

**A Preliminary Study on Teachers' Awareness and Knowledge of Speech-Language Therapy in Kota Bharu, Kelantan**  
(Kajian Awal terhadap Kesedaran dan Pengetahuan Guru tentang Terapi Pertuturan-Bahasa di Kota Bharu, Kelantan)

Affizal Ahmad<sup>1\*</sup>, Malarvini Vesualingam<sup>1</sup>, Mohd Normani Zakaria<sup>2</sup>

<sup>1</sup>Speech Pathology Program, Universiti Sains Malaysia, Malaysia;

<sup>2</sup>Audiology Program, Universiti Sains Malaysia, Malaysia

\*Correspondence: [affizal@usm.my](mailto:affizal@usm.my)

**Abstract**

*Speech-language therapists (SLTs) are experienced in recognising the symptoms and signs of speech-language disorders and can help the afflicted children overcome those disorders with appropriate intervention. Furthermore, with the increase in the number of children with special educational needs, teachers are expected to identify students with speech-language disorders, which is also a shared responsibility of SLTs. However, the teachers' awareness and knowledge of speech-language therapy are relatively unknown. Therefore, this study aimed to identify the primary school teachers' awareness and knowledge of speech-language therapy services in Kota Bharu, Kelantan. A total of 105 primary school teachers participated in this survey-based study. The findings discovered that the teachers' awareness and knowledge were limited. Among the participants, only 25.7% indicated a high awareness and knowledge regarding the SLTs' roles, yet 68.6% of the teachers had never read about speech-language therapy, and 63.8% had never heard anything about SLPs previously. Consequently, more emphasis on awareness and knowledge of SLPs should be executed for schoolteachers. This will assist the schoolteachers in identifying children with special needs in need of SLT services in the future.*

**Keywords:** *Speech therapist; Schoolteacher; Awareness; Knowledge; Communication disorder*

**Abstrak**

*Pakar terapi pertuturan-bahasa (TPB) berpengalaman dalam mengenal pasti simptom-simptom dan tanda-tanda kecelaruan pertuturan bahasa dan boleh membantu mengatasi masalah kanak-kanak yang mengalami masalah ini dengan intervensi yang bersesuaian. Tambahan pula, dengan peningkatan bilangan kanak-kanak berkeperluan pendidikan khas, para guru diharapkan dapat mengenal pasti murid berkeperluan khas dengan betul, yang juga merupakan tanggungjawab bersama TPB. Oleh itu, kajian ini bertujuan untuk mengenal pasti kesedaran dan pengetahuan guru sekolah rendah terhadap perkhidmatan terapi pertuturan-bahasa di Kota Bharu, Kelantan. Seramai 105 orang guru sekolah rendah telah menyertai kajian berasaskan tinjauan ini. Dapatan kajian menunjukkan kesedaran dan pengetahuan guru adalah terhad. Dalam kalangan peserta kajian, hanya 25.7% menunjukkan kesedaran dan pengetahuan yang tinggi mengenai peranan TPB, manakala 68.6% guru tidak pernah membaca tentang terapi pertuturan-bahasa, dan 63.8% tidak pernah mendengar apa-apa mengenainya. Oleh itu, maklumat tentang perkhidmatan terapi pertuturan-bahasa harus dirancang dengan teliti dan disampaikan kepada guru sekolah.*

**Kata kunci:** *Terapi pertuturan; Guru sekolah; Kesedaran; Pengetahuan; Kecelaruan komunikasi*

## INTRODUCTION

Speech-language pathology is a field of expertise practiced by clinicians known as speech-language pathologists (SLPs) or speech-language therapists (SLTs). SLTs work to prevent, assess, diagnose, and treat disorders related to speech, language, social communication, cognitive communication, and swallowing difficulties in children and adults (American Speech-Language-Hearing Association [ASHA] 2016). The roles and responsibilities of SLTs are vast, for instance, SLTs work across all levels providing appropriate speech-language services in Pre-K, elementary, middle, junior high, and high schools with no school level underserved (ASHA 2016). SLTs also have to ensure whether the disorder has an impact on the education of students with disabilities. Therefore, SLTs address academic, social/emotional, personal, and vocational needs that have an impact on the attainment of educational goals as well (ASHA 2016).

