The perceptions, attitudes and experiences of service users with telehealth speech-language pathology services

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ABSTRACT

Aims: To investigate the perceptions, attitudes, and experiences of clients and caregivers towards telehealth Speech-Language Pathology (SLP) services.

Methods: A comprehensive questionnaire was developed and validated to investigate the perceptions, attitudes, and experiences of service users towards telehealth services. The questionnaire included questions related to telehealth experience, client's preferences, and the perceived facilitators, barriers, advantages, and disadvantages of telehealth. Phone survey was used to collect data from clients and caregivers of clients who received telehealth SLP services during and after the COVID-19 pandemic.

Results: A total of 293 clients and caregivers participated in this study. The findings indicated that 97.95 % of the respondents reportedly received telehealth SLP services for the first time during the COVID-19 pandemic, mainly through video-communication (51.2 %), and for different clinical services, with therapy (31.04 %) and monitoring (31.28 %) being the highest services. Of the total respondents, 54.95 % felt that telehealth appointments were similar to in-person appointments. However, 41.30 % of the respondents preferred receiving in-person appointments. Statistical analyses indicated that eight factors were perceived by service users as significant primary facilitators of telehealth (e.g., good internet connection, available resources, experience with technology), whereas only three factors were perceived as significant primary barriers (e.g., poor image/sound quality, and client's communication impairments). Furthermore, 10 factors were perceived as significant primary advantages of telehealth (e.g., reduced cost and travel time), while only one factor was identified as a significant primary disadvantage (inability to conduct a physical examination).

Conclusions: Service users identified numerous advantages of telehealth, including improved access to healthcare, and reduced costs, while only one disadvantage was identified (lack of physical examinations). The perceived facilitators and barriers of telehealth by service users can be classified into technology-related factors (e.g., comfort with technology, internet connection) and client-related factors (e.g., client's cognitive and sensory abilities). These technology and client-related factors should be considered by policy makers and funding bodies while planning the establishment or expansion of telehealth services.

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1. Introduction

In the past few years, the landscape of healthcare has undergone a transformative shift with the integration of telehealth or telemedicine services. Telehealth is defined by the World Health Organization as "the delivery of healthcare services, where clients and providers are separated by distance" (WHO, 2022). In telehealth, technologies are used to exchange information related to the clinical evaluation and management of diseases and disorders, research, and education of healthcare professionals (WHO, 2022). Virtual appointments are delivered through telehealth. This paradigm shift is particularly notable in the field of Speech-Language Pathology/Therapy (SLP). This is because most telehealth SLP clinical services, including consultation, assessment, or intervention, can be delivered from a distance to clients through real-time video and/or audio communication using remote tools without the need for sophisticated equipment (Theodoros, 2011). As technology continues to advance, the adoption of telehealth in the field of SLP raises intriguing questions about how clients and caregivers perceive this novel approach. Evaluating the perceptions and attitudes of clients and caregivers regarding the utilisation of telehealth services is paramount in shaping the success and sustainability of telehealth SLP services.

The global pandemic caused by the coronavirus disease 2019 (COVID-19) led to worldwide interruption of SLP services due to national lockdowns, travel restrictions, social distancing, and reduction in healthcare services. Therefore, telehealth SLP had to be implemented to ensure continuity of care and avoid delays in service provision (Aggarwal et al., 2020; Binkhamis et al., 2024; Fong et al., 2021). However, most studies investigated the perceptions and attitudes of clinicians rather than clients and caregivers. When Speech-Language Pathologists/Therapists (SLPs) were asked about their perceptions on the advantages of telehealth, they reported enhanced accessibility to healthcare for clients living in rural areas, higher client attendance, savings related to travel time and associated costs, reduced risk of infection, overcoming geographical constraints, comfort to clients and caregivers in carrying out and engaging in activities from home, easier monitoring, increased frequency and consistency of therapy, and more benefits from therapy (Binkhamis et al., 2024; Boey & Lefevere, 2022; Hao et al., 2021; Tucker, 2012). SLPs also reported disadvantages of telehealth, including reduced flexibility in the use or exchange of materials, less hands-on, difficulties engaging some clients, technical challenges, and reduced access to resources (Boey & Lefevere, 2022; Hao et al., 2021). The adoption of telehealth in SLP is not without its barriers. Technical issues, such as poor internet connectivity, poor sound or image quality, inadequate access to technology; concerns about privacy; lack of clinician training; lack of familiarity with technology among clients and caregivers; less controlled environment; limited clinical materials available for online use; challenges to establish therapeutic relationships with clients; and lack of physical examinations are commonly barriers reported by healthcare providers (Macoir et al., 2021; Tucker, 2012).

