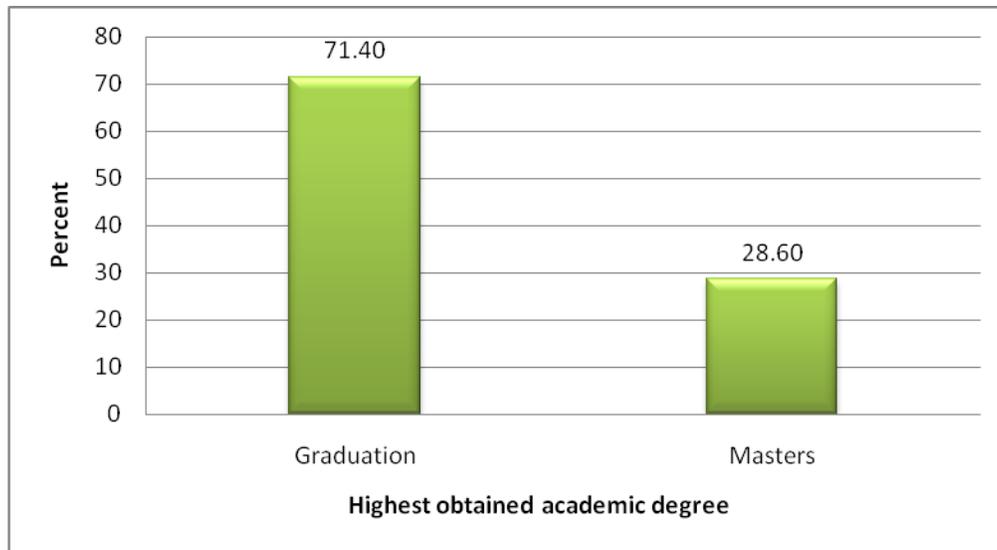


Figure 4: Highest obtained academic degrees of clinicians

In the study, 71.40% (n= 45) of the participant clinicians had obtained graduation degree, where the number of clinicians having masters degree on any subject related to speech and language therapy or audiology is relatively low (28.60%, n= 18).

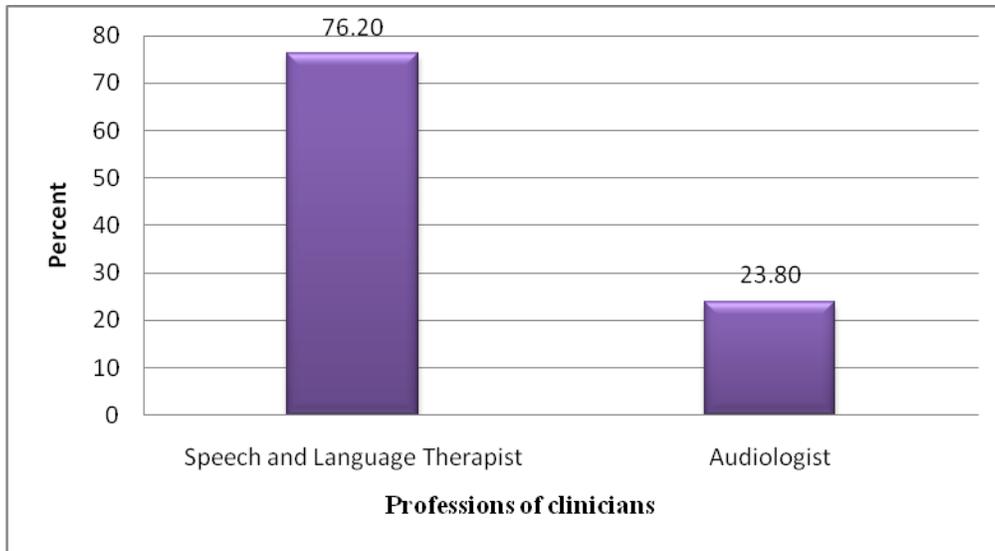


Figure 5: Professions of clinicians

Figure 5 illustrates the professions of the participants. Among the 63 clinicians participating in this study, 76.20% (n= 48) was speech and Language Therapist, where 23.80% (n= 15) was audiologists.

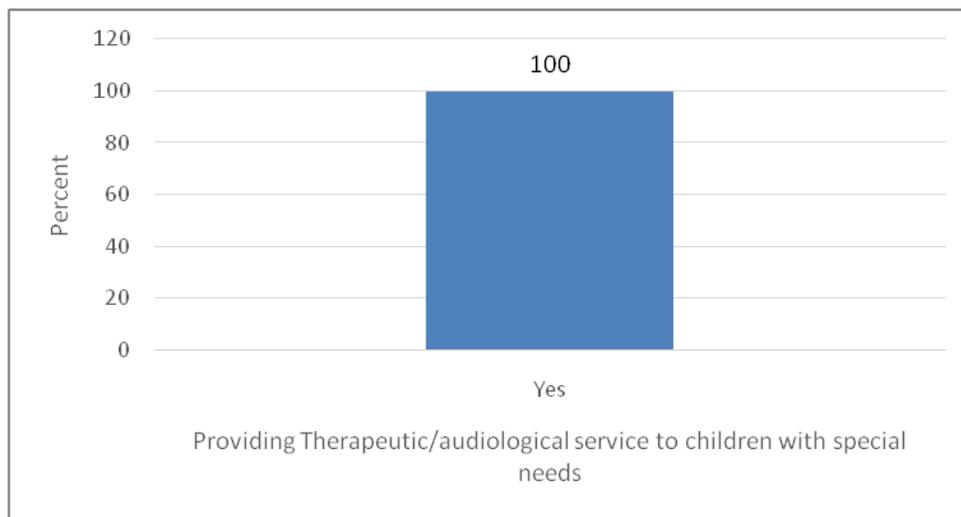


Figure 6: Professionals providing therapeutic/ audiological services to children with special needs

Figure 6 illustrates that all (100%) of the 63 participants of the study provided therapeutic/ audiological services to children with special needs face-to-face.

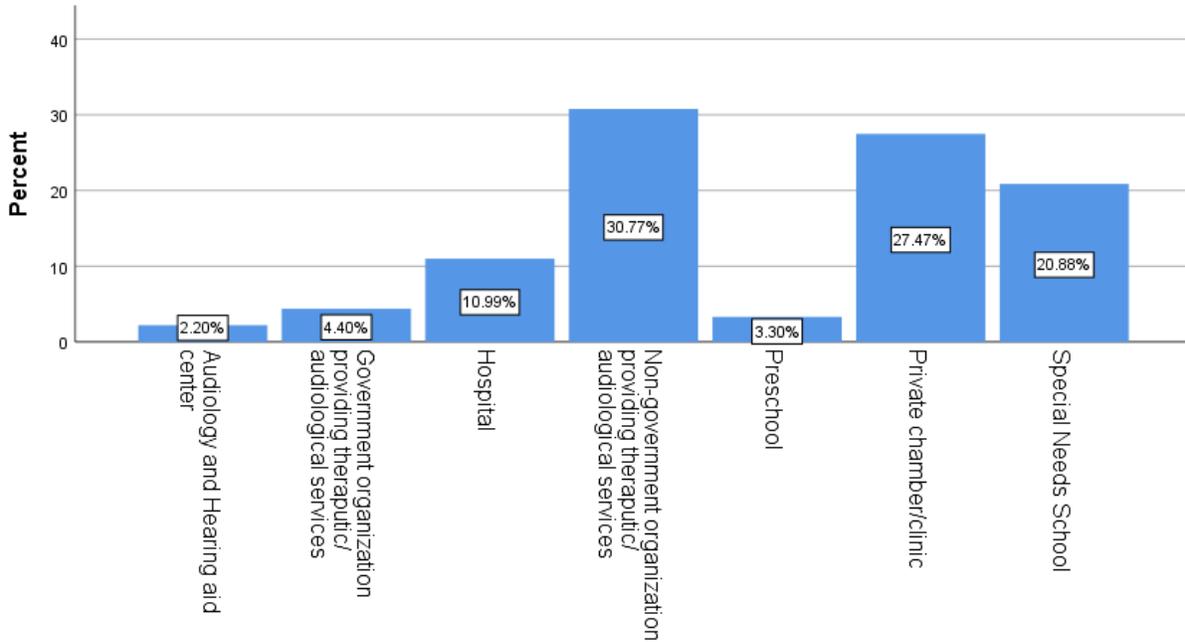


Figure 7: Work settings of clinicians

Figure 7 shows that the majority of the clinicians worked in non-government organization (30.77%) , where the least number of clinicians worked in audiology and hearing aid centers (2.20%). 27.47% of the clinicians worked at private chamber/ clinic. 20.88% and 3.30% of the clinicians worked at special needs schools and pre-schools respectively. Only 10.99% of the participants worked in a hospital. The percentage of clinicians working in government organizations that provides therapeutic/ audiological services is relatively low (only 4.40%).

Years	Frequency (N)	Percent (%)	Cumulative Percent
< 1 year	5	7.9	7.9
1 Year- 3 Year	22	34.9	42.9
4 Year- 6 Year	19	30.2	73.0
7 Year- 9 Year	10	15.9	88.9
10 Year- 12 Year	6	9.5	98.4
13 Year- 15 Year	1	1.6	100.0
Total	63	100.0	

Table 1: Years of experience of working with children with special needs

Table 1 Shows that the highest number (n=22, 34.9%) of clinicians had experience of 1-3 years working with children with special needs. 19 participants (30.2%) had experience of 4 years- 6 years, 10 participants (15.9%) had experience of 7 years- 9 years. 9.5% (n=6) had experience of 10 years – 12 years working with children. The least experienced clinicians had experience less than a year, with the percentage of 7.9 (n=5). Only 1 out of 63 clinicians had experience over 13 years with the percentage of 1.6.

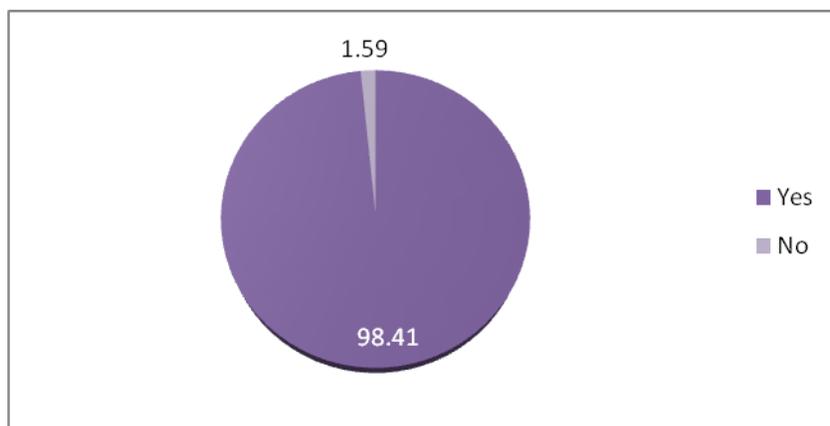


Figure 8: Awareness about telepractice among clinicians

Figure 8 pie chart shows that 98.41% (n=62) of the participant clinician had awareness about telepractice where only 1.59% (n=1) did not know what telepractice is.

