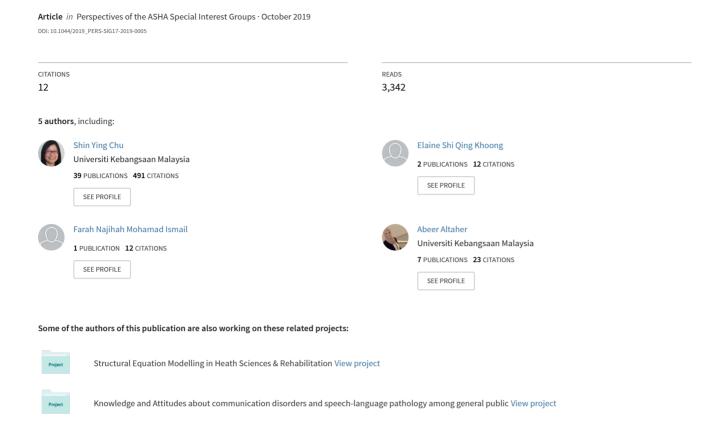
## Speech-Language Pathology in Malaysia: Perspectives and Challenges



PERSPECTIVES | SIG 17

## **Viewpoint**

# Speech-Language Pathology in Malaysia: Perspectives and Challenges

Shin Ying Chu,<sup>a</sup> Elaine Shi Qing Khoong,<sup>b</sup> Farah Najihah Mohamad Ismail,<sup>c</sup> Abeer Muneer Altaher,<sup>a</sup> and Rogayah A. Razak<sup>d</sup>

**Purpose:** Malaysia, with its diverse culture and multilingual population, presents a unique and interesting setting for working as a speech-language pathologist (SLP). This article discusses the challenges that SLPs face when providing speech and language therapy in Malaysia and issues that need to be addressed for continued growth of this profession. While providing suggestions to SLPs on methods to overcome the challenges faced and improve their clinical

practice, this article also calls upon international collaborations in overcoming these challenges.

**Conclusions:** Within the last few decades, the SLP profession in Malaysia has continued to grow and develop as it seeks to offer services on par with countries where the profession is more established. However, there is still much room for improvement as Malaysia continues to overcome current challenges.

alaysia is a country of diverse cultures with an estimated population of 32.7 million people (estimated: 69.1% Malay, 23.0% Chinese, 6.9% Indians, 1% other) sharing many different beliefs, values, customs, religions, and languages (Department of Statistics Malaysia, 2018). The official language of Malaysia is the Malay language (i.e., Bahasa Melayu or Bahasa Malaysia, henceforth to be known as Malay), which is a standardized form of the Malay language, while English serves as a second language. However, not everyone in Malaysia speaks Malay or English. Many other languages are used besides these languages, including Mandarin and its dialects (such as Cantonese, Hokkien, and Hakka), Tamil, Telugu, Malayalam, Malay dialects, and Urdu, as well as indigenous languages. It is estimated that Malaysia has approximately 134 living languages, with most Malaysians being at least bilingual, and around 90% of Malaysians are literate

(Department of Statistics Malaysia, 2017; Jin, Razak, Wright, & Song, 2014; Simons & Fennig, 2017). This unique multicultural and multilingual setting has impacted the delivery of services by speech-language pathologists (SLPs) working in Malaysia. Every client comes with a repertoire of languages associated with their respective ethnic and cultural backgrounds, and this poses great challenges to the SLPs in carrying out their assessment and management of their clients. With everyone having a distinct language repertoire, the effectiveness in evaluating communication disorders becomes a real hurdle. Subsequent treatment and management also become a challenge especially when SLPs meet clients who speak different languages from them (Van Dort, 2005).

