

# The Implementation of Telepractice by Malaysian Speech-Language Pathologists During the COVID-19 Pandemic

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**Objectives:** The Coronavirus Disease 2019 (COVID-19) led speech-language pathologists (SLPs) around the world to shift their service delivery methods from face-to-face service to telepractice. This study explored the implementation of telepractice by Malaysian SLPs and determined whether there was an association between the SLPs' perceptions of the effectiveness of telepractice and the frequency of the telepractice services provided, as well as between the use of telepractice and prior training received. **Methods:** Eighty-nine SLPs responded to an 18-question online survey that inquired about demographics, telepractice during the pandemic, perceptions of telepractice and prior training received. **Results:** Seventy-five percent of SLPs reported providing services via telepractice during the pandemic compared to 19% before the pandemic. Most SLPs who used telepractice stated that services delivered via telepractice were comparable with face-to-face services; no association was found between the frequency of providing services via telepractice and the SLPs' perceptions of its effectiveness. They had also received some training in telepractice, although no association was found between the type of training received and the provision of telepractice services. SLPs who did not provide services via telepractice reported awareness of telepractice but described a lack of knowledge, support, and training. All SLPs expressed interest to receive more training in telepractice to enable them to provide better services. **Conclusion:** Malaysian SLPs demonstrated great commitment towards service provision during the pandemic, similar to SLPs in other nations. It is hoped that Malaysian SLPs continue to have positive attitudes toward telepractice with increased familiarity, use, and training. Telepractice services, undoubtedly, are here to stay.

**Keywords:** Malaysia, Speech-language pathologist, COVID-19, Telepractice, Speech-language therapy

Telepractice is the provision of health and medical services through the use of telecommunication tools, including telephones, smartphones, and mobile wireless devices, with or without video connection (Dorsey & Topol, 2016). Telepractice has been a recognized service delivery modality in the field of speech-language pathology (ASHA, 2019; Theodoros, 2013). According to Theodoros (2013), speech and language services are uniquely suited to telepractice given the audio-visual nature of the clinical interactions and techniques. Therefore, telepractice is usable with pediatric and adult

patients with various disabilities (Fong, Tsai, & You, 2020; Sharma, Ward, Burns, Theodoros, & Russell, 2011; Speech Pathology Australia, 2014; Theodoros, 2013). It allows patients in rural areas and those with limited mobility access to speech and language services (Mohan, Anjum, & Rao, 2017). Frequently, it overcomes the barriers of non-availability of professionals and growing demands for speech and language services (Fong et al., 2020; Mohan et al., 2017; Speech Pathology Australia, 2014; Theodoros, 2013; Tucker, 2012).

Speech-language pathologists (SLPs) have been reported to have positive perceptions of telepractice, albeit with some initial scepticism (Hines, Lincoln, Ramsden, Martinovich, & Fairweather, 2015). SLPs have been reported to recognize that telepractice eases the shortage of professionals, allows work flexibility for themselves, and makes collaboration with other professionals easy (Tucker, 2012). Patients, too, generally have a high level of satisfaction with services received via telepractice (Tenforde et al., 2020). The majority of patients reported feeling well supported, even though the therapist was not physically present (Molini-Avejonas, Rondon-Melo, de La Higuera Amato, & Samelli, 2015).

Several barriers have been reported about the implementation of telepractice in the field of speech-language pathology. Tucker (2012), who interviewed SLPs, found that problems with technology were one of the most common barriers. Another common barrier is inadequate knowledge and skills in telepractice due to limited training (Theodoroas, 2012; Tucker, 2012). Other barriers that have been evident from the research include patient suitability, ethical considerations, a lack of guidelines, reimbursement, and economic evaluations (Theodoros, 2012; Tucker, 2012).

The declaration of the Coronavirus disease 2019 (COVID-19) as a pandemic by the World Health Organization led healthcare providers across the globe to shift from the provision of face-to-face healthcare to the provision of services via telepractice almost instantaneously. Telepractice is undoubtedly an effective and efficient way to provide access and continuity of care to patients while minimizing the transmission of COVID-19 and without compromising the safety of patients and professionals.