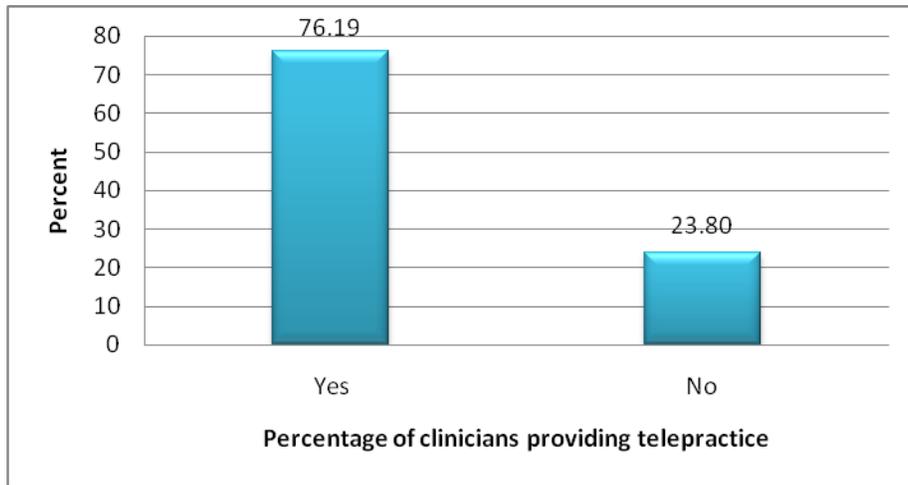


Figure 9: Percentage of clinicians providing telepractice service

Out of 63 participant clinicians in the study, 15 (23.80%) never conducted telepractice sessions in their carrier. The rest of the 48 clinicians (76.19%) reported that they conducted telepractice.

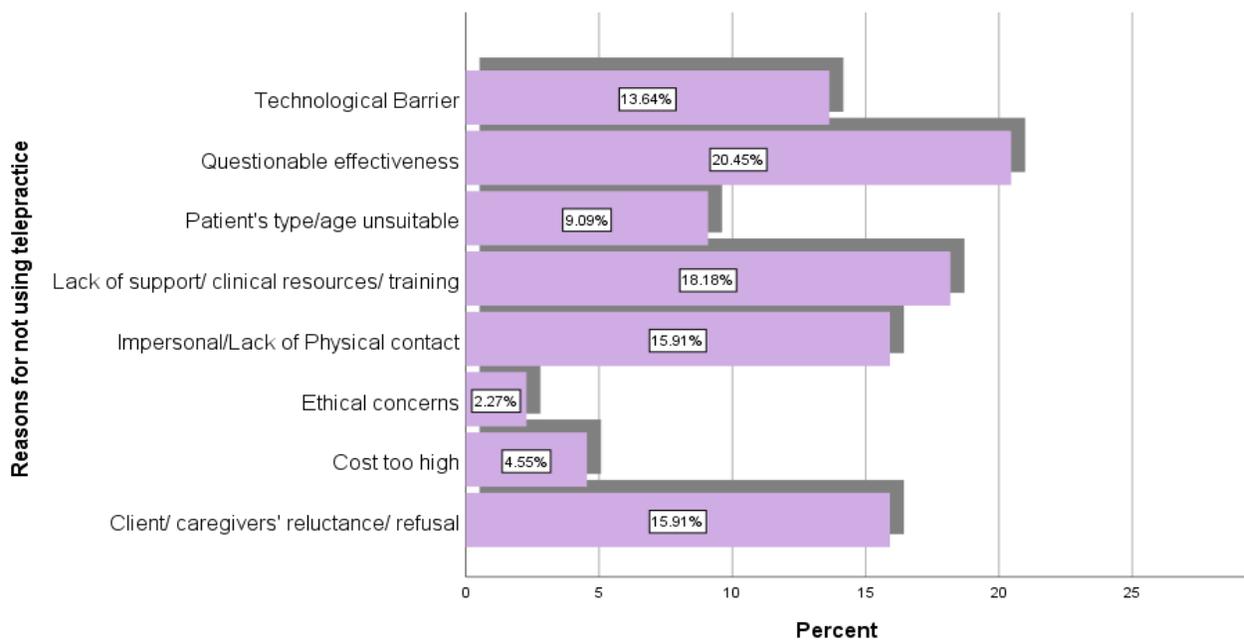


Figure 10: Reasons behind not using telepractice

15 participants of the study never conducted telepractice sessions in their career, and 14 of them responded to the multiple-choice question about reasons for not using telepractice. Figure 10 above represents that the majority (20.45%) of the participants answering this question thought that the effectiveness of telepractice is questionable. 18.18% believed that there is a lack of support, clinical resources or training on telepractice. 15.91% of the participants thought that there is a lack of physical contact, which demotivated them to use telepractice. Another 15.91% clinician reported that the clients' refusal to take telepractice sessions was another reason for not using telepractice. Technological barrier was marked as a reason for not using telepractice by 13.64% of the participants. Other reasons included: patient type/ age not suitable- 9.09%; ethical concerns- 2.27% and high cost to conduct telepractice-4.55%.

Years	Frequency (N)	Percent (%)	Cumulative Percent
< 3 months	19	39.6	39.6
3-12 Months	13	27.1	66.7
1-3 Years	12	25.0	91.7
3 years or more	4	8.3	100.0
<i>Total</i>	48	100.0	

Table 2: Telepractice experience of clinicians

Out of 63 participant clinicians, 48 participants reported to provide telepractice. Table 2 shows that most (n=19, 39.6%) of the participant who provided telepractice had experience of providing the service for less than 3 months. 13 participants (27.1%) reported to have experience for 3-12 months. 25% (n=12) of the participants reported to provide telepractice for 1-3 years. 4 (8.3%) of the participants reported to have telepractice for 3 years or more.

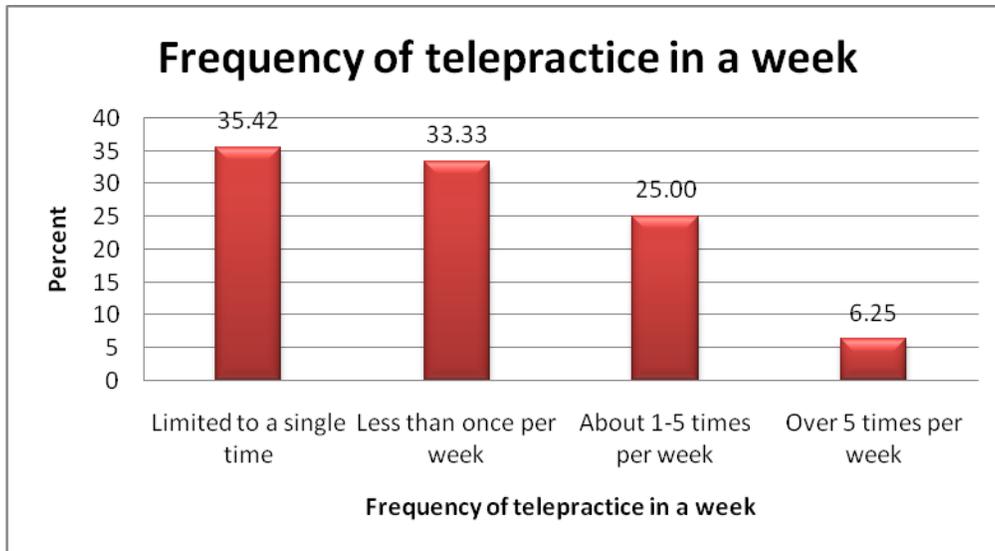


Figure 11: Telepractice frequency per week

Out of 48 participant clinicians who provide telepractice, 35.42% (n= 17) reported that they have provided telepractice once. 33.33% (n=16) reported they provide telepractice less than once per week. 25.00% (n=12) reported that they provide telepractice about 1-5 times per week. Only 6.25% (n= 3) reported that they provide telepractice over 5 times per week.

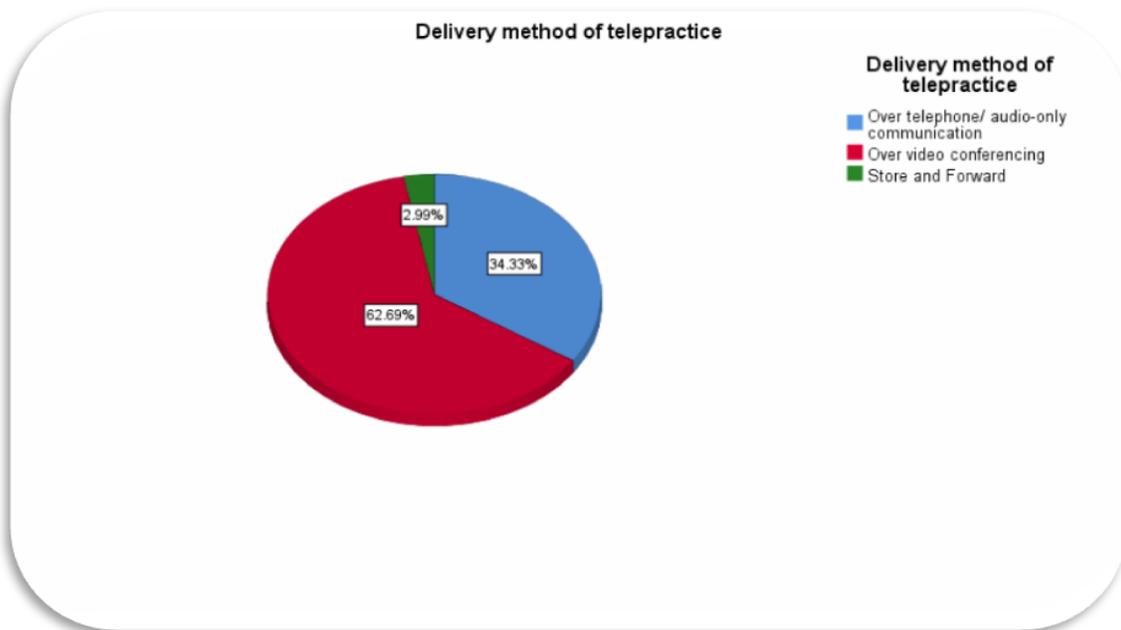


Figure 12: Telepractice delivery methods

Figure 12 illustrates that 62.69% of the participants provided telepractice over video conferencing software. 34.33% provided telepractice over telephone or audio only communication. Only 2.99% of the participants reported that they use store and forward techniques.

Services delivered through telepractice	Frequency (N)	Percent (%)
Screening	23	15.9%
Assessment	25	17.2%
Treatment	33	22.8%
Follow-up / Monitoring	31	21.4%
Consultation or Supervision	33	22.8%
<i>Total</i>	145	100.0%

Table 3: Services delivered through telepractice

Table 3 reflects that clinicians mostly used telepractice for treatment and consultation/supervision 22.8% of the time for each. For screening and assessment they used telepractice 15.9% and 17.2% respectively. For follow-up and monitoring task, telepractice was used 21.4% of the time.

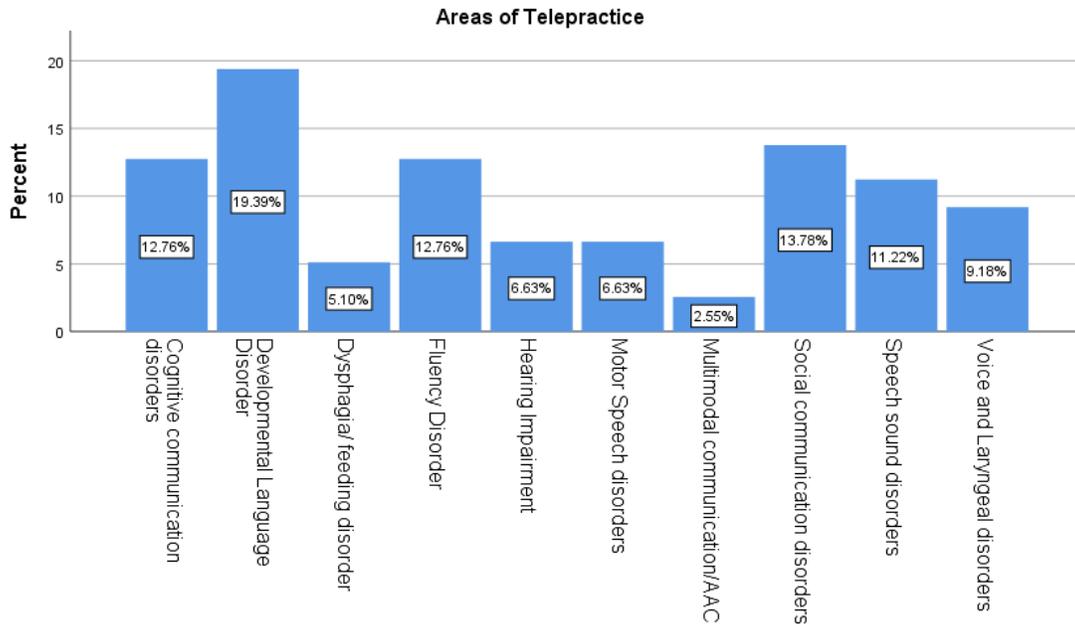


Figure 13: Areas of telepractice

48 clinicians who provided telepractice responded to multiple option questions which was formulated to identify areas of telepractice provided. Figure 13 represents the response, where developmental language disorder is 19.39%, social communication disorder is 13.78%, cognitive communication disorder and fluency disorder shares same percentage -12.76%, Speech sound disorders 11.22%, voice and laryngeal disorders- 9.16%, dysphagia/feeding disorder- 5.10% and multimodal communication/AAC- 2.55%.