Besides that, SLTs provide a distinct set of roles based on their focused expertise in language. They help in addressing the linguistic and metalinguistic foundations of curriculum learning for children with disabilities and also other learners who are at risk for school failure (ASHA 2016). The relationship between SLTs and teachers is crucial as SLTs also provide great support in assisting individuals with literacy achievement of students with communication disorders (ASHA 2016). With the increasing inclusiveness and diversity in school settings, SLTs provide remarkable contributions to ensure that all students receive quality, culturally competent services.

Since SLTs have the expertise to distinguish a language disorder which might include cultural and linguistic differences, socioeconomic factors, lack of adequate prior instruction, and the process of acquiring the dialect of English used in

the schools, SLTs can assist teachers in promoting educational growth (ASHA 2016). SLTs' expertise may result in more accurate and appropriate identification of student needs and collaborate effectively to support them in a school setting with the teamwork with teachers (ASHA 2016).

Based on the International Classification of Functioning (World Health Organization [WHO] 2001), the primary role of SLTs is to address personal factors and environmental barriers (e.g., attitudes of the public) to improve the quality of life and social participation of people with communication disorders. To achieve this goal, the first step is to understand whether the public is aware of communication disorders and the SLTs' roles in the prevention, assessment, and intervention of these disorders before implementing public health programs. Moreover, SLTs are responsible for educating the general public about the knowledge and skills related to communication, feeding, and swallowing disorders (ASHA 2016; Wylie et al. 2018). In the education setting, among the primary responsibilities of school-based SLTs include effective collaboration with educational professionals (ASHA 2010) and treatment of students with communication deficits (O'Connell 1997). Briefly, SLTs, as members of the educational team, are expected to be involved in all levels of service provisions for children with language and learning disabilities, including academic planning for either indirect or direct service provisions, regardless of the types of schools (ASHA 2016).

Different opportunities for collaboration between regular education or special education teachers and SLTs may occur at each level. The effectiveness of cooperation between these professionals may positively impact students' performance, skills, and achievements. SLTs are valuable members of student services as they contribute to student program planning, especially in

social skills and communication development, individually and in groups (ASHA 2010). The Malaysian Association of Speech-Language and Hearing (MASH) (2016) and the American Speech-Language-Hearing Association (ASHA 2010) stated that SLTs advise and assist teachers and parents/guardians regarding effective strategies in the field of communication skills by spreading awareness and educating the general public. Therefore, the SLTs and teachers must collaborate well to achieve an optimal learning environment for the students in need. As such, the failure to cooperate well among SLTs and teachers can result in late diagnosis, missed diagnosis, or incorrect diagnosis if poor communication exists between the adults responsible for a particular child (Baxter et al. 2009).

In a country such as Malaysia, SLTs often receive late referrals due to the late recognition of a possible disability and reduced access to services (Lian & Abdullah 2001), besides the lack of knowledge about professional help among the child's family members (Chu et al. 2018). Moreover, teachers' confusion about the referral process and uncertainty about the scope of practice of SLTs are also the reasons for late referral (Beasley 2019). Besides late referrals, another issue related to the poor identification of children with speech and communication problems is the insufficient data or statistics on children afflicted by it. As reported by the United Nations Children's Fund Malaysia (2017), no credible data from the Department of Social Welfare, Ministry of Health (MOH), and Ministry of Education (MOE) have been compiled even though these organizations have surveyed the number of registered children and adults with disabilities.

To overcome the issue of late referral, teachers must understand the signs of learning difficulties, be alert to children with such problems, and advise the parents

to seek help from the SLTs. Furthermore, it is essential to realize the ramifications caused by a slow response to diagnosis or a misdiagnosis. For example, the dropout rate for students with disabilities is approximately twice that of general education students (Blackorby & Wagner 1996). Therefore, it is crucial for teachers to identify warning signs of communication disorders, to routinely check and test for the expected level of communication for the child's age group, and most importantly, to know who the experts in this field are, plus where and when to refer the child to the specialist.