Cultural diversity and multilingualism are only one of the many challenges faced by SLPs in Malaysia. With the profession in its early stages of development in the country, many issues remain a dilemma for SLPs working in both the private and public sectors. Some of these issues and challenges faced by Malaysian SLPs may be familiar to SLPs in other developing countries. We aimed to identify such challenges and concerns where the profession struggles yet strives to provide the best quality service in accordance to international standards. We conclude by

#### <sup>a</sup>Speech Sciences Programme, Faculty of Health Sciences, Centre for Healthy Ageing and Wellness, Universiti Kebangsaan Malaysia, Kuala Lumpur

Correspondence to Shin Ying Chu: chushinying@ukm.edu.my

Editor: Carolyn Higdon Received April 17, 2019 Revision received August 13, 2019 Accepted August 20, 2019 https://doi.org/10.1044/2019\_PERS-SIG17-2019-0005

#### Disclosures

Financial: Shin Ying Chu has no relevant financial interests to disclose. Elaine Shi Qing Khoong has no relevant financial interests to disclose. Farah Najihah Mohamad Ismail has no relevant financial interests to disclose. Abeer Muneer Altaher has no relevant financial interests to disclose. Rogayah A. Razak has no relevant financial interests to disclose.

Nonfinancial: Shin Ying Chu has no relevant nonfinancial interests to disclose. Elaine Shi Qing Khoong has no relevant nonfinancial interests to disclose. Farah Najihah Mohamad Ismail has no relevant nonfinancial interests to disclose. Abeer Muneer Altaher has no relevant nonfinancial interests to disclose. Rogayah A. Razak has no relevant nonfinancial interests to disclose.

<sup>&</sup>lt;sup>b</sup>Speech Sciences Programme, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

<sup>&</sup>lt;sup>c</sup>Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur

<sup>&</sup>lt;sup>d</sup>Speech Sciences Programme, Faculty of Health Sciences, Centre of Rehabilitation & Special Needs, Universiti Kebangsaan Malaysia, Kuala Lumpur

providing suggestions in overcoming the highlighted pressing needs and concerns in an effort to help in the advancement of this profession in Malaysia and similar developing countries.

### Current Issues and Challenges Faced by the SLPs in Malaysia

#### Allied Health Professional Act

In Malaysia, the practice of speech and language therapy has been widely unregulated until the advent of the Allied Health Professions Act, which was gazetted in 2016 (Allied Health Professions Act, 2016). Although this act has yet to come into force, it is expected to be enforced within the next few years. Through this act, assurance was established for allied health practitioners (i.e., speech therapist, physiotherapist, occupational therapist, audiologist) to have met some threshold of qualifications to maintain the standard of the profession in the public sector. Under this act, all SLPs (as well as other allied health care professions) must register and adhere to the act's professionalism regulations and standards. At present, implementation of this act is still under discussion, and regulations and standards that allied health practitioners need to follow have yet to be laid out. With the Allied Health Professions Act soon to come into force, it is increasingly urgent for policy makers and other stake holders to come to recognize the challenges and issues currently affecting the service and professions of SLPs and work together to overcome these barriers. As such, before discussing the challenges faced, it may be useful to first explore briefly the SLP standard practice in Malaysia. Though only limited studies are available, some have provided insights into the current practice of SLPs in Malaysia and whether it is on par with international standards.

#### Current Standard Practice of SLPs in Malaysia

When comparing the services offered by SLPs to children with developmental disabilities in Malaysia and Australia, Joginder Singh, Iacono, and Gray (2011) found that SLPs in both countries reported greater usage of informal assessments, focus on improving preverbal skills, and involvement of mothers in intervention. However, SLPs in Malaysia were found to rely more on information gathered within clinical settings during assessments in contrast to SLPs in Australia who relied on information gathered from outside the clinic rooms. SLPs in Malaysia have also showed some delay in introducing augmentative and alternative communication supports to their clients as opposed to best practice recommendations.