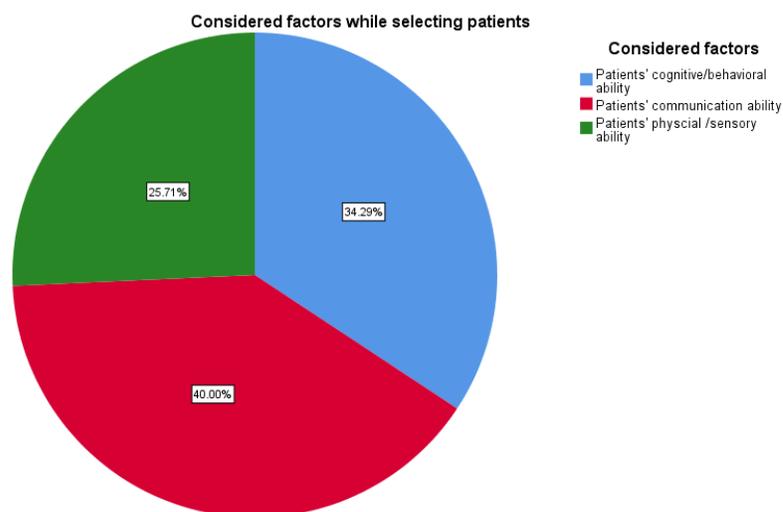


Figure 14: Considered factors while selecting patients

Figure 14 illustrates that clinicians mostly consider patients communication ability (40%) while selecting patients for telepractice. The second most considered factor by clinicians is patient's cognitive and behavioral ability (34.29%). Patient's physical/ sensory ability is considered 25.71% times.

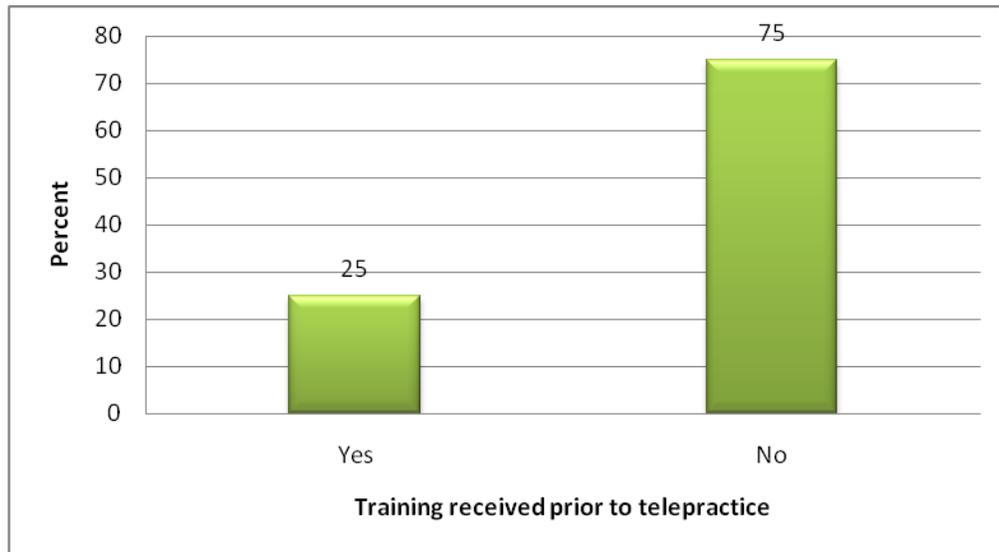


Figure 15: Training received prior to telepractice

Figure 15 demonstrates that 75% (n= 36) of the clinicians did not receive any prior training before starting telepractice service during covid-19 situation. Only 25% (n=12) reported to receive training on telepractice before initiating the service.

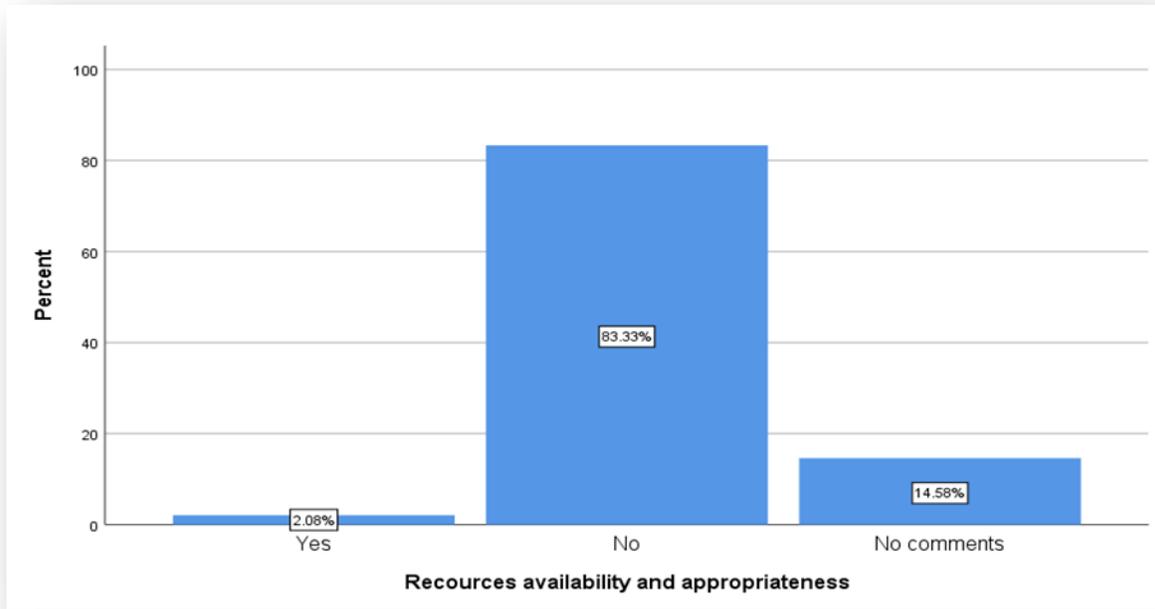


Figure 16: Resource availability and appropriateness

Figure 15 show that 83.33% of the clinicians believe that the resources available in Bangladesh are not appropriate and sufficient, where only 2.08% of the clinician was against this belief. 14.58% of the clinicians denied either agreeing or disagreeing in this issue.

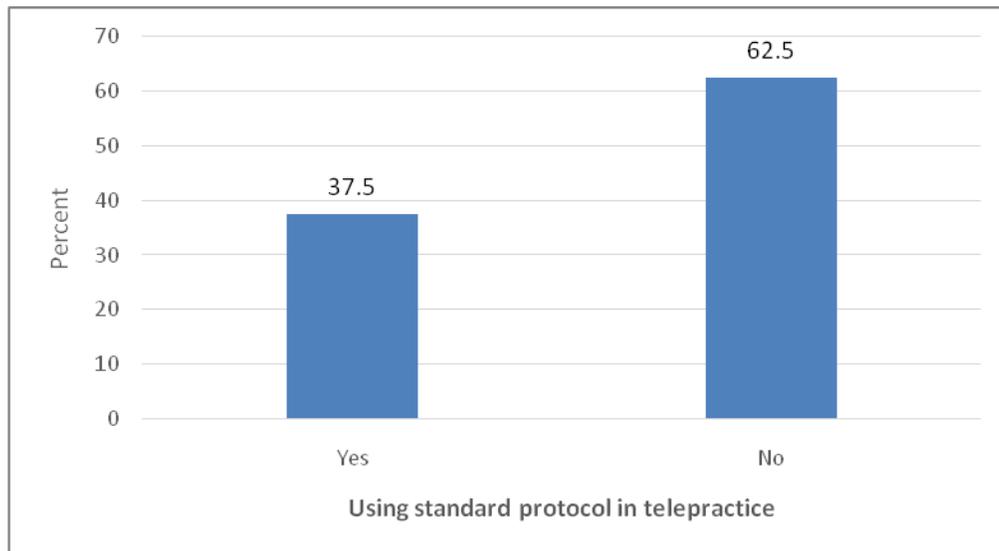


Figure 17: Using standard protocol in telepractice

Figure 16 explores the use of any standard protocol for documentation used by clinicians. Most of the clinicians (62.5%, n=30) reported that they never used any protocol while using telepractice. The rest of the clinicians (37.5%, n= 18) reported that they have used standard protocol while providing services using telepractice.

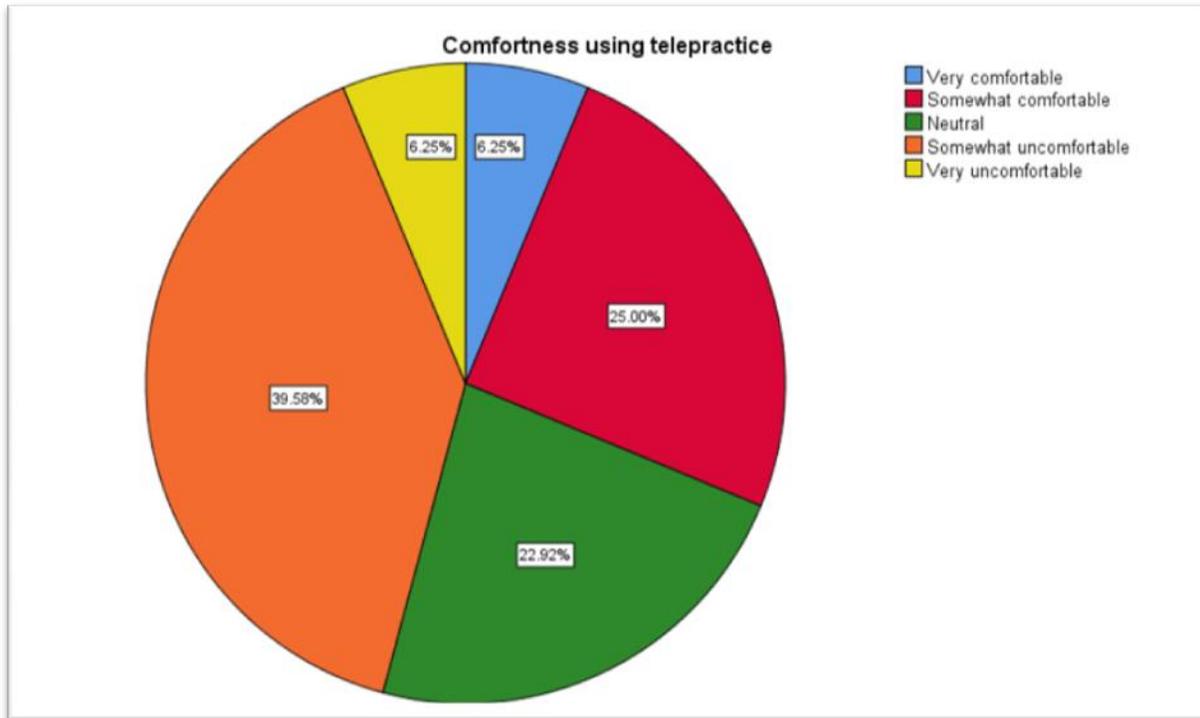


Figure 18: Comfortless using telepractice

Figure 17 above illustrates how comfortable clinicians feel while providing telepractice. 39.58% of the clinicians reported that they were somewhat uncomfortable while using telepractice, where 22.92% mentioned that they felt neutral- neither comfortable nor uncomfortable. 25% of the clinician claimed that they felt somewhat comfortable. Interestingly, 6.25% of the clinician reported that they felt very uncomfortable, where the same percentage was shared by clinicians who felt very comfortable while providing telepractice.