The provision of speech-language pathology services often requires face-to-face contact between the SLP and the patient. It also often requires proximity to allow effective communication, enable the visualization of the patient's speech articulators, and allow the patient to observe the SLP's speech articulators. While the use of Personal Protective Equipment (PPE) such as face masks makes this task challenging (Tohidast, Mansuri, Bagheri, & Azimi, 2020), removal of the PPE is contraindicated during this pandemic as it increases the risk for transmission of the disease for both the patient and clinician alike.

Most studies on the use of telepractice in the field of speech-language pathology have been conducted in the United States and Aus-

tralia, suggesting that it is most often used in those countries (Molini-Avejonas et al., 2015). However, the COVID-19 pandemic leads SLPs in other countries (e.g., India, Hong Kong, Turkey) to also actively start providing services via telepractice (Aggarwal, Patel, & Ravi, 2020; Aktürk & Toğram, 2021; Fong et al., 2020).

Malaysia is a fast-developing country located in South-East Asia with a population of about 32 million people. There are approximately 300 SLPs practicing in the country, marking a significant shortage for the large population (Chu, Khoong, Ismail, Altaher, & Razak, 2019; Chu, Tang, McConnell, Mohd Rasdi, & Yuen, 2019; Mohammad Ibrahim, 2016). Malaysians speak various languages, including Malay, English, Mandarin and Tamil, and SLPs are usually bilingual and try to provide services based on the families' most dominant language (Chu, Khoong et al., 2019). Most SLPs in Malaysia are trained locally and practice with an undergraduate degree (Joginder Singh, Chan, & Ahmad Rusli, 2016; Joginder Singh, Tan, & Mustaffa Kamal, 2020). Currently, there are three universities in Malaysia training SLPs. These universities offer a four-year undergraduate degree that produces entry-level SLPs (no taught course postgraduate speech-language pathology program is available in the country). At the moment, Malaysian SLPs do not require a license to practice (Chu, Khoong et al., 2019).

When COVID-19 hit the country in January 2020, SLPs had to start thinking of alternative methods of service delivery. The national lockdown that commenced on 18 March 2020 which led to all non-essential service sector workers working from home, schools (including early intervention centers) to be closed, and hospitals rescheduling appointments for patients lead some SLPs to explore and start providing services via telepractice (Shah et al., 2020). As the COVID-19 situation continues to fluctuate in the country, and lockdowns continue to be implemented, healthcare providers are encouraged to continue using alternative methods of service delivery to abide by the government's call for social distancing (Shah et al., 2020).

The current study aimed to (a) explore the application of telepractice by SLPs in Malaysia, (b) to determine whether there was an association between the frequency of provision of services via telepractice and SLPs perception of its effectiveness compared to face-to-face service delivery, and (c) determine if there was an association between the provision of services via telepractice and the type of training received.

## METHODS

This was a cross-sectional study via a web-based survey. Ethics approval for the study was obtained from the authors' organization's Human Research Ethics Committee (JEPUKM\_JEP-2021-020).

### Participants

The participants for this study were qualified SLPs who at the time of the study were employed in Malaysia.

### Materials

The questionnaire used for this study was adopted from Fong et al. (2020). The questionnaire was piloted on two SLPs who had experience providing services via telepractice. They provided feedback regarding the content of the questionnaire and the ease with which questions could be understood and answered. Based on their responses and feedback, some changes were made to the questionnaire. The finalized version of the questionnaire consisted of 18 items organized into four sections: (a) Section A, Demographic Information, (b) Section B, Telepractice During the COVID-19 Pandemic, (c) Section C, Perception towards Telepractice, and (d) Section D, Training (see Appendix A). All participants were required to complete Section A and D. Section B was completed by participants who had provided services via telepractice only, and section C by those who had not. Both open and closed questions were included. Response options to closed questions were in the form of multiple-choice tick boxes.

### Procedure

The google form link for the survey was sent via email to all SLPs in the Malaysian Association of Speech-Language and Hearing (MASH) membership database (that has approximately 250 members at the time of the study). Given that not all Malaysian SLPs are registered with MASH, the questionnaire was also posted online on the Malaysian Speech Therapist Facebook page (that has approximately 250 members at the time of the study).