Studies have examined the perceptions of service users with telehealth services across different healthcare disciplines and showed that clients and caregivers reported barriers with the use of telehealth, including technical challenges, poor sound or image quality, concerns around privacy, convenience, cost, and lack of personal contact (Harkey et al., 2020; Orrange et al., 2021; Scott Kruse et al., 2018). Few studies within the field of SLP have explored few aspects related to telehealth from the perceptions of service users. This includes time and cost of telehealth among parents of paediatrics with feeding disorders (Raatz et al., 2023), effectiveness of telehealth for school children receiving speech or language therapy services (Grogan-Johnson et al., 2010), and satisfaction with telehealth SLP services (Alyahya, 2025). However, to date, no studies have examined the perceptions and attitudes of service users towards different SLP clinical services received through telehealth, including consultation, assessment and therapy across the lifespan (i.e., paediatrics, adolescents, adults, and elderly adults) and among several SLP diagnoses, including a wide range of speech, language, voice, and swallowing disorders. It is essential to account for the views of service users from different age and clinical groups.

The aims of this study were twofold. First, to investigate the perceptions of clients and caregivers with different telehealth SLP clinical services (including consultation, screening assessment, therapy, and monitoring), in relation to the facilitators, barriers, advantages, and disadvantages of telehealth. This was also examined across a wide range of speech, language, voice, and swallowing disorders in paediatrics, adolescents, adults, and elderly adults. Second, to examine the experiences of service users with telehealth SLP services, and investigate their attitudes towards telehealth services, in relation to benefits and preferred option of service delivery. The healthcare community continues to adapt to the digital era, and thus the voices of service users, particularly those who received telehealth services during or after the pandemic, provide a crucial guide in navigating factors that are important to optimise the integration of telehealth into SLP practices. Through examining these viewpoints, we seek to gain insights that can inform the refinement of telehealth practices in SLP, ensuring that they align with the needs and expectations of the service users. These can guide policy makers and funding bodies with the establishment and expansion of telehealth services.

2. Methods

The study was approved by King Fahad Medical City's Institutional Review Board (IRB No. 21-557). Informed consent was obtained from each participant verbally via phone call before voluntarily participating in this study according to the Declaration of Helsinki under the approval of the local research ethics committee.

2.1. Materials: questionnaire development

The Perceptions of Service Users towards Telehealth Services questionnaire was developed by the author based on a literature review of facilitators, barriers, advantages and disadvantages of telehealth services (Boey & Lefevere, 2022; Tucker, 2012), the clinical expertise of the author, and a focus group consisted of five SLPs with experience in delivering telehealth SLP services. Initially, the focus group identified factors that have been reported by service users as benefits, barriers, and advantages of telehealth services. After

designing the questionnaire, the focus group evaluated and commented on the survey questions to ensure that they capture the factors that were commonly highlighted by clients or caregivers of clients with communication and/or swallowing disorders. Content and face validity of the questionnaire were established in a two-step process. First, the questionnaire was reviewed by two experts in the field with over 10 years of clinical experience, and an intern student who is not an expert in the field. Those three reviewers evaluated whether the survey questions successfully captured the objectives of this research study. Second, the questionnaire was reviewed by an expert on constructing survey questions, to ensure that the questions did not contain any confusing or double-barrelled questions. Some questions were modified throughout the validation process. The final questionnaire consisted of four sections (available in Supplementary Materials): (i) client's demographic information (4 questions); (ii) telehealth experiences (5 questions); (iii) attitudes towards telehealth services (2 questions); and (iv) perceptions of telehealth services in relation to facilitators, barriers, advantages, and disadvantages of telehealth (4 questions with 36 statements). The respondents were required to rate each statement on a 3-point Likert scale (1 = not a factor, 2 = somewhat a factor, 3 = a primary factor).

2.2. Procedure: participants recruitment and data collection process

A dataset of all clients who received telehealth SLP services between April 2020 and August 2022 at the Communication and Swallowing Disorders Department in King Fahad Medical City (the biggest Medical Complex in the Middle East) were extracted from the hospital's electronic health records system. This included the background information of the clients (age, gender, and diagnosis) and their contact details. All clients, or caregivers of paediatric clients or adults with expressive difficulties, in this dataset were contacted via phone by a trained research assistant. Those who answered the phone call were presented with the information sheet including details on rights to participate/withdraw and confidentiality, and then were asked if they would like to volunteer to participate in the study. Only those who consented to participate completed the phone survey, which was conducted in Arabic (the native language of the service users). Responses to the survey questions were recorded by four trained research assistants using Survey Monkey (www.surveymonkey.com). The research assistants were trained to use neutral language and emphasize the confidentiality of responses to encourage honest feedback.

2.3. Data analyses

Data from Survey Monkey was exported and sorted in Microsoft Excel (version 16.63.1, 2022), and analysed using SPSS version 29. Participant demographics were displayed as frequencies and percentages. One-sample chi-square tests were conducted to examine the statistical significance of the responses to each statement on the 3-point Likert scale. Bonferroni correction for multiple comparisons was applied to the p-value required for statistical significance, and was adjusted to $p \leq 0.0013$. Mode was used to determine the response that occurs most often on the 3-point Likert scale for each significant factor. Responses to each factor on the 3-point Likert scale were illustrated in percentages.

3. Results

3.1. Participants

A total of 293 respondents completed the phone survey: 48 clients, and 245 caregivers; including parents (n = 181), spouses (n = 16), offsprings (n = 27), siblings (n = 19), and others (n = 2). Demographic information is available in Table 1.

Table 1
Client's demographic information (N = 293).