In another study, high consistency and similarities among SLPs in Malaysia and Australia were reported in completing key components of a clinical swallowing examination during assessment of adult patients (Mustaffa Kamal, Ward, & Cornwell, 2012). The majority of SLPs in Malaysia also routinely implemented a range of compensatory and rehabilitative techniques like SLPs in Australia. However, several differences were also found between these two populations. A more dominant usage of videofluoroscopic

swallowing study was reported by SLPs in Australia, while SLPs in Malaysia reported a more dominant usage of the fiberoptic endoscopic evaluation of swallowing instead. There was also a reduced clinical involvement in diagnostic decision making reported by SLPs in Malaysia, despite SLPs being the recognized primary professions in the assessment and management of dysphagia as documented in many guidelines worldwide (American Speech-Language-Hearing Association [ASHA], 2016, 2019; Royal College of Speech and Language Therapists, 2005; Speech Pathology Australia, 2015).

As it is, it appears that some SLP practices in Malaysia are evidence based, while some areas still needed further improvement. Mustaffa Kamal et al. (2012) and Joginder Singh et al. (2011) suggested that limited number of SLPs, reduced skills, lack of exposure during training, lack of resources, and limited knowledge and information are some of the challenges contributing to practices that are not in accordance with best practice recommendations.

#### **Workforce Constraint**

One of the most fundamental issues faced by the SLP profession is the inadequate number of SLPs. With only approximately 300 SLPs available in Malaysia, the ratio of SLPs to the population in Malaysia is a staggering approximation of one SLP to 100,000 people as compared to the number of ASHA-certified SLP to residents' ratio of 51.5 SLPs to 100,000 residents in the United States (ASHA, 2017). Most of the SLP services in Malaysia are available mainly in the rural area or in the capital city—Kuala Lumpur (Sharma, 2008). Of them, SLPs mainly provide services for pediatrics with only a minimal number of caseloads of adult patients, which is in stark contrast to their counterpart in most other established countries such as Australia and the United States (Mustaffa Kamal et al., 2012; Sharma, 2008).

With their workload stretched across different areas of communication disorders, SLPs may only have limited time and attention to focus on each area of work, which could have limited the SLPs' involvement in multidisciplinary or interdisciplinary team management. SLPs in Malaysia were found to often have a paucity of collaboration with other professionals (Joginder Singh, Chan, & Ahmad Rusli, 2016). Team approach management becomes scarce despite being a valuable and important component of management.

In addition to the relative infancy of the SLP profession in the country, workforce constraint may potentially further contribute to a lack of awareness regarding speech, language, and swallowing-related disorders as well as the role of SLPs among the public and health care professionals. Lack of awareness about communication disorders and SLPs among the general public has been reported (Chu, Tang, McConnell, Hanif, & Yuen, 2019). In this study, allied health professionals and respondents with higher education levels (master's or PhD holders) showed more knowledge about speech-language pathology and better attitudes toward communication disorders compared to those in-service

professions (e.g., business administrator). On the other hand, other research have found that medical, allied health, and nursing professionals in Malaysia lacked awareness of the roles of SLPs and demonstrated little understanding of the services provided by SLPs, leading to a low rate of referrals, blending of professional roles, and reduced involvement of diagnostic decision making (Mustaffa Kamal et al., 2012; Mustaffa Kamal, Ward, Cornwell, & Sharma, 2015). Workforce constraint remains to be one of the greatest barriers in the development and establishment of the profession.

#### **Education Program of SLPs in Malaysia**

The education program within the country has an important role in narrowing the gap ratio of SLPs to the population and in ensuring that graduating SLPs are well trained and equipped to carry out their duties. Currently, only three universities offer the undergraduate certification of SLP/Speech Sciences Program: Universiti Kebangsaan Malaysia since 1995, Universiti Sains Malaysia since 2005 (Jin et al., 2014), and International Islamic University Malaysia in 2016. Unfortunately, these universities could only take a small number of students into their programs due to limited lecturers and clinical educators; however, the Universiti Kebangsaan Malaysia Speech Science Program has recently started to increase their student intake from fewer than 10 students per year to 25–30 students per year. This is in order to meet the increasing demands for the services of SLPs across the nation and to answer calls from the government to increase their student intake (Ahmad, 2010). However, the feasibility of this call has come into question as several critical issues emerged (Ahmad, Ibrahim, Othman, & Vong, 2013), particularly the issue of inadequate clinical educators.