Data obtained from closed-ended questions were analyzed quantitatively using descriptive statistics. The chi-square test of independence was used to determine the association between how often SLPs provided services via telepractice during the COVID-19

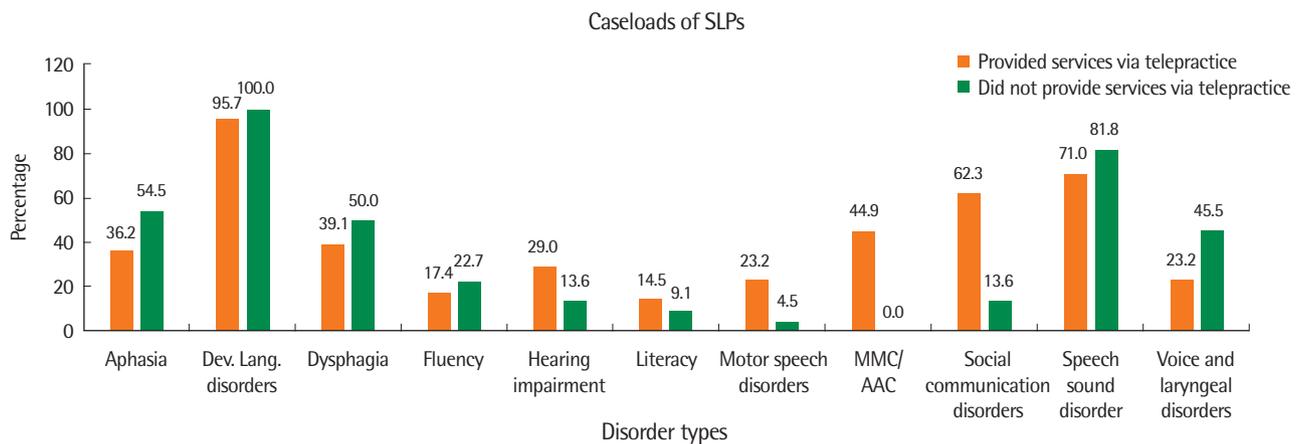
pandemic and how effective they felt telepractice was compared to face-to-face service delivery. A Chi-Square test for independence was also used to determine the association between whether or not SLPs were providing services via telepractice and the type of training they had received in telepractice. Participants' responses to the two open-ended questions were analyzed by grouping the responses into categories.

## RESULTS

A total of 89 questionnaires were returned and analysed for this study. Approximately 75% (N = 67) of SLPs reported providing services via telepractice during the COVID-19 pandemic. Nineteen percent of SLPs, all of whom were providing services via telepractice during the COVID-19 pandemic, had provided services via telepractice prior to the COVID-19 pandemic. The demographic information of SLPs who provided and did not provide services via telepractice during the COVID-19 pandemic are presented in Table 1. The SLPs had working experience of between 1 to 20 years, with the majority (43.3%) of SLPs who had provided services via telepractice having 0 to 5 years of experience and the majority (36.4%) of those who had not having 6 to 10 years of experience. Some respondents reported working in more than one setting. The majority of SLPs from both groups worked at hospitals (52.2%,

**Table 1.** SLPs demographic information

Demographic information	Provide services via telepractice		Did not provide services via telepractice	
	N=67	%	N=22	%
Years of experience				
0-5	29	43.3	6	27.3
6-10	22	32.8	8	36.4
11-15	13	19.4	7	31.8
15-20	3	4.5	1	4.5
Workplace				
Preschool	4	6.0	0	0
Special education school	6	9.0	1	4.5
Mainstream school	1	1.5	0	0
Hospital	35	52.2	11	50.0
University	16	23.9	6	27.3
Residential setting	0	0	1	4.5
Private clinic	24	35.8	6	27.3
Early intervention centre	21	31.3	3	13.6
Home-based	18	26.9	9	40.9



**Figure 1.** The caseload of SLPs.

50.0%) (Table 1).