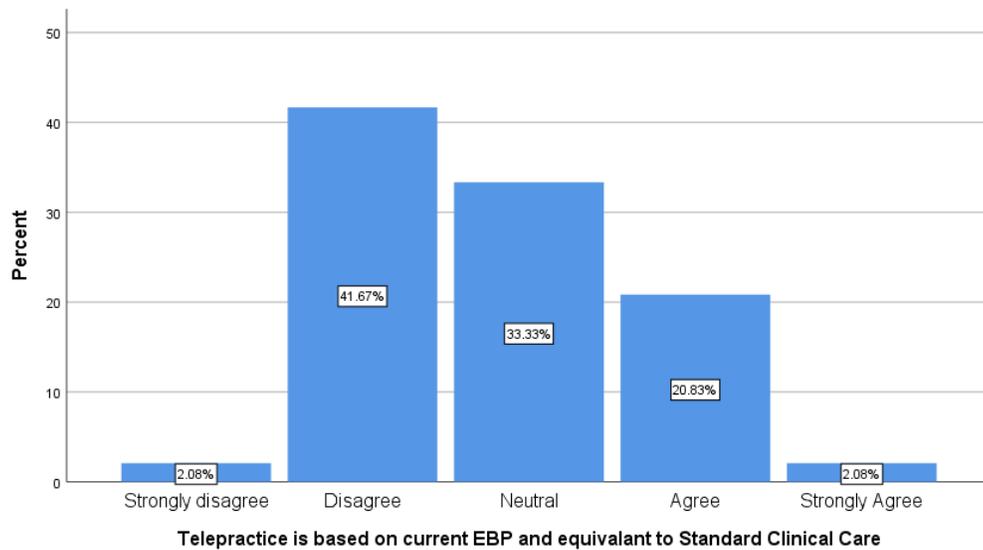


Figure 19: Telepractice is based on current EBP and equivalent to standard clinical care

Figure 18 represents clinicians agreement or disagreements on the statement “Telepractice is based on current evidence based practice and equivalent to standard face-to-face clinical care”. Most (41.67%) of the participant disagreed with the statement where 33.33% of the clinician were holding a neutral position. 20.83% of the clinician agreed with the statement, but not strongly. 2.08% of the clinicians disagreed strongly with the statement and another 2.8% strongly agreed with the statement.

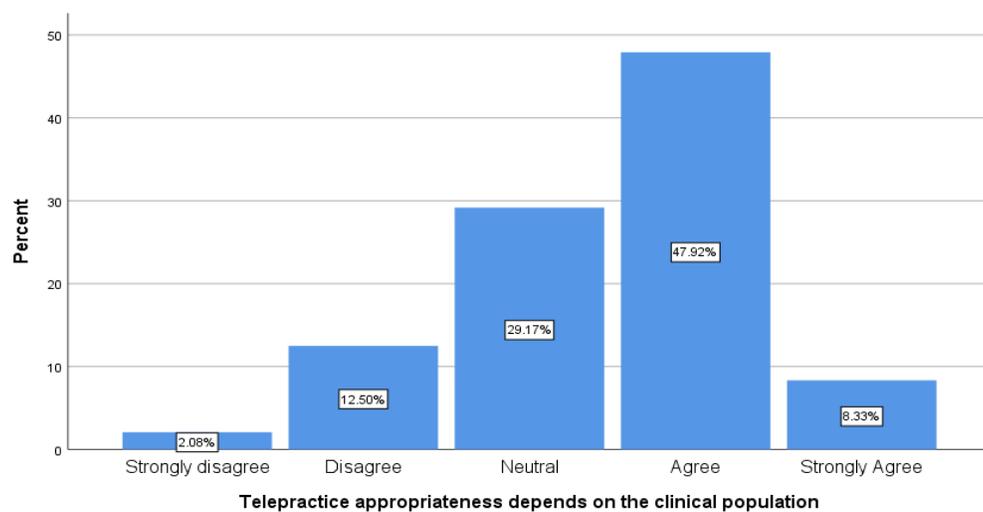


Figure 20: Telepractice appropriateness depends on the clinical population

Figure 19 represents clinician thoughts on the statement “The appropriateness of using telepractice depends on the clinical population”. Most (47.92%) of the clinician agreed with the statement and 8.33% strongly believed the statement as a fact. 29.17% were thinking neutrally and 12.50% disagreed with the statement. Only 2.08% strongly believed that the statement was not appropriate.

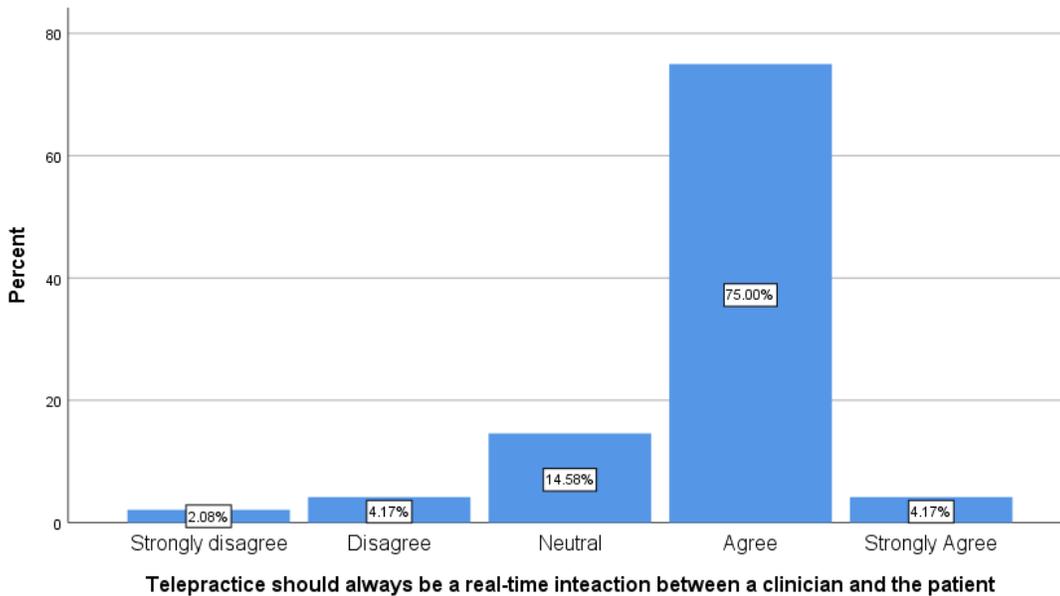


Figure 21: Telepractice should always be a real-time interaction between a clinician and the patient

To the statement “Telepractice should always be a real-time interaction between a clinician and the patient” 75% of the clinician agreed which is shown in figure 20. 4.17% of the participants agreed strongly and 14.58% were neutral. Only 4.17% disagreed with the statement, and 2.08% strongly disagreed with the statement.

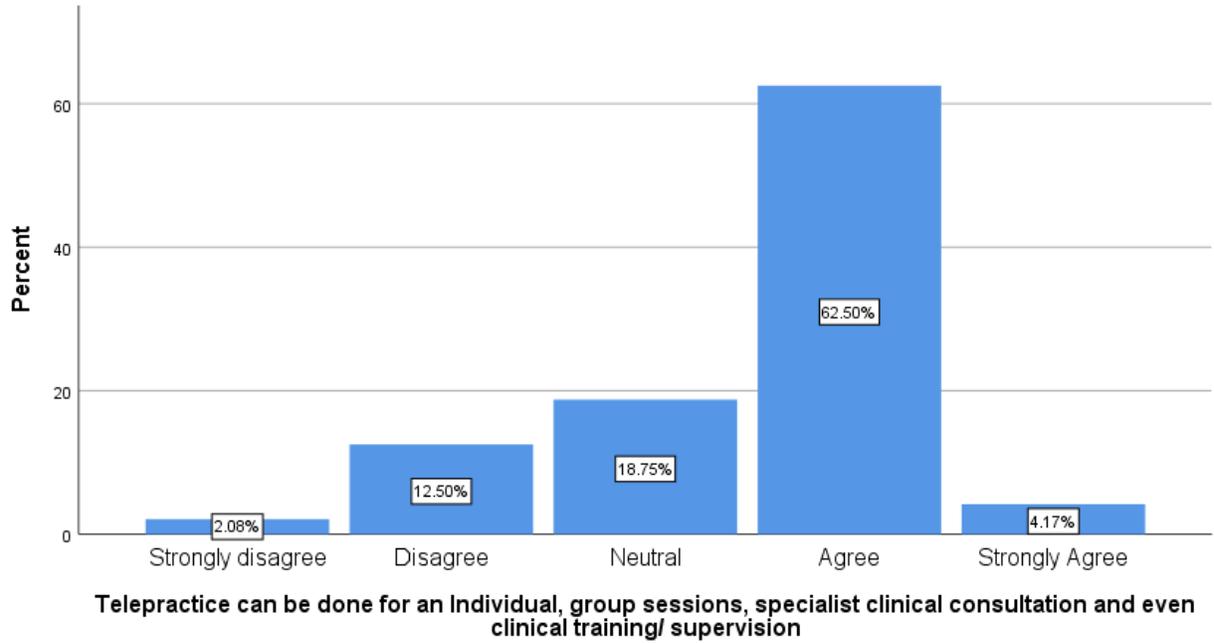


Figure 22: Telepractice can be done for an individual, group sessions, specialist clinical consultation and even clinical training / supervision

Figure 21 shows that 62.50% of the participants agreed that telepractice can be done for individual, group sessions, consultation and training. 4.17% strongly agreed with the statement and believed it as a fact. 18.75% was neutral – neither agreed nor disagreed with the statement. 12.50% and 2.08% disagreed and strongly disagreed with the statement respectively.