#### **Limited Number of Clinical Educators**

Clinical education remains to be a considerable challenge. It is different from academic courses in that normally only one faculty member teaches a whole class, but clinical education is commonly done in a group/team supervision model, with each group of three to four students being supervised by one clinical educator, consequently resulting in more clinical supervisors being required for clinical education. The lack of adequate clinical educators and the limited number of clinical educators willing to take on the role of clinical educators (Briffa & Porter, 2013; Joginder Singh, Tan, & Mustaffa Kamal, 2019; McAllister, 2005; Rodger et al., 2008) are factors leading to a restricted number of student intake. Ensuring adequate clinical placement for students to fulfill the requirement of clinical contact hours in their programs remains to be a yearly challenge for Speech Science Programs in Malaysia. Other challenges faced by SLPs are the disproportionately large workload and increased work pressures, the lack of SLPs, and financial constraints (Briffa & Porter, 2013; McAllister, 2005; Rodger et al., 2008; Van Dort, 2005). On top of these, SLPs have also reported insufficient knowledge and training in undertaking the role of a clinical educator (Joginder Singh et al., 2019). The task of educating the next generation of

SLPs becomes especially daunting with the lack of training for the educators, which leads to doubts regarding the level of competency of the present clinical educators.

#### Scarcity of Research

Another pressing issue that we face is the lack of documentation and studies carried out on work settings/ trends for SLPs. Only one study was found in profiling a group of Malaysian SLP graduates in their work settings (Van Dort, 2005) involving 63 local SLP graduates. The survey found that 40% were in government hospitals, 24% were in private hospitals/private practice, 20% were in universities, 8% were overseas, 5% were in nongovernment organizations/special schools, and 3% were those whose workplace was not known. Since the first 65 graduates in 2003, Malaysia currently has approximately 300 SLPs; however, data/census regarding their current workplace, the population served, and other information is lacking. At the moment, there is no periodic census taken on SLPs in Malaysia. With this gap in information, there is no clear picture available on the distribution of SLPs at the workplace, nor even a current updated registration list of practicing SLPs in the country, which would possibly impede timely policy making, such as in the creation of government posts in public hospitals and the planning for SLP education and training.

Research and studies relating to other areas of speechlanguage pathology in relation to the Malaysian context are also inadequate, with many areas that remain underexplored. Most of the completed studies available are limited to the undergraduate and postgraduate research theses completed by students, in which only a handful have been published internationally. Common research themes are on the public awareness about communication disorders (Chu et al., 2019; Low & Zailan, 2018), psychosocial perspectives of families with autism disorders (Chu, Mohd Normal, McConnell, Tan, & Joginder Singh, 2018), normal development of speech and language skills among Malaysian children (Lim, 2018), and surveys on SLP practices on managing speech and language delay/disorder and dysphagia cases (Joginder Singh et al., 2016; Mustaffa Kamal et al., 2012). Yet, the small numbers of subjects in these studies are rather limiting and are not able to be generalized to the population, and some were preliminary data in nature (Alam, Zulkipli, Percival, & Haque, 2018; Joginder Singh, Iacono, & Gray, 2014; Low & Lee, 2011; Neik, Lee, Low, Chia, & Chua, 2014). Research studies exploring adult speech and language impairments and patients' needs are scarce. Only one study reported challenges faced by families who have a child with autism when seeking speech therapy services in Malaysia (Chu et al., 2018).

#### Lack of Standardized Test

Other research focused on the development of assessment tools and/or adaptation of language tools (Lim, 2018; Razak et al., 2018) in view of the lack of formal and standardized assessment tools with local norms (Jin et al., 2014; Joginder Singh et al., 2016; Lian & Abdullah, 2001;

Sharma, 2008). At present, normative data on speech and language development among local children in Malaysia are still quite limited. Sporadic research studies have been done on child language acquisition, but these studies were not tailored toward the needs of speech-language therapy (Razak, Madison, Siow, & Aziz, 2010). This has led to the use of imported tests that are nonstandardized, adapted, or translated, resulting in questionable validity and reliability of the tests since the normative scores with which the score of a multilingual child is compared to are based on the norms of monolingual western children.