	Categories	Frequency	Percentage
Gender	Female	106	36.18
	Male	187	63.82
Age group	< 6 months	12	4.10
	7 months – 3 years	59	20.14
	4 – 7 years	68	23.21
	8 – 12 years	27	9.22
	13 - 18 years	6	2.05
	19 – 40 years	55	18.77
	41 – 64 years	52	17.75
	> 65 years	14	4.78
SLP diagnosis	Paediatric language disorders	71	24.23
	Dysphagia and feeding disorders	60	20.48
	Aphasia	37	12.63
	Speech sound disorders	30	10.24
	Motor speech disorders	32	10.92
	Voice disorders	23	7.85
	Pragmatic/social communication disorders	17	5.80
	High Risk for developmental delays	12	4.10
	Cognitive communication disorders	11	3.75

3.2. Experiences with telehealth SLP services

Of the total respondents, 97.95 % reported receiving telehealth SLP services for the first time during the COVID-19 pandemic, and 2.05 % received it before the pandemic. In terms of duration of telehealth services, 44.66 % of the respondents received less than 6 months of telehealth services, whereas 24.23 % received telehealth services between 6 months and 1 year, and 32.08 % received telehealth services for more than one year. In terms of regularity of telehealth services, 68.26 % of the respondents reported receiving irregular telehealth services, and 31.74 % reported receiving regular telehealth services ranging from two sessions per week to once a month.

Clients received different types of clinical services through telehealth, with therapy (31.04 %) and monitoring (31.28 %) being the highest services, followed by assessment (14.22 %), counselling (10.19 %), screening (9.95 %), and consultation (3.32 %). The most common reported mode of telehealth delivery, was video-communication (51.2 %), followed by audio-communication (32.42 %), a combination of video-communication and audio-communication (9.56 %), and video-communication alongside store-and-forward (3.75 %).

3.3. Attitudes towards telehealth SLP services

Of the total respondents, 54.95 % felt that telehealth appointments were similar to in-person appointments, whereas 19.45 % felt that telehealth were better than in-person appointments, 18.43 % felt that telehealth were worse than in-person appointments, and 7.17 % responded with 'not applicable' as they only received telehealth services and could not compare it to in-person appointments. In terms of preference, 41.30 % of the respondents preferred receiving in-person appointments, 26.62 % preferred receiving both in-person and telehealth appointments, 23.89 % preferred telehealth over in-person appointments, and 8.19 % did not have a preference.

3.4. Perceptions of telehealth SLP services

3.4.1. Facilitators of telehealth services

Findings from the Likert-scale on the perceptions of service users regarding the facilitators of telehealth are illustrated in Fig. 1. Results from one sample chi-squared tests indicated that responses to each of the eight factors were statistically significant, and all eight factors were considered primary facilitators (Mo = 3). Six facilitators were identified as a significant primary facilitator by over 72 % of the respondents: (1) good internet connection ($\chi^2 = 356.98$, $p < 0.0001$); (2) clients and caregiver's experience with technology ($\chi^2 = 354.11$, $p < 0.0001$); (3) available resources for clinicians ($\chi^2 = 334.45$, $p < 0.0001$); (4) available resources for clients (χ^2
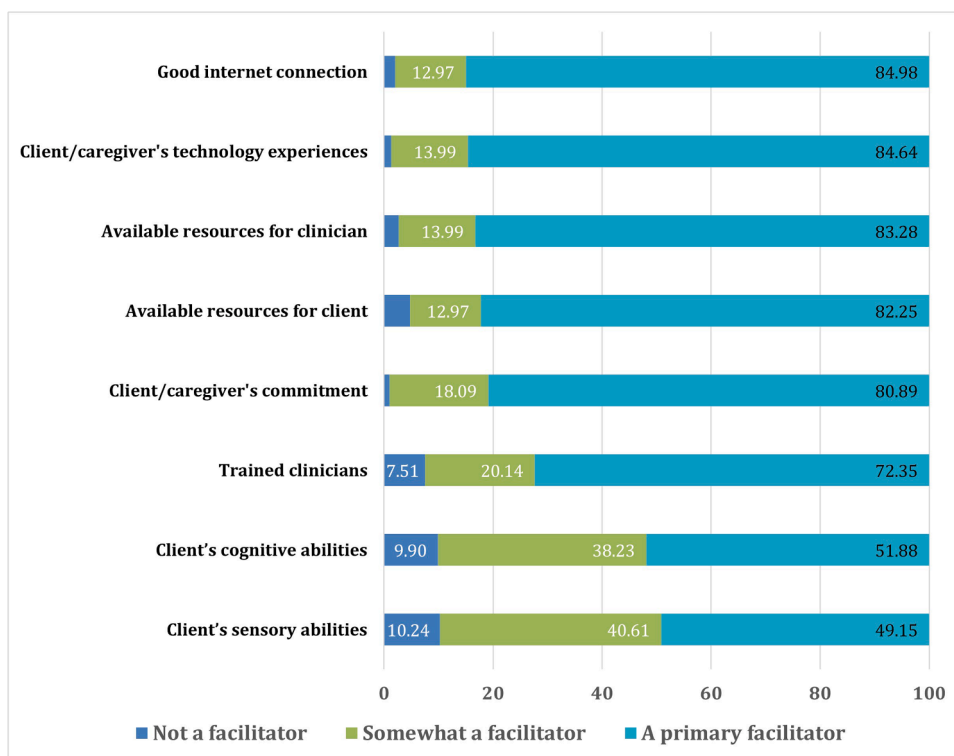

Fig. 1. Facilitators of telehealth SLP services as perceived by service users. Ranking on a 3-point Likert scale. Presented in percentages.