Previous studies (e.g., Mahmoud et al. 2014; Irani et al. 2014) have found less than desirable public knowledge about speech-language pathology and communication disorders. For example, a study in Amman (Mahmoud et al. 2014) reported that many respondents had never read about the speech-language pathology profession and could not recognize and identify common communication disorders. Moreover, many people had limited knowledge and misconceptions about the SLTs' roles in managing communication disorders, such as voice disorders, and their available treatment options (Irani et al. 2014), leading to the possibility of unrecognized diagnoses and disorders being left untreated (Breadner et al. 1987). However, the general public in Peninsular Malaysia reported that more than half of the respondents showed a moderate level of knowledge about communication disorders and a high level of knowledge about speech-language therapy (Chu et al. 2019). In terms of attitudes, most of the respondents were generally positive regarding the profession of speech-language therapy (Chu et al. 2019). The study noted that health professionals demonstrated a higher knowledge level and more positive attitudes toward speech-language therapy than other professions (teachers and services, business, engineers, and jobless or retired). Participants with the

highest educational level (master's or doctorate holders) showed greater knowledge of speech-language therapy. However, the study did not specifically focus on the teachers' awareness and knowledge of SLPs.

Many studies (e.g., Hartas 2004; Wright & Kersner 2004; Sadler 2005) have shown that several factors are likely to impact teachers' ability to adequately meet the special educational needs of children with communication disorders. One such factor is knowledge (Sadler 2005). With the increase in the prevalence of students with special educational needs, teachers or educators must have adequate awareness and knowledge about communication disorders, be able to recognize those students at an early stage and help the students gain access to the SLTs for a thorough evaluation through an appropriate referral by knowledgeable teachers. Guidelines provided by the ASHA (2010) delineate the roles and responsibilities of SLTs employed by schools. SLTs are responsible for assisting children and adolescents with various language problems, including understanding and giving directions, asking and answering questions, using correct grammar, and displaying appropriate social skills (Wylie et al. 2018). Moreover, students with language impairments may require additional assistance to maintain their functioning level in the general education classroom, unlike students with typical language development who tend to acquire language skills with no special instruction (Ehren & Whitmire 2009; Baxter et al. 2009). Thus, SLTs play a crucial role in the education of students with language impairments and contribute to the literacy achievement of students as well (Ukrainetz & Fresquez 2003).

Hence, appropriate steps should be taken to ensure a smooth referral and early referral. Beasley (2019) suggested several measures to overcome late referrals by teachers to

SLT services. This suggestion included improving children's level and ease of access to SLT services such as having more SLTs at schools. Next, making SLP services more affordable, more professional development for teachers regarding speech, language, and communication needs (SCLN), increasing parent involvement, as well as divergence in the importance that teachers and SLPs assign to indicators of SLCN in children. Given that SLTs have been practicing in Malaysia for over 20 years, no study has yet specifically evaluated the teachers' awareness and knowledge of speech-language therapy and the roles or services these professionals provide in Malaysia. Although Chu et al. (2019) included teachers as part of the respondents, the study was focused more on the public's perspective. Thus, it is imperative to study the teachers' knowledge of this field and the roles of SLTs. A basic understanding of this field is crucial for teachers, as SLTs are required to assist teachers in helping children with all language and communication issues. Furthermore, SLTs should be a part of the education team, along with teachers, special education teachers, psychologists, and others (ASHA 2021). Thus, this study aimed to investigate primary school teachers' awareness and knowledge of the speech-language therapy profession and identify the teachers' demographic profile concerning these issues. The outcomes from this study could guide SLTs and educational officers to carry out the necessary steps to promote and educate primary school teachers regarding the field of speech-language pathology in general. Furthermore, the findings of this study could provide a framework for evaluating SLT service delivery and planning future health programs to promote early-stage speech interventions for school-aged children with communication disorders.

It is worth stating that based on the Malaysian Education Blueprint (2013-2025)

(MOE 2013), the MOE of Malaysia is committed to moving more students with special needs toward the inclusive education model. The MOE has implemented several initiatives to achieve this objective, with the first wave (2013–2015) focusing on strengthening existing programs. The second wave (2016–2020) focused on scaling up initiatives and increasing the pool of experts available to support students with special needs to deal with an increasing number of such students and the broader range of emerging special needs. The third wave (2020–2050) will evaluate these initiatives and consolidate successful ones. However, the diverse abilities and educational needs of children with special needs require teachers to be knowledgeable. As such, collaboration and teamwork between teachers and SLTs are crucial as reading and writing proficiency in all school-age students, from preschool to high school, are not only teachers' concerns but also SLTs (Ukrainetz & Fresquez 2003). Moreover, the ASHA (2010) guidelines emphasize language and literacy development as essential to therapy. Therefore, SLTs are equipped with the specialized knowledge and experience to identify communication disorders and provide the help that children may require to build their language and literacy skills.