The types of cases seen by the two groups of respondents are presented in Figure 1. Almost all SLPs from both groups (95.7%; 100%) stated that their caseload consisted of children with developmental language disorders. This was followed by speech sound disorders for both groups of participants (81.8%; 71.0%).

The 67 SLPs who provided services via telepractice during the COVID-19 pandemic then completed Section B regarding their telepractice and the results are presented in Table 2. In terms of frequency, most participants (50.7%) who provided services via telepractice did so approximately 1 to 5 times a week (Table 2). A large majority (91.0%) of them provided services via telepractice for children aged 3 to 5 years old with less than 20% providing services via telepractice to adults from various age groups (Table 2).

When providing services via telepractice, participants most often (73.1%) used videoconferencing. Almost 90% of SLPs provided treatment via telepractice as compared to 37.3% who used it for assessment. The populations which received services via telepractice are detailed in Table 2, with the most common being children with developmental language disorders followed by speech sound disorders. Slightly more than half of the SLPs (55.2%) felt that services delivered via telepractice were as effective as face-to-face and 34.3% felt that they were less effective (Table 2). The chi-square test of independence indicated no significant association between how often SLPs provided services via telepractice during the COVID-19 pandemic and how effective they felt telepractice was as compared to standard face-to-face service delivery,  $\chi^2(9) = 14.72, p = .099, phi = .472$ .

All participants who did not use telepractice ( $N = 22$ ) were aware of telepractice as a form of service delivery in the field of SLP. The main reason they did not use telepractice was the lack of support/knowledge/training (59.1%) and unsuitable patient type (45.5%) (Table 3).

These participants were then asked what they felt they needed to set up effective telepractice (open-ended question) and some of the most common responses were hardware such as microphones/headphones and cameras at their workplace (59.1%), training in conducting sessions via telepractice (31.8%), secure internet connection (22.7%), and knowledge about online clinical materials and software (22.7%).

All participants were asked about the training they had received in telepractice and their response are presented in Figure 2. All SLPs reported having received training in telepractice with most of the SLPs who were providing services via telepractice reporting that they received training through professional development courses (38.8%). There was an equal number of respondents who were not providing services via telepractice reporting that they had received training through professional development course and university education (36.45). The chi-square test of independence indicated no significant association between whether or not SLPs were providing services via telepractice and the type of training they had received,  $\chi^2(3) = 1.36, p = .715, phi = .124$ . All participants expressed a desire to obtain more training in telepractice. Some of the areas of training most wanted were clinical aspects such as how to manage clients online (68.5%) and various online

**Table 2.** Telepractice by SLPs

Telepractice service delivery	N=67	%
Frequency of service delivery		
One-off scenario	12	17.9
Less than once a week	11	16.5
1-5 times a week	34	50.7
>5 times a week	10	14.9
Age group served		
6 months or younger	5	7.5
7 months–2 years	34	50.7
3-5 years	61	91.0
6-17 years	36	53.7
18-40 years	8	11.8
41-64 years	11	16.4
65 years or older	9	13.4
Platform used		
Over telephone/audio-only communication	19	28.4
Over videoconferencing (Zoom/Google Meet/ Skype)	49	73.1
Store-and-forward (collecting information and sending it electronically for evaluation)	11	16.4
Services delivered		
Screening	17	25.4
Assessment	25	37.3
Treatment	60	89.6
Follow-up monitoring	44	65.7
Population served		
Aphasia/Cognitive communication disorder	11	16.4
Developmental language disorder	48	71.6
Dysphagia	7	10.4
Hearing impairment	17	25.4
Fluency disorders	7	10.4
Literacy	12	17.9
Motor speech disorders	16	23.9
Multimodal communication	16	23.9
Social communication disorder	27	40.3
Speech sound disorder	32	47.8
Voice and laryngeal disorder	3	4.5
Clinical effectiveness compared to face-to-face service delivery		
More effective	3	4.5
Similarly effective	37	55.2
Less effective	23	34.3
Have not considered clinical effectiveness	4	6.0