Idiosyncrasies between languages also made translation/ adaptation rather difficult. For example, English relies heavily on tenses, while Malay and Mandarin use fewer tenses, and these tenses are manifested differently. A culturally and linguistically appropriate assessment tool is a tool that builds on the characteristics of the language with the worldview and beliefs of its speakers, considering the polyglossic ambient environment. Lim and Lee (2017) adapted the bilingual English–Mandarin New Reynell Developmental Language, as they found that there was a heavy presence of code-mixing of Mandarin–English vocabularies by children in their study. The lack of standardized assessment and treatment tools for use by SLPs in Malaysia might have affected the quality of the services offered to patients with speech-language disorders.

At the time of writing, there are only two standardized tests available with normative data drawn from the local population. The first is a standardized Malay language tool known as the Malay Preschool Language Assessment Tool for Malay preschool children between the ages of 4;0 and 6;11 (years;months; Razak et al., 2018). This test assesses the receptive, expressive language and early literacy skills of Malay preschool children. The other local tool is the Multilingual English-Mandarin-Malay Phonological Test (Lim, 2018), which contains three single-word lists based on the local accents of MalEng, Maldarin, and ChinMalay, the major groupings of sets of local languages. The findings showed that the multilingual children demonstrated phonological errors that commensurate with monolingual or bilingual children reported elsewhere. The advent of the development of local language and speech tests is a good indicator of positive development in the profession of SLP in Malaysia; the process is ongoing, but Malaysia is still far from achieving sufficient development of standardized and culturally appropriate assessment tools for various areas managed by the SLPs.

#### Future Recommendations

Our recommendations for future work to provide better services for people with communication disorders in Malaysia are based on the identification of five pressing needs:

 We call upon the Malaysian Ministry of Higher Education, universities, and Allied Health Professional Act Council to plan and address issues of the inadequate number of SLPs practicing in Malaysia.

- 2. The Malaysian Audiology and Speech Hearing, the Speech-Language Pathologist Association of Malaysia (SPEAK), and the Malaysian Allied Health Professions Act should act as a resource to guide clinicians and researchers on goals and policies.
- 3. There is an urgent need to work together with local teachers and allied health professionals in educating the public about communication disorders, the potential benefits of treatments, and the variety of services provided by SLPs.
- 4. Alternative methods of clinical education, such as peer supervision and block placement, could be implemented to help clinical educators and to reduce the load on supervisors when supervising student clinicians.
- 5. Standardized multilingual and culturally appropriate speech and language assessment tools for clinical use should be developed. We call upon national and international collaborations working on multilingual—multicultural to develop such tools. We also call upon local collaborations between researchers and clinicians across universities/hospitals to provide more opportunities to obtain larger grants to conduct more quality research. Meanwhile, we recommend clinicians to share their nonstandard assessment protocols in forums or journals. Also, dynamic assessment procedures and protocols that are linguistically and culturally appropriate need to be developed and disseminated.

With the continued growth of research and professional training, we believe that these amendments would greatly help to improve the quality of life for people with communication disorders in Malaysia.

## Acknowledgments

Preparation of this article was supported in part by the Fundamental Research Grant Scheme, Malaysia Ministry of Higher Education (FRGS/1/2018/SKK06/UKM/02/7, awarded to Shin Ying Chu). A special thanks to Grace McConnell for her assistance in proofreading the article.