## MATERIALS AND METHODS

### Participants

One hundred and five schoolteachers (28 males and 77 females) consented to participate in this survey-based study. Kota Bharu was chosen as the study location because it is the capital and the main urban centre for the state of Kelantan. Kota Bharu has various basic facilities such as administrative, educational, health, business, worship, and leisure/sports centers. On top of that, the Speech Therapy Clinic of USM located in the district of Kota Bharu should allow the children or

adults with communication disorders to get help.

The sample size for this study was calculated using Raosoft Sample Size Calculator. Through the analysis, 92 participants were needed. Considering a 20% drop-out rate, a total of 110 participants were planned to be recruited. During the data collection process, it was found that some schools had less than 11 teachers who taught Standard 1, 2, and/or 3. Although 105 teachers partook in the study, the number fulfilled the minimum sample size required for this study.

The participants were Malaysian citizens, teaching in primary schools in the district of Kota Bharu, and educating Year 1, Year 2, and/or Year 3 students. Teachers who are involved in the school administration (Headmaster/Headmistress, Administrative Assistants, Senior Assistant of Student Affairs, Senior Assistant of co-curricular, counsellor), trainee teachers, and temporary teachers were excluded from the study. Participants provided their demographic details, including gender, age, race, marital status, education level, teaching experience, and experience teaching students with disabilities.

### Research Instrument

The present study used a validated questionnaire to investigate primary school teachers' awareness and knowledge of speech-language therapy. In particular, the questionnaire was adapted from Mahmoud et al. (2014) and Tan (2007), for which the authors granted permission. The questionnaire consists of three parts. The first part consists of seven questions that aim to identify the teachers' awareness and general knowledge of the field of speech-language therapy and the profession in general (Mahmoud et al. 2014). Questions 1 and 2 address whether the participants have ever read or heard about speech-language therapy and the sources of

information. Question 3 aims to identify the teachers' knowledge of SLTs' work settings. Question 4 identifies the participants' knowledge of the groups of clients that SLTs work with through the check-all-that-apply format. Question 5 identifies the participants' knowledge of the referral procedure to see SLTs. Finally, questions 6 and 7 are statements that aimed to identify the participants' knowledge about the titles that SLTs are known by (are they called by the title of 'doctor' or 'speech therapist?').

The second part of the questionnaire focuses on identifying teachers' specific knowledge and awareness about the roles of SLTs (Tan 2007), with a Cronbach's alpha coefficient of 0.92. It consists of 10 closed-ended questions, in which the participants need to choose only one answer between "true", "false", or "undecided" for the response. A correct answer receives one mark, whereas an undecided or wrong answer receives zero marks, so the maximum score is ten marks, and the minimum score is zero. The teachers' levels of knowledge about the roles of SLTs are divided into three levels based on the range that their scores fall under; low (0-3), moderate (4-7), and high (8-10).

The third part of the questionnaire consists of six questions aiming to identify the knowledge and awareness among teachers about communication disorders that warrant an evaluation by the SLTs (Mahmoud et al. 2014). Questions 1 to 5 deal with the types of communication disorders that SLTs usually assess. The participants need to judge whether the described behavioural profiles require an evaluation from SLTs based on a 3-point Likert scale: 1 = Agree, 2 = Neither agree nor disagree, and 3 = Disagree. An agreement with the survey statement will indicate that the participants have adequate knowledge to judge a particular case correctly. In contrast, a disagreement with a statement would mean that the participants have insufficient awareness or knowledge

about the particular communication disorder. A neutral response to the survey suggests that the participants have less than desirable knowledge of the communication disorder to make a correct judgment. For question 6, participants need to identify the cases that SLTs typically treat. There are 15 types of cases listed, of which four cases that SLTs do not typically treat are included as "decoy" items.

### Study Procedure

The Human Research Ethics Committee USM, the Ministry of Education (MOE), the State Education Department, and each national primary school headteacher granted permission to conduct this study. Participants were recruited by a multi-stage sampling method. At first, a simple random sampling method was used to select 10 (out of 418) primary schools in Kota Bharu based on the name list of primary schools obtained from the District Education Office. Next, a simple random sampling method was used to select 11 participants from the selected primary schools. The researcher obtained the name list of the teachers teaching Standard 1 to Standard 3 from the Senior Assistant of Student Affairs of the 10 primary schools chosen and assigned it in the software for simple random sampling. The simple random sampling for both stages was done using the online software, "Research Randomizer".