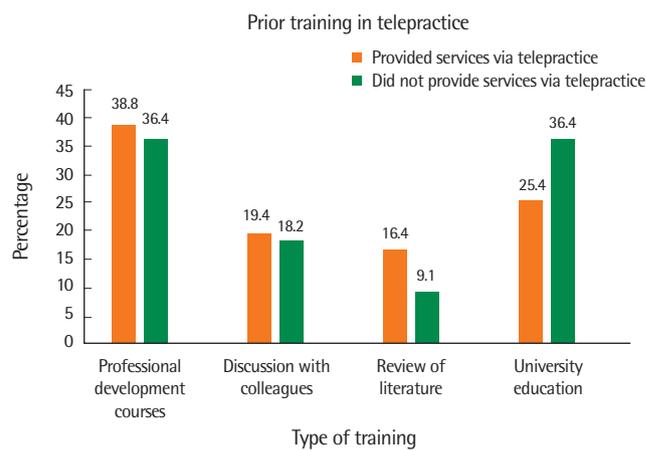
software and resources (29.2%).

## DISCUSSION

More than two-thirds of respondents reported providing services via telepractice during the COVID-19 pandemic compared

**Table 3.** Reasons some SLPs did not ue telepractice

Reason	N=22	%
Unsuitable patient type	10	45.5
Impersonal/lack of physical contact	6	27.3
Questionable effectiveness	1	4.5
Technological barrier	8	36.4
Cost too high	1	4.5
Ethical concerns	0	0.0
Lack of support/ knowledge/training	13	59.1
No need for change if face-to-face works	6	27.3



**Figure 2.** Telepractice training received by SLPs.

to 19% doing so prior to the pandemic. This finding of a large majority of SLPs providing services via telepractice during the COVID-19 pandemic was similar to that of Tambyraja, Farquharson, and Coleman (2021) and Aggarwal et al. (2020). The increase in services delivered via telepractice during the COVID-19 pandemic compared to before was also documented in several other studies (ASHA, 2020; Sylvan, Goldstein, & Crandall, 2021). These findings suggest that Malaysian SLPs, like SLPs elsewhere, were willing to accept and trial out a different form of service delivery when they were unable to provide services face-to-face. Some of the factors that could have led them to explore and provide services via telepractice were: (a) understanding of the importance of continuous therapy for individuals who need it, (b) parents/clients/caregivers seeking to receive services during the lockdown, and (c) SLPs needing to continue to seek an income (especially private practitioners).

It was evident from this study that albeit only a few, there were some SLPs who were providing services via telepractice prior to

the COVID-19 pandemic. In Malaysia, most SLPs practice in big cities (Chu, Khoong, et al., 2019; Chu, Tang, et al., 2019), with some SLPs who are attached to government hospitals in big cities conducting visits to rural areas periodically. It could have been that the SLPs that were providing services via telepractice were those who were providing follow-up services to clients in rural areas. The use of telepractice as a service delivery model for rural areas has been well documented in countries such as Australia (Speech Pathology Australia, 2014).

Fong et al. (2020)'s who conducted a similar study in Hong Kong reported that only 35% of their participants provided clinical services through telepractice. Similarly, only 34% of Turkish SLPs surveyed by Aktürk and Toğram (2021) and 6% of Korean SLPs surveyed by Kim et al. (2020) provided services via telepractice during the COVID-19 pandemic with a large majority choosing not to do so. It could have been that these two studies were conducted much earlier in the pandemic and SLPs were reluctant to start telepractice as they were unaware that the pandemic would span for almost two years.

Although most SLPs were providing services via telepractice during the COVID-19 pandemic, Most of the SLPs providing services via telepractice during the COVID-19 pandemic did so only 1-5 times a week Most of the SLPs in this study were practicing in the hospital and it could have been that they were able to continue to provide services face-to-face during the pandemic. Almost all participants reported providing services via telepractice to children aged 3 to 5 years. This was followed by children aged 7-months to 2-years old and 6 to 17-years old. Participants who responded to this survey indicated that their caseload, in general, consist mostly of children, and thus, children were the group that most often received services via telepractice. Children make up the main caseload of SLP in Malaysia, with there being fewer SLPs serving adult populations (Chu, Khoong et al., 2019; Chu, Tang et al., 2019). Studies conducted elsewhere around the world also indicated that pre-school and school-aged children were often the focus of telepractice (Aggarwal et al., 2020; Aktürk & Toğram, 2021; Fong et al., 2020). As suggested by Fong et al. (2020), this group was probably the least resistant when it came to receiving rehabilitation through technology.