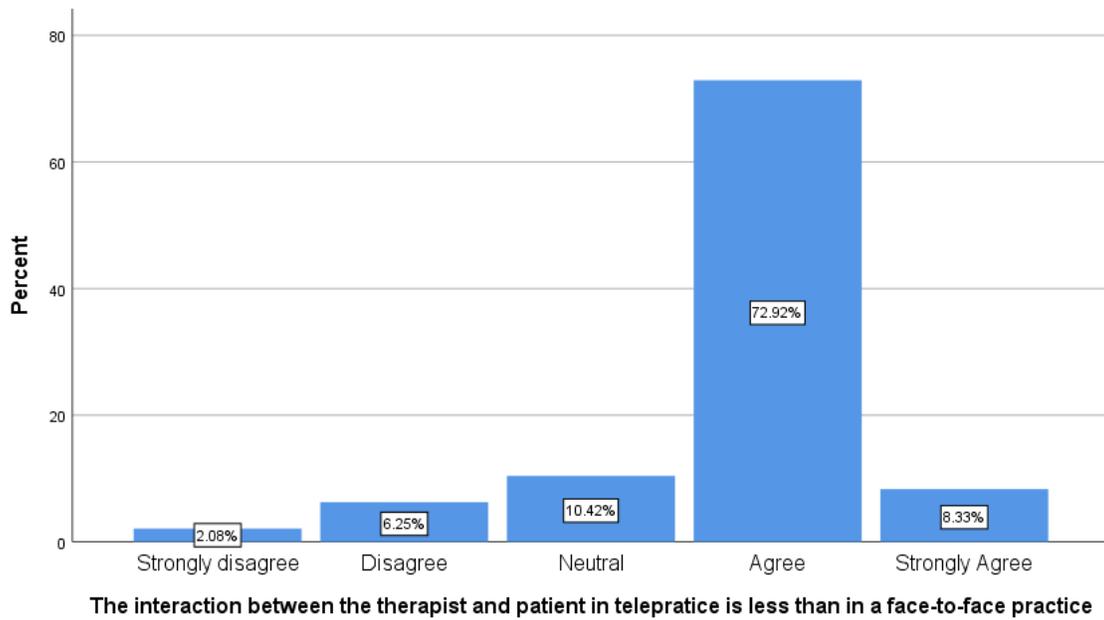


Figure 23: Interaction between the therapist and patient in telepractice is less than in a face-to-face practice

Figure 22 shows the responses to the statement “the Interaction between the therapist and patient in telepractice is less than in a face-to-face practice. 72.92% of the clinician agreed with the statement and 8.33% strongly believed it. 10.42% of the clinician gave neutral response to this statement. 6.25% of the clinician disagreed and 2.08% strongly denied the statement.

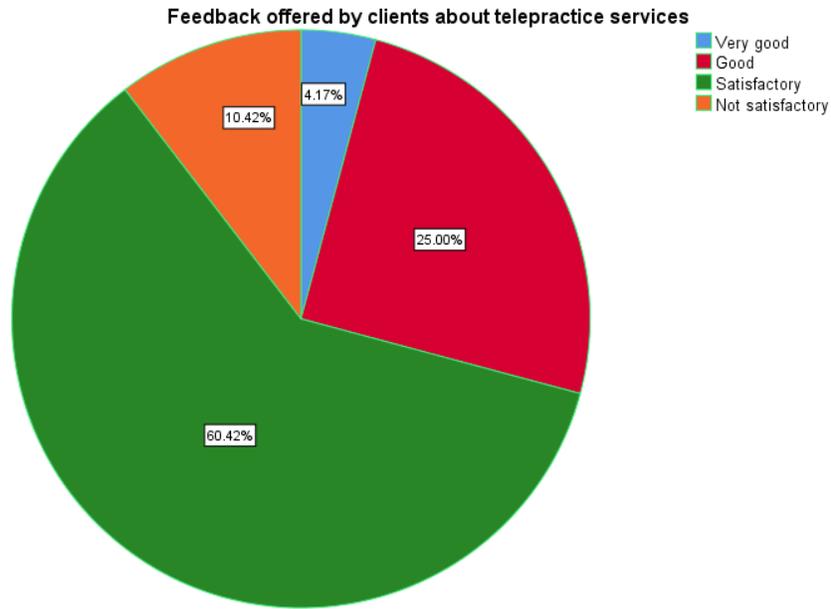


Figure 24: Feedback offered by clients about telepractice services

Most of the clinicians (60.42%) claimed that their client provided satisfactory feedback to them about their provided telepractice service. 25% of the clinician indicated that their client thought telepractice service was good. 4.17% reported their client provided feedback on their telepractice as very good. 10.42% indicated that their client rated their telepractice sessions as not satisfactory.

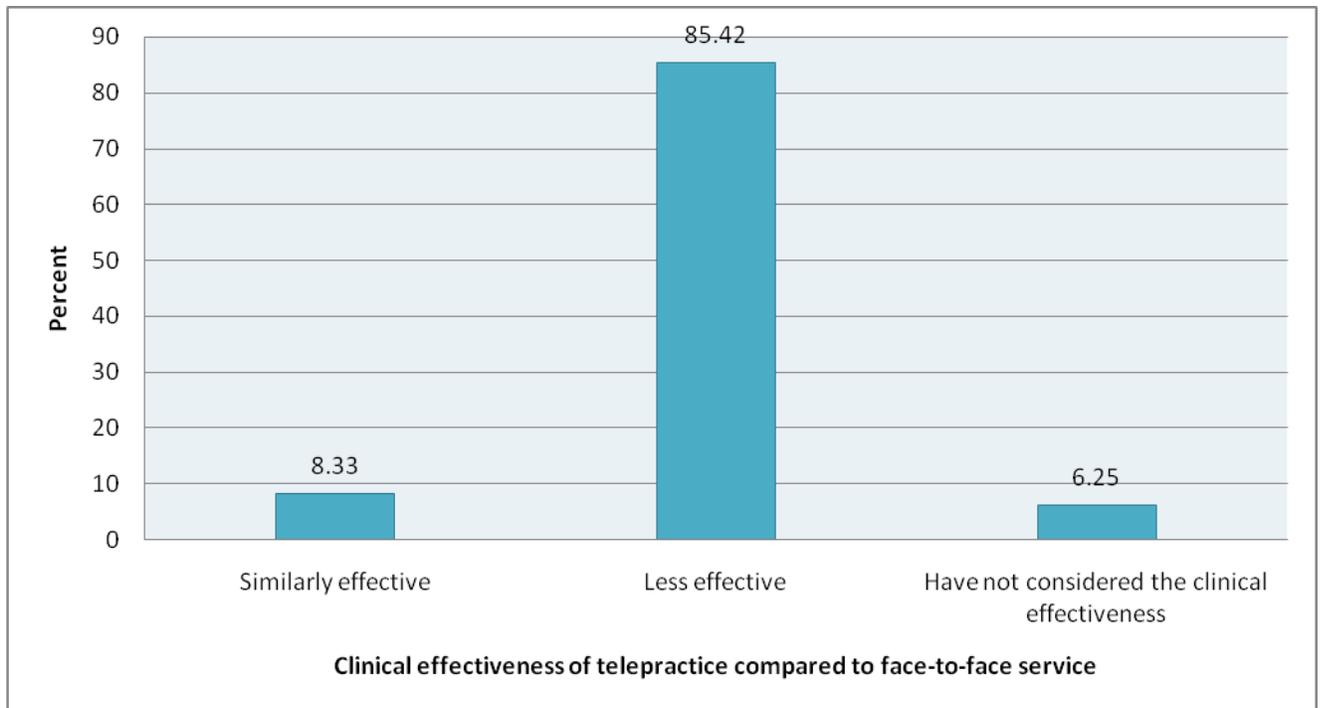


Figure 25: Clinical effectiveness of telepractice compared to face-to-face service

Figure 24 represents the clinicians' opinion about telepractice effectiveness compared to face-to-face service. 85.42% of the clinicians believed that telepractice was less effective than standard face-to-face service, 8.33% believed that telepractice was similarly effective as face-to-face service. But 6.25% reported that they have not considered the clinical effectiveness of telepractice.

Count		Clinical effectiveness of telepractice compared to face-to-face service			Total
		Similarly effective	Less effective	Have not considered the clinical effectiveness	
Training received prior to telepractice	Yes	1	11	0	12
	No	3	30	3	36
Total		4	41	3	48

Table 4: Training received prior to telepractice * Clinical effectiveness of telepractice crosstabulation

Table 4 indicates that although 12 of the clinician providing telepractice had prior training on telepractice, 11 of them believed that telepractice was less effective than standard face to face service. Out of 36 clinicians who did not receive prior training 30 believed that telepractice was less effective. Only 1 clinician receiving prior training and 3 of the clinicians without any prior training believed that telepractice was similarly effective as face-to-face service.

Telepractice Experience * Clinical effectiveness of telepractice compared to face-to-face service Crosstabulation

Count

		Clinical effectiveness of telepractice compared to face-to-face service			Total
		Similarly effective	Less effective	Have not considered the clinical effectiveness	
Telepractice Experience	< 3 months	0	17	2	19
	3-12 Months	2	10	1	13
	1-3 Years	1	11	0	12
	3 years or more	1	3	0	4
Total		4	41	3	48

Table 5: Telepractice Experience * Clinical effectiveness of telepractice crosstabulation

The crosstabulation in Table 5 indicates that most of the clinician (n=17) who had experience on telepractice for less than 3 months believed that telepractice was less effective. 1 out of the 4 clinicians who had telepractice experience for 3 years or more assumed telepractice as similarly effective. Overall, only 4 out of 48 clinicians who had experience on telepractice for different timeframe, believed that telepractice was similarly effective.

Qualitative results

A semi structured questionnaire was used to interview parents of special needs to understand their perception of telepractice during covid-19 situation. Responses were received from seven parents, where 6 of the parents were female and only one of the parents was male. Interview was conducted via Zoom and audio recording of the interview was kept to analyze in-depth meaning using content analysis. Emergent codes and themes are shown in the table below.

Themes	Codes
1. Child's capability to engage in telepractice session	1.1 Child's developmental age 1.2 Eye contact and attention 1.3 Sitting habit and patience 1.4 Child's interest 1.5 Child's understanding of language
2. Human interaction	2.1 Physical engagement 2.2 Prior face-to-face engagement
3. Technical issues	3.1 Therapeutic equipments at home 3.2 Internet connection and devices 3.3 Lack of technical knowledge & skills
4. Challenges	4.1 Parent's assistance at home 4.2 Extra pressure on parents 4.3 Financial burden
5. Perceived effectiveness	5.1 Parent outcome 5.1.1 Information received by parents 5.1.2 Openness and communication 5.2 Child outcome 5.2.1 Increased understanding

Table 6: Emergent codes and themes

Theme 1: Child's capability to engage in telepractice session

Code 1.1: Child's developmental age

The majority of the respondents' response indicated that child's developmental age is an important factor to be considered during telepractice. 5 out of 7 parents mentioned that their child's developmental age and maturity appeared to be inappropriate when they started taking speech and language therapy telepractice. One of the parent said that "My child was so young at the time we started taking telepractice during Covid lockdown that it appeared to me that it was really difficult for him to follow what is going on". All of the parents thought that if their children were developing normally it would have helped them to engage in online therapeutic sessions.

Code 1.2: Eye contact and attention

According to **Roth and Worthington (2011)**, joint visual attention and eye-contact, is the prerequisite for all subsequent communication. All of the participants (7 out of 7) reported that during telepractice, they have faced problems to maintain their child's eye contact towards the screen they were using. 3 out of 7 mentioned that their child was inattentive during most of the telepractice sessions and was trying to do other things while therapist was trying to engage them. One of the parents complained that even if her child made eye contact on laptop screen, he was unable to sustain it.

Code 1.3: Sitting habit and patience

5 out of 7 participants reported that they faced difficulties to keep their child remain seated during telepractice sessions. Rest of the participants said that they did not face any problem with seating habit with the child probably as their child began online classes after Covid lockdown and got used to it. However, all of the participants mentioned that their child became impatient after 20-25 minutes of telepractice even though they remain seated.

Code 1.4: Child's Interest

One of the participant said-“My child appeared to be bored soon after telepractice sessions starts as he was used to watching rhymes and animations, where I think telepractice sessions were boring for him”. Majority of the parents reported that their child was not interested at all during the sessions, and they had to clap and use verbal praise to motivate their children. One of the parents stated that her child showed interest when therapist showed newer pictures during telepractice sessions, but did not like to see older pictures as those did not interest him.

Code 1.5: Child understanding of language

Child's understanding of language was focused in discussion by 4 of the participants during interview. Parents expressed their concerns about their children's' understanding and they thought that telepractice works better when the child has ability to understand language and follow instructions. Parents indicated that understanding has a great impact on child's interest in attending telepractice; if the child can understand what is going on, he/she can cooperate better in the sessions.