The study was carried out face-to-face. The researcher went to the school, met the participants, and explained the purpose of the study. Upon agreement to participate, the teachers completed a consent form and a questionnaire. All documents were handed to the researcher as soon as the teachers finished answering them. The entire procedure took about 25 minutes.

### Data Analysis

The independent t-test was used to analyse the teachers' knowledge and awareness

about the roles of SLTs between gender as well as between teachers' experience teaching students with learning disabilities. Next, the one-way analysis of variance (ANOVA) was used to analyse the differences between years of teaching experience and the teachers' awareness and knowledge about the roles of SLTs. All data analyses were conducted using the SPSS software (version 22.0).

## RESULTS

### Demographic Analysis

A total of 105 teachers completed the questionnaire. The mean age of participants was 45.5 years (SD = 5.1 years); most were women (73.3%). As shown in Table 1, most teachers were Malay (91.4%), married (93.3%), and had a bachelor's degree (64.8%). Concerning years of teaching experience, most of them were experienced teachers, as the highest percentage (47.6%) of participants reported teaching for more than 20 years, while the second highest rate (38.1%) of respondents had taught for 11 to 20 years. Only a small number of teachers (14.3%) had less than 11 years of teaching experience. Among them, 71.4% of the teachers had taught students with learning disabilities.

Table 1 Demographic characteristics of the participants

Participants' characteristics	n (%)	
Gender	Male	28 (26.7)
	Female	77 (73.3)
Age	21 – 30	1 (1.0)
	31 – 40	27 (25.7)
	41 – 50	54 (51.4)
	>51	23 (21.9)
Race	Malay	96 (91.4)
	Chinese	9 (8.6)
Marital status	Single	4 (3.8)
	Married	98 (96.2)
	Divorced	3 (2.9)
Highest education level	SPM (O-level)	3 (2.9)
	STPM (A-level)	5 (4.8)
	Diploma	19 (18.1)
	Bachelor	68 (64.8)
	Masters	10 (9.6)

Years of teaching experience	<11 years	15 (14.3)
	11 – 20 years	40 (38.1)
	>20 years	50 (47.6)
Experience teaching students with disabilities	Yes	75 (71.4)
	No	30 (28.6)

### Teachers' Awareness and General Knowledge about Speech-language Therapy

Recall that in the first part of the questionnaire, questions 1 and 2 address whether the participants have ever read something about speech-language therapy and their sources of information. Of 105 teachers, 72 (68.6%) indicated that they had never read about speech-language therapy, while 67 (63.8%) had never heard anything about it. As shown in Table 2, of 33 (31.4%) teachers who have read something about speech-language therapy, 60.6% of them indicated the internet to be their primary source of information, followed by magazines (45.5%) and newspapers (42.4%) that provided them with the opportunity to learn something about this field. Meanwhile, 24.2% of the teachers indicated having reading materials in the form of brochures and social media, respectively. Besides that, 18.2% of teachers stated books as their source of information. Only one teacher specified that he received some speech-language therapy information from academic journals.

Table 2 Teachers' sources of information on speech-language therapy from reading materials (n = 33)

Type of reading materials participants came across in gaining knowledge about speech-language therapy	Frequency (%)
Internet	20 (60.6)
Magazines	15 (45.5)
Newspapers	14 (42.4)
Brochures	8 (24.2)
Social media	8 (24.2)
Books	6 (18.2)
Journals	1 (3.0)

Regarding sources other than reading materials, only 38 (36.2%) teachers have heard about speech-language therapy. As presented in Table 3, 44.7% of the teachers indicated social media and 42.1% stated television as their source of information (other than the reading materials they came across) in learning about speech-language therapy. Only a few teachers had heard something about speech-language therapy through the radio (15.8%), exhibitions (13.2%), and lectures or talks (10.5%). A small number of teachers (7.9%) stated they learned information from hospitals, and the same percentage indicated they learned from friends.