#### **References:**

- Ahmad, K. (2010). Discharging patients: A perspective from speech-language pathologists working in public hospitals in Malaysia. *International Journal of Speech-Language Pathology*, 12(4), 317–319.
- Ahmad, K., Ibrahim, H., Othman, B. F., & Vong, E. (2013). Addressing education of speech-language pathologists in the World Report on Disability: Development of a speech-language pathology program in Malaysia. *International Journal of Speech-Language Pathology*, 15(1), 37–41.
- Alam, M. K., Zulkipli, A. S., Percival, S. E., & Haque, S. (2018).
  A perceptual evaluation of speech disorders in children with repaired unilateral cleft lip and palate in Hospital Universiti Sains Malaysia. *Bangladesh Journal of Medical Science*, 17(3), 470–478.
- Allied Health Professions Act. (2016, February). Laws of Malaysia Act 774. Retrieved from http://www.federalgazette.agc.gov. my/outputaktap/aktaBI\_20160218\_ACT776-BI.pdf

- American Speech-Language-Hearing Association. (2016). Scope of practice in speech-language pathology [Scope of practice]. Available from http://www.asha.org/policy/
- American Speech-Language-Hearing Association. (2017). ASHAcertified personnel-to-population ratios. Retrieved from http:// www.asha.org/Research/ASHA-Certified-Personnel-to-Population-Ratios/
- American Speech-Language-Hearing Association. (2019). Adult dysphagia. Retrieved from https://www.asha.org/Practice-Portal/ Clinical-Topics/Adult-Dysphagia/
- Australia, S. P. (2015). Scope of practice in speech pathology. Melbourne: The Speech Pathology Association of Australia
- Briffa, C., & Porter, J. (2013). A systematic review of the collaborative clinical education model to inform speech language pathology practice. International Journal of Speech-Language Pathology, 15(6), 564-574.
- Chu, S. Y., Mohd Normal, S. N. S. A. B., McConnell, G. E., Tan, J. S., & Joginder Singh, S. K. D. (2018). Challenges faced by parents of children with autism spectrum disorder in Malaysia. Speech, Language and Hearing, 1-11. https://doi.org/10.1080/ 2050571X.2018.1548678
- Chu, S. Y., Tang, K. P., McConnell, G., Hanif, F. M. R., & Yuen, M.-C. (2019). Public perspectives on communication disorders and profession of speech-language pathology. Speech, Language and Hearing, 22(3), 172-182.
- Department of Statistics Malaysia. (2017, August, 22). Population distribution and basic demographic characteristic report 2010. Retrieved from https://www.dosm.gov.my/v1/index.php?r=column/ ctheme&menu\_id=L0pheU43NWJwRWVSZklWdzQ4TlhUUT09&bul\_id=MDMxdHZjWTk1SjFzTzNkRXYzcVZjdz09 https://www.dosm.gov.my/v1/index.php?r=column/ctheme&menu\_ id=L0pheU43NWJwRWVSZklWdzQ4TlhUUT09&bul\_id= MDMxdHZjWTk1SjFzTzNkRXYzcVZjdz09
- Department of Statistics Malaysia. (2018, July, 31). Current population estimates, Malaysia, 2017-2018. Retrieved from https:// www.dosm.gov.my/v1/index.php?r=column/cthemeByCat& cat=155&bul\_id=c1pqTnFjb29HSnNYNUpiTmNWZHArdz09& menu\_id=L0pheU43NWJwRWVSZklWdzQ4TlhUUT09
- Jin, L., Razak, R., Wright, J. A., & Song, J. (2014). Issues in developing grammatical assessment tools in Chinese and Malay for speech and language therapy. In H. Winskel & P. Padakannaya (Eds.), South and Southeast Asian psycholinguistics (pp. 145–158). Cambridge, United Kingdom: Cambridge University Press.
- Joginder Singh, S., Chan, M. Y., & Ahmad Rusli, Y. (2016). Practise patterns of Malaysian speech-language pathologists in managing children with speech and language delay/disorder. International Journal of Speech-Language Pathology, 18(6), 560-570.
- Joginder Singh, S., Iacono, T., & Gray, K. M. (2011). A comparison of Malaysian and Australian speech-language pathologists' practices with children with developmental disabilities who are pre-symbolic. International Journal of Speech-Language Pathology, 13(5), 389-398.
- Joginder Singh, S., Iacono, T., & Gray, K. M. (2014). An investigation of the intentional communication and symbolic play skills of children with Down syndrome and cerebral palsy in Malaysia. Journal of Early Intervention, 36(2), 71-89.
- Joginder Singh, S., Tan, T. M., & Mustaffa Kamal, R. (2019). Speech-language pathology clinical education in Malaysia:

- Current practice and future direction. Speech, Language and Hearing. https://doi.org/10.1080/2050571X.2019.1585680
- Lian, C. H. T., & Abdullah, S. (2001). The education and practice of speech-language pathologists in Malaysia. American Journal of Speech-Language Pathology, 10(1), 3-9.
- Lim, H. W. (2018). Multilingual English-Mandarin-Malay phonological error patterns: An initial cross-sectional study of 2 to 4 years old Malaysian Chinese children. Clinical Linguistics & Phonetics, 24, 1-24.
- Lim, H. W., & Lee, S. T. (2017). Assessing children's native language in Mandarin using the adapted New Reynell Language Scale (NRLS-M). GEMA Online Journal of Language Studies, 17(2), 123-145. https://doi.org/10.17576/gema-2017-1702-08
- Low, H. M., & Lee, L. W. (2011). Teaching of speech, language and communication skills for young children with severe autism spectrum disorders: What do educators need to know? New Horizons in Education, 59(3), 16-27.
- Low, H. M., & Zailan, F. (2018). Medical students' perceptions, awareness, societal attitudes and knowledge of autism spectrum disorder: An exploratory study in Malaysia. International Journal of Developmental Disabilities, 64(2), 86-95.
- McAllister, L. (2005). Issues and innovations in clinical education. Advances in Speech-Language Pathology, 7(3), 138-148
- Mustaffa Kamal, R., Ward, E. C., & Cornwell, P. (2012). Dysphagia management practices among speech-language pathologists in Malaysia. Asia Pacific Journal of Speech, Language and Hearing, 15(2), 111-128.
- Mustaffa Kamal, R., Ward, E. C., Cornwell, P., & Sharma, S. (2015). Provision of dysphagia services in a developing nation: Infrastructural challenges. International Journal of Speech-Language Pathology, 17(6), 594-604.
- Neik, T. T. X., Lee, L. W., Low, H. M., Chia, N. K. H., & Chua, A. C. K. (2014). Prevalence, diagnosis, treatment and research on autism spectrum disorders (ASD) in Singapore and Malaysia. International Journal of Special Education, 29(3), 82-92.
- Razak, R. A., Madison, C. L., Siow, Y. K., & Aziz, M. A. A. (2010). Preliminary content validity and reliability of a newly developed Malay preschool language assessment tool. Asia Pacific Journal of Speech, Language and Hearing, 13(4), 217–234.
- Razak, R. A., Neelagandan, A. I., Yusuf, N. M., Lim, H. W., Ahmad, K., & Madison, C. (2018). The validation of the Malay Preschool Language Assessment Tool (MPLAT): The screening and diagnostic versions. Malaysian Journal of Public Health Medicine, 2018(Special Issue 1), 191-115.
- Rodger, S., Webb, G., Devitt, L., Gilbert, J., Wrightson, P., & McMeeken, J. (2008). Clinical education and practice placements in the allied health professions: An international perspective. Journal of Allied Health, 37(1), 53-62.
- Royal College of Speech and Language Therapists. (2005). Royal college of speech and language therapists clinical guidelines. London, United Kingdom: Speechmark.
- Sharma, S. (2008). Speech pathology in the Asia-Pacific region: Speech pathology in Malaysia. ACQuiring Knowledge in Speech, Language and Hearing, 10, 62-64.
- Simons, G. F., & Fennig, C. D. (2017). Ethnologue: Languages of the world. Dallas, TX: SIL International.
- Van Dort, S. (2005). Issues and innovations in clinical education: A perspective from Malaysia. Advances in Speech-Language Pathology, 7(3), 170-172.