Given that most SLPs were providing services via telepractice to

children, it was no surprise that children with developmental language disorders and speech sound disorders were those most frequently served. Over the years, there has been strong evidence supporting the effectiveness of telepractice for children with speech and language disorder (Wales, Skinner, & Hayman, 2017) which perhaps also made participants more confident when providing services to these groups as participants in this study did report reviewing literature to gain more knowledge about telepractice.

Approximately three quarters of participants used video conferencing when providing services via telepractice. Various online videoconferencing platforms gained popularity during the COVID-19 pandemic, for example, Zoom (Chawla, 2020). In this study, given that children were most often the target of therapy, videoconferencing was a more appropriate modality over audio-only modalities, as it has many options of interactive activities that help keep the children engaged (Walters, Bernis, Delvin-Brown, & Hirsch, 2021).

Almost 90% of SLPs who provided services via telepractice used it for treatment whereas only about one-third used it for assessment. This finding of SLPs not using telepractice for the purpose of assessment frequently is similar to that of Fong et al. (2020). Fong et al. (2020) suggested that perhaps SLPs choose to provide service via telepractice to patients with who they were familiar rather than new patients.

The majority of SLPs felt that telepractice was as effective as face-to-face service delivery, a finding similar to that of Kollia and Tsiamtsiouris (2021). There has been evidence suggesting that clients make similar progress when receiving services via the two modalities (Grogan-Johnson, Alvares, Rowan, & Creaghead, 2010) and SLPs themselves might have seen this progress thus leading them to feel more confident about providing services via telepractice. SLPs perception of the effectiveness of telepractice as compared to face-to-face service delivery, however, was not associated with the frequency of services delivered via telepractice. This findings suggest that although SLPs felt that telepractice was effective, other factors such as the work setting and number of patients could have affected the frequency of services delivered via telepractice although this was not explored further in this study.

All the SLPs who did not provide services via telepractice knew about telepractice as a form of services delivery in the field of speech-

language pathology, thus suggesting that perhaps they were unprepared to deliver services via telepractice. According to Hines et al. (2015), at times, although SLPs know about telepractice and its potential, they remain unsure about its effectiveness and uncertain about how to conduct it as it is entirely different from their previous clinical experience.

The most common reason for not using telepractice was a lack of support, knowledge/training, a finding similar to that of May and Erickson (2014) and Hines et al. (2015). The lack of knowledge, support, and training often lead SLP to have doubts about the effectiveness of telepractice, thus affecting attitudes and beliefs (May & Erickson, 2014). SLPs also cited unsuitable client types as one of the main reasons for not providing services via telepractice. Research has indicated that telepractice is a form of service delivery that is suitable for all client types, regardless of disability type and age (ASHA, 2019). It could be that SLPs who were not providing services via telepractice were unaware of this research evidence. It could also have been that clients were deemed unsuitable because they opted not to receive telepractice or did not have the technological necessities needed. Technological barriers were also frequently cited as a reason for not using telepractice. As reported by May and Erickson (2014), the lack of access to technology often leads SLPs to view telepractice negatively. Like the SLPs in Korea surveyed by Kim et al. (2020), Malaysian SLPs who were not using telepractice felt the need mostly for equipment (hardware and software) as well as training that provided specific content about telepractice to be able to set up effective telepractice.

SLPs in this study received training in telepractice mostly via professional development courses and university education. The COVID-19 pandemic that resulted in a global shift in service delivery methods led many professional bodies and organizations to conduct various webinars and online training sessions in telepractice to help SLPs transition smoothly to the provision of online services. In Malaysia, telepractice has been added to university coursework in recent years and a majority of participants in this study had been working for less than 10 years, thus it could be that they continued to rely on some of the information they obtained at the university. Although all SLPs had received some training in telepractice, there was no association between whether or not they used telepractice and the type of training they had received. The

amount of training received rather than the type might have affected the provision of services via telepractice given that most of those who did not provide service via telepractice cited the lack of knowledge and training as a reason for not using it.