$= 318.48, p < 0.0001$); (5) commitment of clients and caregivers to receiving telehealth services ($\chi^2 = 310.96, p < 0.0001$); and (6) trained clinicians on the use of telehealth ($\chi^2 = 207.77, p < 0.0001$). The remaining two factors were identified as a significant primary facilitator by over 49 % of the respondents: (1) client's cognitive abilities (e.g., attention and memory) ($\chi^2 = 80.61, p < 0.0001$); and (2) client's sensory abilities (e.g., hearing and vision) ($\chi^2 = 73.52, p < 0.0001$).

3.4.2. Barriers to telehealth services

Findings from the Likert-scale on the perceptions of service users regarding the barriers of telehealth are illustrated in Fig. 2. Results from one sample chi-squared tests indicated that responses to three out of the nine factors were statistically significant, and were considered primary barriers (Mo = 3). These three factors were identified as a primary barrier by 39 % to 62 % of the respondents: (1) reduced sound or picture quality ($\chi^2 = 111.86, p < 0.0001$); (2) lack of clients and caregiver's comfort with technology ($\chi^2 = 57.96, p < 0.0001$); and (3) client's communication (e.g., auditory comprehension, literacy, speech intelligibility) impairments ($\chi^2 = 35.76, p < 0.0001$). On the other hand, three factors were statistically significant, but were considered not to be barriers of telehealth (Mo = 1), by over 44 % of the respondents: (1) high cost ($\chi^2 = 118.14, p < 0.0001$); concerns around privacy ($\chi^2 = 73.89, p < 0.0001$); and (3) difficulty using materials (i.e., exchange of soft copy materials) ($\chi^2 = 29.86, p < 0.0001$). Three of the factors did not reach the level of statistical significance, and respondents did not agree on classifying them as primary barriers, somewhat barriers, or not barriers: (1) client's age; (2) client's physical disability; and (3) the need of a caregiver to accompany the telehealth appointment.

3.4.3. Advantages of telehealth services

Findings from the Likert-scale on the perceptions of service users regarding the advantages of telehealth are illustrated in Fig. 3. Results from one sample chi-squared tests indicated that responses to ten of the 11 factors were statistically significant, and were considered primary advantages (Mo = 3) by over 60 % of the respondents: (1) reduced costs associated with travel ($\chi^2 = 287.92, p < 0.0001$); (2) reduced travel time ($\chi^2 = 284.75, p < 0.0001$); (3) less visits to the hospital ($\chi^2 = 277.05, p < 0.0001$); (4) provide healthcare access to clients with mobility issues ($\chi^2 = 225.43, p < 0.0001$); (5) reduce waiting time to receive healthcare ($\chi^2 = 214.39 p < 0.0001$); (6) receive healthcare service in a comfortable environment ($\chi^2 = 209.54, p < 0.0001$); (7) receive healthcare service without having to take time off work ($\chi^2 = 194.98, p < 0.0001$); (8) easier access to healthcare services ($\chi^2 = 154.53, p < 0.0001$), (9)
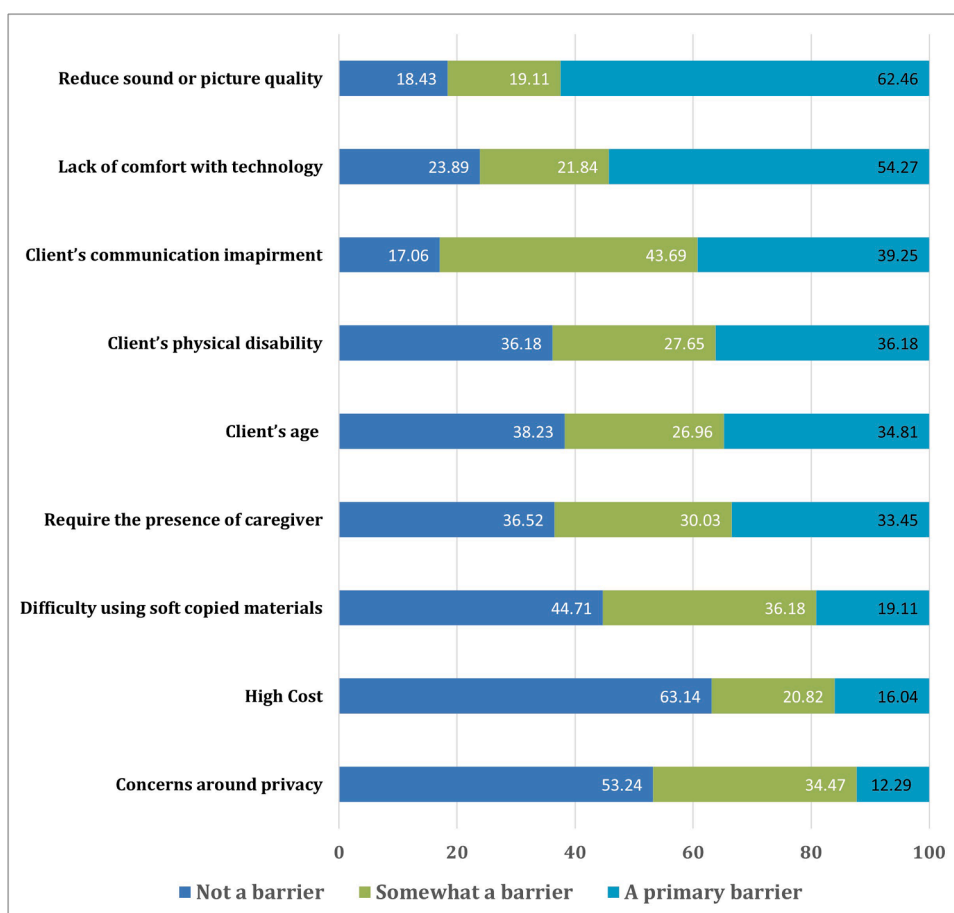