Theme 2: Human Interaction

Code 2.1: Physical Engagement

All of the parents indicated the fact that telepractice lacks physical engagement between therapist and the child. Almost all of the participants expressed that lack of physical contact is one of the greatest barriers of telepractice sessions and it affects overall effectiveness of telepractice. 5 out of 7 participants focused that as the therapist does not have control over the child in telepractice, it gets difficult for parents to keep the child remain seated. Another issue was identified in the interviews that as the therapist do not have direct contact with the child, time sensitive activities during telepractice gets harder for the parents to maintain such as arranging materials while attending sessions and activity transitions.

Code 2.2: Prior Face-to-face engagement

Few of the parents (three out of seven) during interview expressed their opinion that the children who may have prior face-to-face engagement with the therapist practicing telepractice may co-operate better in online sessions. They claimed that as children with special needs require time to understand patters and build relationships, it may help them to co-operate in telepractice sessions if they had several face-to-face engagements with the concerned therapist. One of the client claimed that her child somewhat co-operated with the therapist in telepractice sessions due to prior engagements.

Theme 3: Technical Issues

Code 3.1: Therapeutic equipments at home

Unavailability of therapeutic equipment was a common issue faced by parents during telepractice sessions as lockdown and social distancing was ongoing during the pandemic and it was difficult to collect the equipment. Equipment like puzzle boards, stacking board, sensory toys and oral placement therapy kits were not easy to arrange at that difficult time according to most of the participants. Even if the therapeutic equipments were available at home, two of the participants reported that they faced problems operating the equipments properly as they could only see what the therapist was showing how to operate.

Code 3.2: Internet connection and devices

For a good and effective telepractice session, stable internet connection from both end (therapist and client) is crucial. But all of the participants (7 out of 7) reported that unstable internet connection is one of the greatest challenges they faced during attending telepractice sessions. Sudden disconnection, stuck screen and distorted audio quality were most common complaints from the parents. Unavailability of good quality devices, such as updated smart phones, tabs and laptops also hampers audio-visual communication according to 2 of the participants.

Code 3.3: Lack of technical knowledge & skills

Few of the parents (2 out of 7) indicated lack of technical knowledge and skills of them as a barrier of successful telepractice sessions. They indicated that in telepractice sessions, sudden networking issues occur frequently which requires technical knowledge and skills to solve the problems. Sometimes it becomes impossible for the parents to reconnect due to lack of technical skills even network issue solves. Other issues include not knowing how to connect to the internet, inability to operate video conferencing software appropriately.

Theme 4: Challenges

Code 4.1: Parent's assistance at home

To manage their hyperactive child during telepractice sessions, other person's assistance is required according to 4 of the participants of the interview. Parents complained that their child usually doesn't want to sit for telepractice sessions as it is the home environment and children shows attention seeking behavior with them. For this reason assistance is necessary to manage the child during sessions. Participants mentioned assistance in handling technical issues during telepractice is crucial when there is a lack of technical knowledge. One of the parents stated "I have another child only 8 months of age. It would be impossible for me to attend in telepractice sessions with my elder son who has autism if their father would not help taking care of the younger child during session time.

Code 4.2: Extra pressure on parents

Most of the participants (5 out of 7) believed that telepractice session puts extra pressures on parents as in telepractice session as they need to provide consistent effort to keep the child remain seated and concentrated to the screen. Moreover, parents need to understand how to provide therapy offline according to therapist's advice where in face-to-face therapy sessions parents can relax and watch therapists doing all the hard works.

Code 4.3: Financial Burden

One of the participants stated that due to covid-19 lockdown, like everyone else, their family also faced financial difficulties due to limited income. Most of the offices provided half or almost no salary during the lockdown situation. Telepractice became an extra financial burden for them during that period, as according to her, telepractice session fee was almost the same to face-to-face sessions, but parents needed to provide more efforts.

Theme 5: Perceived effectiveness

Code 5.1: Parent Outcome

Code 5.1.1: Information received by parents

Few of the parents (3 out of 7) agreed that for consultation with the therapist, telepractice is a suitable option and they were able to use the information and ideas provided by therapist during the time of lockdown. It was mentioned that in that time of crisis, the consultations speech and language therapists provided really helped the child although parents had to implement the ideas provided. 2 of the participants reported that they had no idea how speech and language therapy was provided before the telepractice sessions. After telepractice sessions, they have learned tips and tricks to manage their children at home as well as got ideas about how to help their child to communicate.

Code 5.1.2: Openness and communication

Maintaining communication with child's responsible therapist is important and parents took the opportunity of telepractice to maintain the connection between therapist and their children during Covid lockdown. 2 of the parents mentioned that they had opportunity to talk freely with the therapist about their child in telepractice sessions. Also it was possible for them to show the therapist what the child does at home environment. Parents also stated that in some cases, their children do not show their natural behavior at clinical environment, but in asynchronous and hybrid telepractice parents were able to send videos of their children at home environment to their responsible therapist which helped for better treatment plan.

Code 5.2: Child outcome

Code 5.2.1: Increased Understanding

One of the participants reported that it appeared to her that her child's overall understanding has increased after frequent telepractice sessions. She also mentioned that her child's sitting habit has also improved with the therapists consultations. 2 of the parents mentioned that their child started identifying daily objects at home environment but inconsistently.

Discussion:

This study was one of the first studies in Bangladesh to investigate the factors that effect telepractice in low resource settings. The study was conducted involving two groups of people- clinicians (Speech & language therapists and audiologists) and parents of children with special needs). A questionnaire was developed and a google form was created to collect data from clinicians and was sent to them via whatsapp, facebook messenger and emails. To collect qualitative data from parents, a semi-structured questionnaire was developed and parents of children with special needs were interviewed using videoconferencing software (zoom). Quantitative data collected from clinicians were analyzed descriptively in frequencies and qualitative findings from parents were analyzed using content analysis.

63 clinicians participated in the study. Majority of the clinician participating in the study were female (66.67%) with the age range of 27 years- 30 years (38.10%). The majority of the clinicians lived in divisional cities (79.37%), where only 9.74% of clinician reported to live in upazilla/ thana. The scenario is similar with the study conducted in Australia where it was found that only 3.9% of Australian SLPs were primarily employed in remote areas (Scheiderman-Miller et al., 2002). Study conducted by Khan et al (2021) also indicated that clients living in remote areas of Bangladesh are not getting proper SLT consultations on time.

71.40% of the clinicians obtained graduation degree where the number of clinician obtaining masters degree on any subject is only 28.60% which is relatively low. Among the 63 clinicians, 48 were speech and language therapist and the rest of the clinicians were Audiologists. All of the professionals reported to be working with children with special needs. The majority of the clinicians worked in non-government organizations those provide therapeutic/audiological services (30.77%) and private chamber/clinic (27.47%). Most of these non-government organizations are located in metropolitan or city areas, which resembles the scenario of the study

conducted by Fairweather et al., (2016) which revealed that people living in urban areas are more privileged to access best health care facilities compared to people living in rural areas. The percentage of clinician working in government organizations is very low- only 4.40%; which indicates lack of government initiatives in this sector.

Speech and Language therapy is a relatively new profession in Bangladesh. There is a lack of experienced speech and language therapist in the country. Out of 63 clinicians, only 1 (1.6%) clinician had clinical experience on working with children with special needs for 13 years-15 years. Most of the clinicians (n=22, 34.9%) participating in this study had experience of 1 year- 3 years.

The recent covid-19 pandemic forced healthcare professionals to provide their clinical services online to ensure social distancing. According to KuvačKraljević et al., (2020) speech and Language therapists worldwide also required adopting new professional functional approaches. Like the rest of the world, speech and language therapists in Bangladesh have started using telepractice to provide therapeutic service (Khan et al., 2021). In a study conducted by Hao to et al. (2021), in Mississippi, USA, 10 SLPs were interviewed where only one frequently used telepractice before the pandemic. But after the pandemic hit the world, 96% of the SLPs reported that they were using telepractice. In this study, 98.41% of the clinician had awareness about telepractice in speech and language therapy and audiology and 76.19% of clinician adopted telepractice as a service delivery method. The rest of the clinicians (23.80%) did not provide telepractice service due to several reasons. Most of the clinicians (20.45%) who did not provide telepractice thought that the effectiveness of telepractice was questionable. Other reasons included lack of training (18.18%), lack of physical contact (15.91%), client/ caregivers' refusal to take online telepractice sessions (15.91%) and technological barriers (13.64%). These results are consistent with the study conducted by Macoir et. al. (2021) and Watts and Willis (2017) where common barriers were identified as lack of knowledge, lack of reliable technology and clinicians' preference in face-to-face service.

In this study, 48 out of 63 clinicians provided telepractice. Most of the clinicians who provided telepractice had an experience of less than 3 months (39.6%). Only 8.3% of the clinicians had

experience to provide telepractice services for 3 years or more. 35.42% of the clinicians provided telepractice once in their career, where only 6.25% provided telepractice over 5 times per week.

According to Aggarwal et al. (2020) Synchronous and asynchronous technologies are being used in telepractice by speech and language therapists to treat various conditions. Synchronous telepractice includes using real-time technologies that use online video-conferencing for assessment, intervention, and consultation. In asynchronous telepractice, audio/video recordings of client/ patients' complaints are used for viewing at any point in time. It also includes recordings/videos of therapeutic intervention techniques that are available for viewing later. In this study, that 62.69% of the participants provided telepractice over video conferencing software, which is a form of synchronous telepractice. Only 2.99% used store and forward or asynchronous telepractice. Clinicians mostly used telepractice sessions for treatment (n=33, 22.8%) and consultation (n= 33, 22.8%) in this current study.

Telepractice is used by speech and language therapists to treat various conditions, including child's speech and language delay and disorders, voice disorders, neurogenic communication disorders, and swallowing difficulties (Aggarwal et al., 2020). In this study, the most common area clinicians handled in telepractice was developmental language disorders (19.39%), and social communication disorders (13.78%). Other areas include cognitive communication disorders and fluency disorders (12.76%).

Clinicians mostly considered patients' communication ability (40%) while selecting patients for telepractice. Other considered factors were cognitive and behavioral abilities (34.29%) and physical/ sensory abilities (25.71%).

75% of the clinicians received prior training on telepractice where 25% did not in this study. This indicates that there is a lack of training facilities both online and offline. This study also reveals that lack of available resources is another issue while implementing telepractice in Bangladesh. Out of 48 clinicians who provide telepractice, 83.33% believed that the resources available are not appropriate and sufficient, where 2.08% of the clinicians were against this belief. 62.5% of the clinicians used standard protocol while documenting sessions, but 37.5% did not ever used a standard protocol.

Most of the clinicians (39.58%) felt somewhat uncomfortable while using telepractice, 22.92% felt neutral. 25% of the clinicians felt comfortable and only 6.25% felt very comfortable while providing telepractice services. This result indicates that further study is required to identify reasons behind telepractice comfortness or uncomfortable feelings.

Majority of the clinician (41.67%) thought telepractice was not equivalent to face-to-face or standard clinical care. Only a few clients (20.83%) thought telepractice as equivalent to standard clinical care. These results resemble the study conducted by **Lam et al. (2020)** in Hong Kong. Most of the clinicians (47.92%) believed that telepractice appropriateness depends on clinical population and 75% of them also believe that telepractice should always be a real-time interaction between clinician and patient. 62.50% of the clinicians agreed to the fact that telepractice can be done for an individual or group sessions, even for clinical training or supervision. However, 72.92% clinicians believed that the interaction between therapist and client/patient is less in telepractice in comparison with face-to-face service.

60.42% of the clinicians claimed their clients provided satisfactory feedback to their telepractice sessions, where only 10.42% claimed that their clients said telepractice sessions were not satisfactory.