### Limitations and Clinical Implications

This study has certain methodological limitations that must be taken into consideration when interpreting the results. First, data collected for this study was based on self-reports by SLPs. Therefore, it cannot be ascertained whether findings reflect actual practices. Second, the sample size of SLPs was rather small, and this might not reflect the practice of all Malaysian SLPs. Third, there could have been a possible self-selection bias in the current study such that only SLPs who had knowledge about telepractice chose to participate.

Participants in this study regardless of whether or not they were already providing services via telepractice expressed the need for more training. They felt that they needed more knowledge about online clinical materials/resources and also on how to manage clients online. The speech-language pathology professional body in Malaysia can create an online resource center where SLPs can share materials and resources with one another. The professional body can also collaborate with other international professional bodies in providing more continuing education opportunities for SLPs at a cheaper price.

Although a majority of SLPs felt that telepractice was as effective as face-to-face therapy, there were still about a third who felt it was less effective and this perception might lead them to stop providing services via telepractice. These SLPs might benefit from more support to enable them to have more positive experiences when delivering services via telepractice. Workplace and employers need to be made aware of the needs of these SLPs so that they can provide the necessary support, for example in terms of hardware and secure internet connection.

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## CONCLUSION

Findings from this study indicated that SLPs in Malaysia, a developing country, demonstrated great commitment to learning about and resilience in using technology for telepractice, suggest-

ing their dedication in ensuring that clients received the services they needed despite the raging pandemic. Their practices were similar to that of SLPs in developing countries, in terms of the populations served and platforms used for telepractice. The COVID-19 pandemic is likely to have led telepractice to have a permanent place in speech-language pathology service delivery throughout the globe, including Malaysia. SLPs will likely continue to have more positive attitudes toward effectiveness of telepractice with increased familiarity, use and training.

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**Appendix 1. Speech-language pathology telepractice in Malaysia during the COVID-19 pandemic**

\* Required

**Section A: Demographic Information**

1. How many years have you been practicing as a speech-language pathologist
2. Where are you currently practicing? (You can select more than one option)
  - Preschool
  - Special school
  - Mainstream school
  - Hospital
  - University clinic
  - Residential care home for elderly
  - Private clinic
  - Early intervention centre
  - Home based practice
  - Other:
3. What case type (s) are in your current caseload? (You can select more than one option)\*
  - Aphasia/cognitive communication disorders
  - Developmental Language Disorder
  - Dysphagia/Feeding Disorder
  - Fluency Disorder
  - Hearing Impairment
  - Literacy
  - Motor Speech Disorders
  - Multimodal Communication (AAC)
  - Social Communication Disorder
  - Speech Sound Disorder
  - Voice and Laryngeal Disorder
  - Other:
4. Have you provided services via telepractice during the Covid-19 pandemic?\*
  - Yes (You will later be redirected to Section B)
  - No (You will later be redirected to Section C)
5. Have you been providing services via telepractice prior to the Covid-19 pandemic?\*
  - Yes
  - No
6. How long have you been providing services via telepractice prior to the COVID-19 pandemic?\*
  - <3 months
  - 3-12 months
  - 1-3 years
  - 3 years and above
  - Not applicable