Fig. 2. Barriers of telehealth SLP services as perceived by service users. Ranking on a 3-point Likert scale. Presented in percentages.

higher chances to receive more therapy sessions ($\chi^2 = 106.90$, $p < 0.0001$), and (10) better monitoring of client's progress ($\chi^2 = 99.16$, $p < 0.0001$). Interestingly, the factor 'more beneficial compared to in-person sessions' did not reach the level of statistical significance, where the respondents did not agree on classifying it as a primary advantage, somewhat an advantage, or not an advantage.

3.4.4. Disadvantages of telehealth services

Findings from the Likert-scale on the perceptions of service users regarding the disadvantages of telehealth are illustrated in Fig. 4. Results from one sample chi-squared tests indicated that responses to only one of the eight factors was statistically significant, and considered a primary disadvantage of telehealth (Mo = 3) by 64.16 % of the respondents: inability to conduct a physical examination ($\chi^2 = 130.9$, $p < 0.0001$). On the other hand, three factors were statistically significant but were considered not to be disadvantages of telehealth (Mo = 1) by over 43 % of the respondents: (1) recording the session ($\chi^2 = 127.8$, $p < 0.0001$); (2) understanding information or management plan ($\chi^2 = 30.88$, $p < 0.0001$); and (3) clinician has limited control over the session ($\chi^2 = 13.48$, $p = 0.001$). Four of the factors did not reach the level of statistical significance, where the respondents did not agree on classifying them as primary disadvantage, somewhat disadvantage, or not a disadvantage. These factors were: (1) reduced communication with the clinician; (2) reduced client's motivation to receiving healthcare services; (3) interruptions of the appointment because the environment is not controlled; and (4) and less beneficial compared to in-person appointments.