The majority of the clinicians (85.42%) reported that they think telepractice is less effective than face-to-face service. Only 8.33% thought telepractice is similarly effective. These results are similar to the study conducted by Lam et al. (2020) in Hong Kong where parents and students group believed that telepractice was less effective than on-site practices.

In this study, although 12 of the clinician providing telepractice had prior training on telepractice, 11 of them believed that telepractice was less effective than standard face to face service. 30 clinicians among who did not receive prior training also thought that telepractice was less effective. Even majority of the participants who had most experience providing telepractice (3 years or more) expressed their negative feelings towards telepractice by claiming telepractice is less effective.

5 themes were identified from the interviews of 7 parents.6 of the parents were female and only 1 parent was male. Most of the parents had preference for on-site or face-to-face therapy in this

study which resembles the study conducted by Lam et al. (2020). It was revealed that child's capability to engage in telepractice session depends on child's developmental age, their eye contact and attention, sitting habit and patience, child's interest and their understanding of language. Human interaction in telepractice is dependent upon child's prior face-to-face engagement with the therapist. Technical issues involve availability of therapeutic equipments at home, internet connection stability and devices, and existing technical knowledge and skills of parents. Some challenges were identified which includes parent's assistance at home, extra physical, mental and financial pressure on parents. In Speech and Language therapy, perceived efficacy can be an important measure for both face-to-face and telepractice as the effectiveness of the therapy and stakeholders motivation can be reflected from this. Perceived efficacy is based on perceived usefulness and convenience, which influences the future adoption of the technology (Lam et al., 2020). Effectiveness of telepractice was identified in terms of information received by parents, openness and communication and increased understanding of the child. Clinicians' pro-active role to explain efficacy of telepractice to parents may promote it as a service delivery model.

The results of this study indicate that unlike existing literature, telepractice is not well acknowledged by both parents and professionals in Bangladesh. Although in western countries telepractice is already well accepted by both professionals and service receivers, it may take more time in Bangladesh to establish telepractice as a new service delivery model.

Limitations:

There were some situational limitations and barriers while conducting the study. The expected sample size of this study was 326, but there is a lack of graduate speech and language therapist/audiologists in Bangladesh. Also, due to resource constrain just 63 sample were taken which is very small to generalize the result for wider population of speech and language therapists and audiologists. The questionnaire was developed only by reviewing previous studies conducted in other countries, no pilot study was conducted. Time and resources were limited which had a great deal of impact on the study. Both qualitative and quantitative data were collected via online, due to covid restrictions. Data collection online can be misleading sometimes due to technical issues. Data was only collected from clinicians who works with children with special needs, no data was collected from clinicians who deal with adult clients. Telepractice is a relatively new idea and is emerging as a new topic for study, which is why there is a lack of adequate literature, which was also a limitation while conducting this study.

Recommendation:

This study identified that there is a lack of training facilities for Speech and Language Therapists and Audiologists to learn telepractice. The professional bodies of speech and language therapy should arrange more training sessions on telepractice. Clinicians need to pay attention to potential technical problems and provide relevant support to parent. Also there is a need of awareness building on telepractice. Webinars and seminars on telepractice may help creating awareness among parents. Clinicians need to be more innovative to find out ways to keep the children attentive in their telepractice sessions. The importance of parent involvement in telepractice is well noted, and clinicians in Bangladesh need to find more ways to engage parents in the sessions. Further larger study is required with more samples to find out more about telepractice in Bangladesh.

Conclusion:

The number of children with special needs, especially autism spectrum disorder (ASD) and other neuro-developmental disorders are increasing. But, the number of qualified professions who work with children with special needs is limited. To meet the increasing demand of therapeutic consultations, telepractice can be a viable solution. Although this study indicates that till now telepractice is not well acknowledged as a alternative service delivery model in Bangladesh, the scenario can change if necessary stapes can be taken like providing more training facilities to clinicians, building awareness among parents with special needs and formulation of protocols to conduct telepractice sessions.

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Appendix
Survey on factors influencing telepractice in Audiology
and Speech and Language Therapy during covid-19
Pandemic in Bangladesh

Telepractice is the term used to describe diagnostic and treatment services offered online from a distance by Audiologists and Speech and Language Therapists for patients with various hearing, communication, or swallowing difficulties. The concept of using the internet as a means of communication in Speech and Language Therapy is relatively new worldwide, which results in a limited number of existing studies.

The present study aims to identify the potentials of telepractice and its perceived efficacy in Speech and Language Therapy practice during Covid -19 pandemic in Bangladesh. The data obtained from this study will be kept confidential and will only be used for research purposes. You have full freedom to accept or decline the request of taking part in the survey.

টেলিপ্র্যাক্টিস শব্দটি দ্বারা অডিওলজিস্ট ও স্পীচ অ্যান্ড ল্যাঙ্গুয়েজ থেরাপিস্ট কর্তৃক দূর থেকে অনলাইনে শ্রবন, যোগাযোগ ও খাদ্য গাংলধকরনের সমস্যা সম্পর্কিতরোগ নির্নয় ও চিকিৎসা পরিসেবাটি বোঝায়। স্পীচ এন্ড ল্যাঙ্গুয়েজ থেরাপিতে যোগাযোগের মাধ্যম হিসেবে ইন্টারনেট ব্যবহারের ধারণাটি সারা বিশ্বেই তুলনামূলকভাবে নতুন, যার কারণে এ সম্পর্কিত গবেষণা পত্র অপ্রতুল।

এই গবেষণাটি লক্ষ্য বর্তমান কোভিড- ১৯ মহামারী পরিস্থিতিতে স্পীচ অ্যান্ড ল্যাঙ্গুয়েজ থেরাপি টেলিপ্র্যাক্টিসের ভবিষ্যত সম্ভাবনা এবং এর অনুভূত কার্যকারিতা চিহ্নিত করা। এই গবেষণা লক্ষ তথ্যাদি সম্পূর্ণ গোপন রাখা হবে এবং শুধু মাত্র গবেষণার কাজে ব্যবহৃত হবে। এই গবেষণায় অংশগ্রহণ করা বা না করার ক্ষেত্রে আপনার পূর্ণ স্বাধীনতা রয়েছে।

A. General Information

1. Your Age (আপনারবয়স): _____
2. Gender (লিঙ্গ): Male (পুরুষ)/ Female (নারী)
3. Currently Living in a (বর্তমানে বসবাস করছি): _____
 - In a divisional city (বিভাগীয়সদর)
 - District city (জেলাসদর)
 - Upazilla/ Thana (উপজেলা/ থানা)
 - Village (গ্রাম)

4. Your obtained Degree (আপনার অর্জিত ডিগ্রী): _____

B. Demographics

5. Do you currently provide therapeutic/ Audiological service to children with special needs? (আপনি কি বর্তমানে বিশেষ চাহিদা সম্পন্ন শিশুদেরকে থেরাপিউটিক সেবা / অডিওলজি সেবা প্রদান করছেন?)

- Yes (হ্যাঁ)
- No (না)

6. If the answer of the above question is “yes”, In what setting(s) you are now working in? You can select more than one. (যদি পূর্ববর্তী প্রশ্নের উত্তর হ্যাঁ হয়, তাহলে আপনি কি ধরনের সেটিংসে বর্তমানে কাজ করছেন? আপনি একাধিক উত্তর বেছে নিতে পারেন)

- Preschool (প্রাক-বিদ্যালয়)
- Special Needs school (বিশেষ চাহিদা সম্পন্ন শিশুদের বিদ্যালয়)
- Therapy center (থেরাপি সেন্টার)
- Audiology and Hearing aid center (অডিওলজি এবং হিয়ারিং এইড সেন্টার)
- Hospital (হাসপাতাল)
- Private chamber/ clinic (ব্যক্তি মালিকানাধীন চেম্বার/ ক্লিনিক)
- Government organization providing therapeutic / Audiological services (অডিওলজিক্যাল বা থেরাপি সেবা প্রদান করে, এমন সরকারী সংস্থা)
- Non-government organization providing therapeutic services (অডিওলজিক্যাল বা থেরাপি সেবা প্রদান করে, এমন বেসরকারী সংস্থা)
- Others (অন্যান্য) _____

7. How many years of experience do you have in speech and language therapy or audiological practice? (স্পীচ এন্ড ল্যাঙ্গুয়েজ থেরাপি বা অডিওলজিক্যাল সেবা প্রদানে আপনার কত দিনের অভিজ্ঞতা আছে?)

_____ Year (বছর) _____ Months (মাস)

C. Existing service delivery in telepractice

8. Are you aware of telepractice in speech-language pathology and/or audiology? (আপনি কি স্পীচ এন্ড ল্যাঙ্গুয়েজ থেরাপি বা অডিওলজিক্যাল সেবায় টেলিপ্র্যাক্টিস সম্পর্কে অবগত আছেন?)
- Yes (হ্যাঁ)
 - No (না)
9. Have you ever used telepractice to provide speech and Language /audiology rehabilitation services? (আপনি কি কখনো টেলিপ্র্যাক্টিসের মাধ্যমে স্পীচ এন্ড ল্যাঙ্গুয়েজ থেরাপি সেবা বা অডিওলজিক্যাল রিহ্যাবিলিটেশন সেবা প্রদান করেছেন?)
- Yes (হ্যাঁ)
 - No (না)
10. If the answer of the question no. 9 is “NO”, What is/are your reason(s) of not using telepractice (yet)? You can select more than one answer. [যদি ৯ নম্বর প্রশ্নের উত্তর “না” হয়, তাহলে এখনো আপনার টেলিপ্র্যাক্টিস না ব্যবহার করার কারণ/ কারণগুলো কি? আপনি একাধিক উত্তর বেছে নিতে পারেন]
- Patient’s type/age unsuitable (রোগীর অবস্থা/ বয়স অনুপযুক্ত)
 - Impersonal/lack of physical contact(শারীরিক সংস্পর্শের অভাব)
 - Questionable effectiveness (কার্যকারিতা প্রশ্নবিদ্ধ)
 - Technological barrier(প্রযুক্তিগত বাধা)
 - Cost too high (অত্যধিক খরচ)
 - Ethical concerns (নৈতিকতা)
 - Lack of support/clinical resources/training (সহায়তা/ ক্লিনিক্যাল রিসোর্স/ প্রশিক্ষন-এর অভাব)
 - Client/caregivers’ reluctance/refusal (রোগী/রোগীর যত্নকারীর অনাগ্রহ)
 - Others (অন্যান্য) _____

*** If you answered question no.10, you do not need to go further to answer, if not, please answer the following questions. (আপনি যদি ১০ নং প্রশ্নের উত্তর দিয়ে থাকেন, তাহলে পরবর্তী প্রশ্ন গুলোর উত্তর দেয়ার প্রয়োজন নেই। যদি না দিয়ে থাকেন, তবে দয়া করে পরবর্তী প্রশ্নগুলোর উত্তর দিন।)

11. If the answer of the question no. 9 is “YES”, then how long have you been doing telepractice? (যদি ৯ নং প্রশ্নের উত্তর “হ্যাঁ” হয়, তাহলে আপনি কতদিন ধরে টেলিপ্র্যাক্টিস সেশন নেন?)