**Section B: Telepractice Service Delivery During The Covid-19 Pandemic**

7. How often do you provide services via telepractice during the Covid-19 pandemic?\*
  - One-off scenario
  - Less than once per week
  - About 1-5 times per week
  - Over 5 times per week
8. Which age group do you regularly serve through telepractice? (You can select more than one option)\*
  - 6 months or younger
  - 7 months-2 years of age
  - 3-5 years of age
  - 6-17 years of age
  - 18-40 years of age
  - 41-64 years of age
  - 65 years or older
9. Which of the following do you use in your telepractice? (You can select more than one option)\*
  - Over telephone/audio-only communication
  - Over videoconferencing (Zoom/Google Meet/Skype)
  - Store-and-forward (Collecting information and sending it electronically for evaluation)
  - Other:
10. What type of services do you deliver through telepractice? (You can select more than one option)\*
  - Screening
  - Assessment
  - Treatment
  - Follow-up/ monitoring
11. In which areas do you provide service through telepractice? (You can select more than one option)\*
  - Aphasia/ Cognitive Communication Disorder
  - Developmental Language Disorder
  - Dysphagia/ Feeding Disorder
  - Hearing Impairment
  - Fluency Disorder
  - Literacy
  - Motor Speech Disorder
  - Multimodal Communication (AAC)
  - Social Communication Disorder
  - Speech Sound Disorder
  - Voice and Laryngeal disorder
  - Other:
12. In general, what do you think about the clinical effectiveness of telepractice as compared to standard face-to-face delivery?\*
  - More effective
  - Similarly effective

Less effective  
Have not considered the clinical effectiveness

**Section C: Perception toward Telepractice**

13. Are you aware of telepractice in the field of speech-language pathology? \*

Yes  
No

14. Do you feel telepractice can be applied in speech-language pathology service delivery?\*

Yes  
No

15. In your opinion, what do you need to set up effective telepractice service delivery?\*

Your answer:

16. What are your reasons for not using telepractice? (You can select more than one option)\*

Patient type unsuitable  
Patient age unsuitable

Impersonal/lack of physical contact  
Questionable effectiveness  
Technological barrier  
Cost too high  
Ethical concerns  
Lack of support/clinical resources/training  
Client/caregivers' reluctance/refusal  
No need for a change if the face to face works  
Other:

**Section D: Training**

17. What prior training did you receive in relation to telepractice?

Professional development courses  
Discussion with colleagues  
Review of literature  
University education  
Not received any training

18. What additional training would you like to receive for telepractice?\*

Your answer

## 국문초록

### 코로나 바이러스 감염증-19 상황에서의 말레이시아 언어치료사의 원격치료 실시 현황

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**배경 및 목적:** 코로나 바이러스 감염증(COVID-19)으로 인해 전 세계의 언어치료사가 대면 접촉을 통한 중재에서 원격치료로 중재의 전달방법을 변환하게 되었다. 본 연구는 말레이시아 언어치료사의 원격치료 실시 현황을 살펴보고 원격치료 효용성에 대한 인식과 원격치료 제공빈도와 상관계, 원격치료 실시와 이전 교육 경험 사이의 상관계수를 살펴보고자 하였다. **방법:** 총 89명의 언어치료사가 기본정보, 코로나 바이러스 감염증 상황에서의 원격치료 현황, 원격치료에 대한 인식과 과거 교육 경험 등과 관련된 18문항의 온라인 설문조사에 응답하였다. **결과:** 응답자 중 75%가 코로나 바이러스 감염증 발생 기간 동안 원격치료를 실시하였는데, 이전에는 19%에 불과하였다. 원격치료를 실시한 대부분의 언어치료사는 원격진료가 대면치료만큼 효과적이라고 느꼈으나 원격치료 제공 빈도와 원격치료 효과에 대한 인식 사이에는 상관계수가 없었다. 또한 응답자들은 원격치료에 대해 일정 정도 교육을 받기는 하였으나 교육과 원격치료 제공 사이에 상관계수 역시 관찰되지 않았다. 원격치료를 제공하지 않았던 응답자도 원격치료를 알고 있다고 응답하였으나 지식, 지지, 교육 훈련이 부족하였다고 보고하였다. 모든 참여자는 대상자에게 보다 좋은 서비스를 제공하기 위해 더 많은 원격치료 관련 교육을 받는데 관심을 표명하였다. **논의 및 결론:** 말레이시아 언어치료사는 다른 나라의 언어치료사와 유사하게 팬데믹 기간 중 서비스 제공에 대해 전념을 다하였다. 말레이시아 언어치료사가 보다 향상된 진속도, 사용, 훈련을 통하여 보다 더 긍정적인 태도를 가지게 되리라 희망하며 원격치료는 지속될 것이라 생각된다.

**핵심어:** 말레이시아, 언어치료사, 대학생, 대학 교육, 코로나 바이러스 감염증(COVID-19)

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