4. Discussion

4.1. Summary of findings

This is the first study to investigate the perceptions, attitudes, and experiences of service users with different SLP clinical services delivered through telehealth, and across a wide range of SLP diagnoses among both paediatric and adult populations. The study presented several interesting findings. Firstly, most respondents received telehealth SLP services for the first time during the COVID-19 pandemic, mainly through video-communication. Secondly, different healthcare services were received through telehealth, mostly therapy and monitoring. Thirdly, half of the respondents felt that telehealth services are similar to in-person appointments, yet the
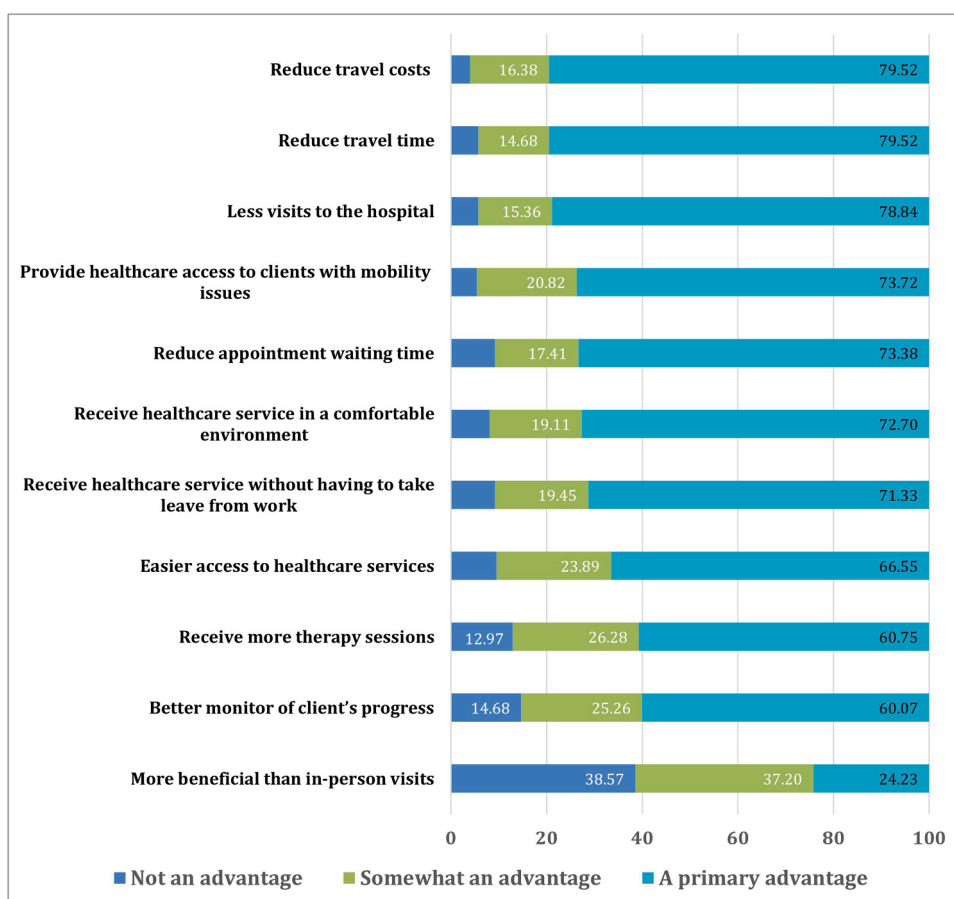
Fig. 3. Advantages of telehealth SLP services as perceived by service users. Ranking on a 3-point Likert scale. Presented in percentages.
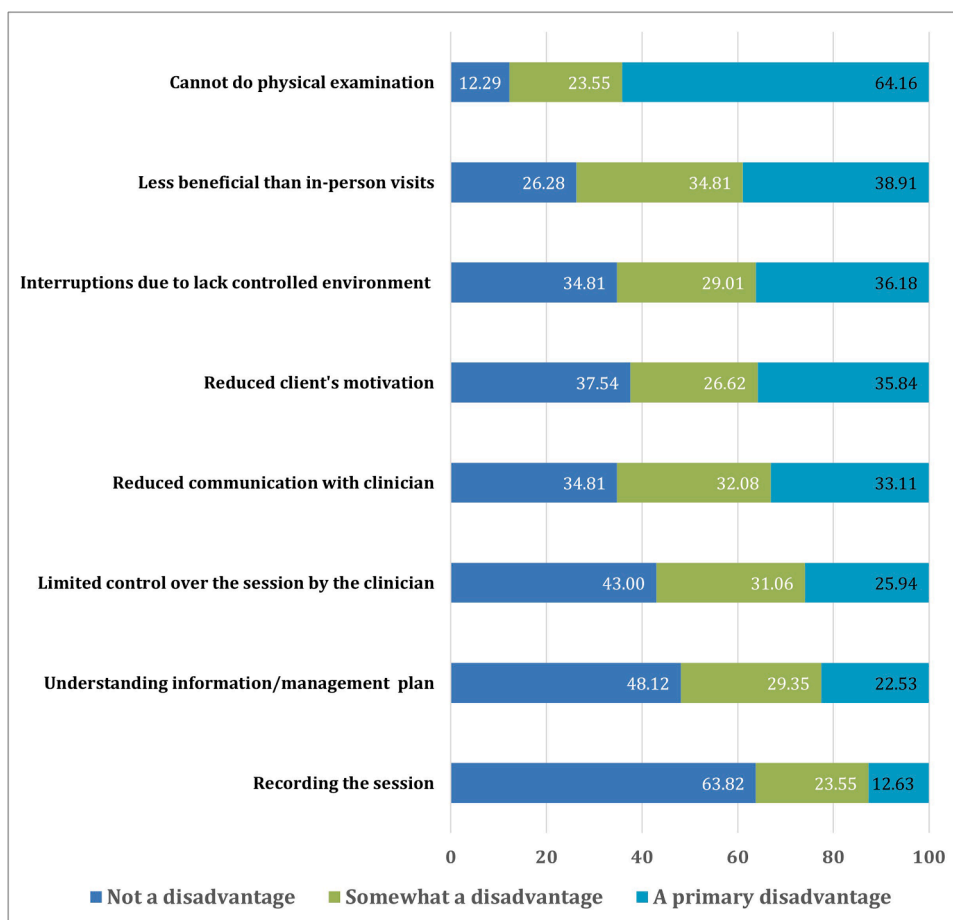
Fig. 4. Disadvantages of telehealth SLP services as perceived by service users. Ranking on a 3-point Likert scale. Presented in percentages.

majority of the respondents preferred to receive in-person over telehealth appointments. Fourthly, clients and caregivers have identified several factors to be primary facilitators of telehealth, and only one primary barrier. Those factors fall within two themes: technology- and client-related factors. Finally, several perceived advantages of telehealth have been identified, and those were mainly related to the quality of healthcare services and accessibility of healthcare.