- <3 months (৩ মাসের কম)
- 3–12 months (৩-১২ মাস)
- 1–3 years (১-৩ বছর)
- 3 years or more(৩ বছর বা তার অধিক)

12. How often do you do telepractice per week?(আপনি সপ্তাহে কয়টি টেলিপ্র্যাক্টিস সেশন নেন?)

- Limited to a *single time* (একবারই নেন)
- Less than once per week (সপ্তাহে একদিনের কম)
- About 1–5 times per week (সপ্তাহে প্রায় ১-৫দিন)
- Over 5 times per week (সপ্তাহে ৫ বারের বেশী)

13. How do you deliver your telepractice? You can select more than one answer. (আপনি কিভাবে টেলিপ্র্যাক্টিস সার্ভিসটি প্রদান করেন? আপনি একের অধিক উত্তর পছন্দ করতে পারেন)

- Over telephone/audio-only communication (টেলিফোন/ শুধুমাত্র অডিও-কমিউনিকেশনের মাধ্যমে)
- Over videoconferencing (ভিডিওকনফারেন্সিং এর মাধ্যমে)
- Store-and-forward(স্টোর এন্ড ফরওয়ার্ড)
- Other (অন্যান্য): _____

14. What type of service(s) do you deliver through telepractice? You can select more than one answer. (আপনি টেলিপ্র্যাক্টিসের মাধ্যমে কি ধরনের সেবা প্রদান করে থাকেন? আপনি একাধিক উত্তর বেছে নিতে পারেন)

- Screening (স্ক্রীনিং)
- Assessment (এসেসমেন্ট)
- Treatment (ট্রিটমেন্ট)
- Follow-up/monitoring (ফলোআপ/ মনিটরিং)
- Consultation/supervision (কন্সালটেশন/ সুপারভিশন)

15. In what area(s) do you provide service through telepractice? You can select more than one answer.(কোন কোন ক্ষেত্রে আপনি টেলিপ্র্যাক্টিস সেবা প্রদান করে থাকেন? আপনি একাধিক উত্তর বেছে নিতে পারেন)

- Cognitive communication disorders (কগনিটিভ কমিউনিকেশন ডিজঅর্ডারস)
- Developmental language disorder (ডেভেলপমেন্টাল ল্যাঙ্গুয়েজ ডিজঅর্ডারস)
- Dysphagia/feeding disorder (ডিজফেজিয়া/ খাবারগলধঃকরণেরসমস্যা)
- Hearing impairment (শ্রবনপ্রতিবন্ধীতা)
- Fluency disorder (তোতলামি)
- Motor speech disorders(মোটর স্পীচ ডিজঅর্ডারস)
- Multimodal communication/ AAC (মাল্টিমোডাল কমিউনিকেশন/ এএসি)
- Social communication disorders (সামাজিক যোগাযোগ এ সমস্যা)
- Speech sound disorders (স্পীচ সাউন্ড ডিজঅর্ডারস)
- Voice and laryngeal disorders (কণ্ঠস্বর এবং স্বরযন্ত্রের সমস্যা)
- Other (অন্যান্য): _____

16. What factors would you consider when selecting patients for telepractice? You can select more than one answer. (টেলিপ্র্যাক্টিসের জন্যে রোগী নির্বাচনের ক্ষেত্রে আপনি কোন কোন বিষয়গুলো বিবেচনা করেন? আপনি একাধিক উত্তর বেছে নিতে পারেন)

- Patients' cognitive/behavioral ability (e.g. cognitive functioning, multitasking, attention, etc.) (রোগীর বুদ্ধি বৃত্তিক/ আচরণগত দক্ষতা – যেমনঃজ্ঞানীয় কার্যকরিতা, মাল্টিটাস্কিং, মনোযোগ ইত্যাদি)
- Patients' physical/sensory ability (hearing, vision, sitting tolerance, etc.) (রোগীর শারীরিক/ সংবেদনশীল ক্ষমতা- যেমনঃশ্রবন, দৃষ্টি,বসে থাকার সহনশীলতা ইত্যাদি)
- Patients' communication ability (auditory comprehension, literacy, speech intelligibility, etc.) (রোগীর যোগাযোগ দক্ষতা, যেমনঃশুনে বোঝার ক্ষমতা,সাক্ষরতা, কথার স্পষ্টতা ইত্যাদি)
- Other (অন্যান্য): _____

D. Training, resources and protocol

17. Did you receive any prior training on telepractice before starting telepractice service? আপনি কি টেলিপ্র্যাক্টিস সেবা শুরু করার আগে টেলিপ্র্যাক্টিস সম্পর্কিত কোন প্রশিক্ষণ গ্রহণ করেছেন?

- Yes (হ্যাঁ)
- No (না)

18. Do you feel that the resources available are appropriate and sufficient for telepractice in Bangladesh? (আপনি কি মনে করেন, বাংলাদেশে টেলিপ্র্যাক্টিসের জন্যে যেসব রিসোর্স পাওয়া যায়, সেগুলো পর্যাপ্ত?)

- Yes (হ্যাঁ)
- No (না)

- No comments (মন্তব্য নেই)

19. Do you follow a standard protocol for documentation of your telepractice sessions? (আপনি কি আপনার টেলিপ্র্যাক্টিস সেশনের ডকুমেন্টেশন এর জন্যে কোন স্ট্যান্ডার্ড প্রোটোকল ফলো করেন?)

- Yes (হ্যাঁ)
- No (না)

E. Perception toward telepractice

20. How comfortable are you with the idea of using telepractice for Speech and Language / Audiological diagnostic testing? (স্পীচ এন্ড ল্যাঙ্গুয়েজ বা অডিওলজিক্যাল ডায়াগনোস্টিক টেস্টিং এর ক্ষেত্রে টেলিপ্র্যাক্টিসের ব্যবহার নিয়ে আপনি কতটা স্বস্তিবোধ করেন?)

- Very comfortable (বেশ স্বস্তি বোধ করি)
- Somewhat comfortable (কিছুটা স্বস্তি বোধ করি)
- Neutral (স্বস্তি বা অস্বস্তি কোনটাই বোধ করিনা)
- Somewhat uncomfortable (কিছুটা অস্বস্তি বোধ করি)
- Very uncomfortable (বেশ অস্বস্তি বোধ করি)

21. Rate your level of agreement to the following statements (নিম্নে বর্ণিত বিবৃতি গুলোর সম্পর্কে আপনার মতামত দিন)

- Telepractice is based on current evidence-based practice and is at least equivalent to standard clinical care (টেলিপ্র্যাক্টিস এর ভিত্তি বর্তমান এভিডেন্স বেইজড প্র্যাক্টিস, এবং এটি স্ট্যান্ডার্ড ক্লিনিক্যাল কেয়ারের সমতুল্য)

Strongly disagree (একেবারেই এক মত নই)	Disagree (একমত নই)	Neutral (নিরপেক্ষ)	Agree (একমত)	Strongly agree (সম্পূর্ণ একমত)
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- The appropriateness of using telepractice depends on the clinical population (টেলিপ্র্যাক্টিসের উপযোগীতা নির্ভর করে কারা টেলিপ্র্যাক্টিস সার্ভিস গ্রহন করছে তাদের উপর)

Strongly disagree (একেবারেই একমত নই)	Disagree (একমত নই)	Neutral (নিরপেক্ষ)	Agree (একমত)	Strongly agree (সম্পূর্ণ একমত)
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- Telepractice should always be a real-time interaction between a clinician and the patient (টেলিপ্র্যাক্টিস সব সময়ই ক্লিনিশিয়ান ও পেশেন্টের মাঝে রিয়েল-টাইম ইন্টারেকশন এর মাধ্যমে হওয়া উচিত)

Strongly disagree (একেবারেই এক মত নই)	Disagree (এক মত নই)	Neutral (নিরপেক্ষ)	Agree (একমত)	Strongly agree (সম্পূর্ণ একমত)
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- Telepractice can be done for an individual, group sessions, specialist clinical consultation, and even clinical training/supervision (টেলিপ্র্যাক্টিস একজন ব্যক্তির থেরাপি, গ্রুপ সেশন, স্পেশালিস্ট ক্লিনিক্যাল কন্সালটেশন, এবং এমনকি ক্লিনিক্যাল ট্রেনিং/সুপারভিশনের জন্যে ব্যবহার করা যায়।)

Strongly disagree (একেবারেই এক মত নই)	Disagree (একমত নই)	Neutral (নিরপেক্ষ)	Agree (একমত)	Strongly agree (সম্পূর্ণ একমত)
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- The interaction between the therapist and the patient in telepractice is less than in face-to-face or on-site practice (ফেস-টু-ফেস বা অন-সাইট প্র্যাক্টিসের চেয়ে টেলিপ্র্যাক্টিসে থেরাপিস্ট ও রোগীর মধ্যকার ইন্টারেকশন কম থাকে।)

Strongly disagree (একেবারেই একমত নই)	Disagree (একমত নই)	Neutral (নিরপেক্ষ)	Agree (একমত)	Strongly agree (সম্পূর্ণ একমত)
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22. What is the feedback offered by your clients about telepractice services? (টেলিপ্র্যাক্টিস সেবা সম্পর্কে আপনার সেবা গ্রহীতাদের প্রতিক্রিয়া কি?)

- Very good (খুবই ভাল)
- Good (ভাল)
- Satisfactory (সন্তোষজনক)
- Not satisfactory (সন্তোষজনক নয়)
- No feedback (কোন প্রতিক্রিয়া নেই)

23. In general, what do you think about the clinical effectiveness of telepractice as compared with standard face-to-face therapeutic service? (সামগ্রিকভাবে, স্ট্যান্ডার্ড ফেস-টু-ফেস থেরাপিউটিক সার্ভিসের তুলনায় টেলিপ্র্যাক্টিসের ক্লিনিকাল কার্যকারীতা সম্পর্কে আপনি কি ভাবেন?)

- More effective (বেশী কার্যকরী)
- Similarly effective (সমান ভাবে কার্যকরী)
- Less effective (কম কার্যকরী)
- Have not considered the clinical effectiveness (কার্যকারীতা বিবেচনা করা হয়নি)
- Other (অন্যান্য): _____

Semi structured questionnaire for parents

1. What is your experience about telepractice? (স্পীচ এন্ড ল্যাঙ্গুয়েজ থেরাপি টেলিপ্র্যাক্টিস সম্পর্কে আপনার অভিজ্ঞতা কি?)
 - If satisfactory, what have made you satisfied (যদি সন্তোষজনক হয়, তাহলে কি আপনাকে সন্তুষ্ট করেছে?)
 - If not, why? (যদি সন্তোষজনক না হয়, তবে কেন?)
2. During covid-19 period, how telepractice effected in your child's development? (করোনাকালীন সময়ে স্পীচ এন্ড ল্যাঙ্গুয়েজ থেরাপি টেলিপ্র্যাক্টিস আপনার বাচ্চার উন্নতিতে কতটুকু প্রভাব ফেলেছে বলে আপনি মনে করেন?)
 - If it helped, how do you think it helped? If not, why do you think it has not affected? যদি সাহায্য করে থাকে, তাহলে কিভাবে সাহায্য করেছে? আর যদি না করে থাকে, কি কারণে আপনি মনে করেন টেলিপ্র্যাক্টিস সাহায্য করেনি।
3. What do you think about the difference between telepractice and face-to face speech therapy? ফেস-টু-ফেইস স্পীচ থেরাপি ও টেলিপ্র্যাক্টিস এর মাঝে আপনি কি কি পার্থক্য আছে বলে মনে করেন?
4. In your opinion, what factors are responsible for better telepractice sessions? কি কি বিষয়ের উপর টেলিপ্র্যাক্টিসের উপযোগিতা নির্ভর করে বলে আপনি মনে করেন?
5. What do you think about the interaction between therapist and child in speech and language therapy telepractice? স্পীচ এন্ড ল্যাঙ্গুয়েজ থেরাপি টেলিপ্র্যাক্টিসে থেরাপিস্ট ও বাচ্চার মাঝে ইন্টারেকশন বা পারস্পরিক সম্পর্ক নিয়ে আপনার মতামত কি?
6. In general, what do you think about the clinical effectiveness of telepractice as compared with standard face-to-face therapeutic service and why? সামগ্রিকভাবে স্ট্যান্ডার্ড ফেস-টু-ফেস থেরাপিউটিক সার্ভিসের তুলনায় টেলিপ্র্যাক্টিসের কার্যকারিতা সম্পর্কে আপনি কি ভাবেন এবং কেন?