4.2. Facilitators and barriers of telehealth services

Several factors were perceived by clients and caregivers as primary facilitators of telehealth. The majority of these factors were related to technology, including available resources for clinicians and clients (e.g., space to carry out remote appointments, software to conduct telehealth appointment, and technical support if needed), good internet connection, clients and caregiver's experience with technology, and clinicians that are trained on the use of telehealth. Furthermore, the factors that were perceived by clients and caregivers as primary barriers to telehealth were mostly technology-related factors, including reduced sound or image quality during video or audio communication, and lack of clients and caregiver's comfort with technology. These findings complement the current literature, which also identified technology-specific barriers, and advised that training and change-management could overcome these barriers (Scott Kruse et al., 2018). Furthermore, studies showed a growing availability of resources for both clinicians and clients in the telehealth landscape, offering a wide range of features and capabilities (Haleem et al., 2021). Studies also highlighted the development and implementation of user-friendly platforms, hardware, and software to facilitate remote appointments (Haleem et al., 2021). Research indicates that the accessibility of these resources contributes to the overall success and adoption of telehealth practices (Harkey et al., 2020). Research acknowledges the significance of a robust technical support system in the successful implementation of telehealth, which can improve client satisfaction with telehealth services (Tucker, 2012). The quality of internet connection, sound and image qualities are critical factors in the delivery of telehealth (Binkhamis et al., 2024).

In addition to what has been reported in the literature and reported in this study in relation to technology-specific facilitators and barriers to telehealth, the current study identified a second theme around the facilitators and barriers of telehealth, which was client-related factors. Little is known about the influence of client's abilities including cognitive, sensory and communication on the successful implementation and effectiveness of telehealth services. However, the current study enriches the literature by documenting

additional perceived facilitators of telehealth reported by clients and caregivers, which related to client's cognitive (e.g., attention and memory) and sensory (e.g., hearing and vision) abilities, and commitment of service users to receiving telehealth services. Relatedly, client's communication impairments, such as auditory comprehension deficits, illiteracy, and reduced speech intelligibility, were perceived as barriers to telehealth in the current study. The commitment of clients and caregivers to receiving telehealth services has been shown to enhance the effectiveness of telehealth programmes, fostering a sense of collaboration between healthcare providers and service users (Almubark et al., 2022).

It is interesting to note that factors that have been perceived by clinicians in the literature as barriers of telehealth, including high cost, concerns around privacy, difficulties with the use and exchange of soft copy materials (Macoir et al., 2021; Tucker, 2012), have not been perceived by clients and caregivers as barriers to telehealth in the current study. Although both, service users in the current study and clinicians in the literature (Binkhamis et al., 2024), have identified available workplace resources as a primary facilitator of telehealth. In the current study, service users have identified additional facilitators of telehealth including commitment of service users to receiving telehealth services, and client's cognitive and sensory abilities. The discrepancy between the perceived barriers of telehealth services between clinicians and clients/caregivers highlights the importance of accounting for the views of service users, and not only healthcare providers.

4.3. Advantages and disadvantages of telehealth services

Clients and caregivers of clients who received SLP services in the current study identified numerous advantages of telehealth services. Those related to cost savings, accessibility (i.e., reduced waiting time to receiving healthcare services, easier access to healthcare services, and providing healthcare access to clients with mobility issues), and convenience (i.e., reduced travel time, less visits to the hospital, and receiving healthcare services in a comfortable environment and without having to take time off work to attend the appointments). Previous studies have also identified similar time and cost benefits of telehealth with paediatric feeding disorders (Raatz et al., 2023). Findings from the current study provide assurance that these time and cost advantages of telehealth are perceived by clients with different speech, language, cognitive communication, voice, and swallowing disorders. The current studies also identified other perceived primary advantages of telehealth related to the quality of healthcare services, including receiving more therapy sessions, and better monitoring of client's progress. Improved accessibility to healthcare services is a major advantage of telehealth, as it eliminates geographical barriers, enabling individuals in remote or underserved areas to access medical care without the need for extensive travel and time off work (Almubark et al., 2022; Tucker, 2012). Telehealth provides convenience for both healthcare providers and users, as appointments can be scheduled more flexibly, and allow individuals to receive care from the comfort of their homes. Telehealth supports the continuity of healthcare by enabling regular support and monitoring, and reducing wait times to receive an appointment, leading to better management and preventive care (Almubark et al., 2022; Haleem et al., 2021).

Interestingly, clients and caregivers only identified one primary disadvantage of telehealth, which is inability to receive a physical examination. This, indeed, could be a limitation of remote appointments especially for certain conditions that may require physical examinations, such as oral-motor examination for clients with cleft palate. On the other hand, multiple environmental-related factors (e.g., control over the session by the clinicians, understanding healthcare information, recording the session, reduced personal contact, and frequent interruption of the appointment) that have been perceived by clinicians as disadvantage of telehealth (Aggarwal et al., 2020; Lam et al., 2022), were not perceived as disadvantages by clients and caregivers in the current study. This perhaps explains the high satisfaction rate that has been documented with telehealth SLP services (Alyahya, 2025; Burns et al., 2019; Tenforde et al., 2020). This compelling evidence encourages the implementation and expansion of telehealth as a service delivery model in SLP.

4.4. Service users' attitudes towards telehealth services

Interestingly, one factor 'benefits of telehealth service compared to in-person appointments' was not identified by clients and caregivers as an advantage nor a disadvantage of telehealth. This resonates with the findings on the attitudes of clients and caregivers towards telehealth services. Specifically, half of the respondents in this study felt that telehealth appointments are similar to in-person appointments, yet the majority of the respondents preferred to use in-person over telehealth appointments. This contradicts another study in which most respondents preferred telehealth over standard in-person visits (Grogan-Johnson et al., 2010). The discrepancy between our findings and results from Grogan-Johnson et al. (2010) could be attributed to differences in the type of clinical services and settings, as Grogan-Johnson et al explored the attitudes of service users with therapy services delivered in school settings (Grogan-Johnson et al., 2010), whereas the current study examined the attitudes of service users across all types of clinical services (e. g., assessment, therapy, screening) delivered in a hospital setting. This highlights the importance of not generalising the perceptions of clients and caregivers examined at educational settings to healthcare settings.

4.5. Strengths and limitations

This study utilised a large sample of service users, and examined the perceptions and attitudes of service users across the lifespan (infants, paediatrics, adolescents, adults, and elderly adults) among a wide range of SLP disorders, including paediatric language disorders, speech sound disorders, aphasia, motor speech disorders, voice disorders, cognitive communication disorders, dysphagia and feeding disorders, pragmatic and social communication disorders, and those at high risk of developmental delays. Furthermore, their perceptions and attitudes were investigated across a variety of clinical services, including consultation, screening, assessment, therapy, monitoring, and counselling. Moreover, the current study used a comprehensive questionnaire, which provided several

insights into the attitudes and perceptions towards telehealth services. The utilisation of phone surveys allowed us to recruit a bigger sample size compared to using in-person surveys. We took several steps to mitigate the potential risk of social desirability bias. Specifically, the phone survey was conducted by independent research assistants, who were not involved in the participants' healthcare. Additionally, research assistants were trained to use neutral language and emphasize the confidentiality of responses to encourage honest feedback. One limitation of the current study is recruiting participants from one site, though the largest in the country. Multi-centre studies would reinforce the current findings.

4.6. Implications for policy, research, and clinical practice

The compelling evidence from this study encourages the implementation and expansion of telehealth as a service delivery model in SLP. Exploring the perceptions of service users is essential to harness the full potential of this transformative approach to healthcare delivery. The findings from this study shed light on crucial aspects influencing the successful implementation of telehealth services from the viewpoints of service users. Findings from the current study could be used to advocate for the utilisation of telehealth SLP services, due to the numerous associated benefits.

The findings from the current study opens an avenue for future research, and presents with several clinical implications. Specifically, the findings advocate tailoring telehealth programmes to accommodate individuals with specific sensory, cognitive or communication needs, in order to ensure inclusivity of these mode of service delivery. For instance, the implementation of user-friendly interfaces and use of assistive technologies might be recommended to mitigate the impact of certain deficits. Moreover, it is crucial to create a suitable environment to conduct remote/virtual appointments, including providing adequate space and privacy. This is important for maintaining confidentiality and ensuring a comfortable experience for both clinicians and clients (WHO, 2022). It is essential to improve the experience and comfort of clients with the use of telehealth prior to implementing it as a mode of healthcare delivery. This can influence the client's acceptance and satisfaction with telehealth services (Haleem et al., 2021). Furthermore, providing adequate training for clinicians to be able to effectively navigate and utilise telehealth technologies is essential to improve their confidence, competence, and overall readiness to embrace telehealth as a mode of service delivery.

5. Conclusions

The perceived facilitators and barriers of telehealth SLP services by clients and caregivers can be classified into technology-related factors and client-related factors. Technology-related factors involve available resources, good internet connection, decent sound and image quality, experience and comfort with the use of technology, and clinicians that are trained on the utilisation of telehealth. On the other hand, client-related factors include commitments with telehealth, and client's cognitive, sensory, and communication abilities. Clients and caregivers of clients who received SLP services via telehealth identified numerous advantages of telehealth, including improved access to healthcare services, reduced costs, higher convenience, and better quality of healthcare in terms of number of therapy sessions and monitoring of progress. Interestingly, only one disadvantage of telehealth was identified by clients and caregivers, which was lack of physical examinations. Some of these benefits and challenges are different to factors that have been perceived by clinicians and reported by researchers in the existing literature. Therefore, exploring the facilitators and barriers of telehealth from the viewpoints of service users are crucial in guiding the establishment and expansion of telehealth services. Exploring the advantages and disadvantages of telehealth from the service users' perspectives is essential to harness the full potential of this transformative approach to healthcare delivery. The findings from this study do shed light on benefits, challenges, and areas for improvement to optimise the remote healthcare experience for service users. Findings from the current study could be used to advocate for the utilisation of telehealth SLP services, due to the numerous associated benefits. Furthermore, the knowledge provided in this study on the facilitators and barriers of telehealth should be considered when planning and expanding telehealth services to ensure a successful and effective implementation. Considering these factors is critical especially since telehealth services have become a more common mode of service delivery since the COVID-19 pandemic.

CRediT authorship contribution statement

Reem S.W. Alyahya: Writing – review & editing, Writing – original draft, Visualization, Validation, Resources, Project administration, Methodology, Investigation, Formal analysis, Conceptualization.

Declaration of competing interest

None to declare.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.jcomdis.2025.106527.

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