Table 3 Teachers' sources of information on speech-language therapy from sources other than reading materials (n = 38)

Information on speech-language therapy from sources other than reading materials	Frequency (%)
Social media	17 (44.7)
Television	16 (42.1)
Radio	6 (15.8)
Exhibition	5 (13.2)
Lectures or talks	4 (10.5)
Information learnt in hospitals	3 (7.9)
Friends	3 (7.9)

#### Teachers' Awareness and Knowledge about SLTs' Titles, Clinical Training, Referral Procedure, Employment Settings, and a Group of Clients Treated

Questions 3 to 7 address the teachers' awareness and knowledge of the titles that SLTs are known by, the referral process to see SLTs, the SLTs' employment settings, the specific population of clients they treat, and the amount of clinical training that teachers expect SLTs to have beyond graduation. The result shows that all the teachers correctly identify SLTs as "speech therapists"; however, 34.3% of teachers also thought that SLTs are called "doctors". Regarding referral procedure, most teachers (83.8%) thought that a referral from a medical officer is needed to see an

SLTs, while 15.2% were unsure of the referral procedure (Table 4). Only one teacher was able to correctly indicate that a referral from a physician is not required.

Table 4 Teachers' awareness and knowledge about referral procedures to see SLTs

Referral procedure	Frequency (%)
A referral from a medical officer is needed to see an SLTs	88 (83.8)
A referral from a medical officer is not needed to see an SLTs	1 (1.0)
Unsure of the referral procedure to see an SLTs	16 (15.2)

Next, participants must indicate their awareness and knowledge of SLTs' employment settings. The data (Table 5) showed that only one teacher could correctly identify all the SLTs' employment settings, including special education schools, university settings, government and private hospitals, and rehabilitation centres. Moreover, many teachers knew that SLTs work in government hospitals (57.1%) and special education schools (50.5%). However, among the teachers, only a small number of them were aware and knowledgeable that SLTs work in private hospitals (19.0%), university settings (8.6%), rehabilitation centres (8.6%), preschools (5.7%), primary schools (4.8%), and secondary schools (3.8%).

Table 5 Teachers' awareness and knowledge about SLTs' employment settings

Employment settings	Teachers' responses to SLTs' employment settings
	Frequency (%)
Preschools	6 (5.7)
Primary schools	5 (4.8)
Secondary schools	4 (3.8)
Special education schools	53 (50.5)
University	9 (8.6)
Government hospitals	60 (57.1)



Private hospitals	20 (19.0)
Rehabilitation centres	9 (8.6)

Data in Table 6 exhibits the teacher's awareness and knowledge about the groups of clients treated by SLTs. Among them, 76.2% of teachers marked that SLTs work with primary school children, while 55.2% ticked pre-schoolers. Only a small number of the teachers were aware that SLTs also work with infants (10.5%), teenagers (9.5%), adults (5.7%) and the elderly (5.7%). The overall analysis found that only three teachers (2.9%) marked that SLTs work with all six groups of clients.

Table 6 Teachers' awareness and knowledge about groups of clients that SLTs treat

Groups of clients treated by SLTs	Teachers' responses
	Frequency (%)
Infants	11 (10.5)
Pre-schoolers	58 (55.2)
Primary school children	80 (76.2)
Teenagers	10 (9.5)
Adult	6 (5.7)
Elderly	6 (5.7)

#### Teachers' Awareness and Knowledge about the Roles of SLTs

This part of the analysis aims to identify teachers' knowledge and awareness about the roles of SLTs. As shown in Table 7, the highest number of teachers (59%) had a moderate awareness and knowledge regarding the role of SLTs. On the other hand, only 25.7% had a high level of awareness and knowledge, while 15.2% had a low level of awareness and knowledge regarding the roles of SLTs.

Table 7 Teachers' level of awareness and knowledge about the roles of SLTs

Teachers' levels of awareness and knowledge about the roles of SLTs	Frequency (%)
High	27 (25.7)
Moderate	62 (59.0)
Low	16 (15.2)

The independent t-test showed no significant difference between male ( $M = 5.25$ ,  $SD = 2.73$ ) and female ( $M = 6.12$ ,  $SD = 2.15$ ) teachers about their awareness and knowledge regarding the roles of SLTs [ $t(103) = 1.70$ ,  $p = 0.93$ ]. Likewise, no significant difference was found in the awareness and knowledge about the roles of SLTs [ $t(103) = 6.99$ ,  $p = 0.50$ ] between teachers teaching experience of students with learning disabilities ( $M = 5.99$ ,  $SD = 2.42$ ) and those without the experience ( $M = 5.63$ ,  $SD = 2.13$ ). As shown by the one-way ANOVA, there is no significant difference between years of teaching experience (less than 10 years, 11-20 years, more than 20 years) and teachers' awareness and knowledge about the roles of SLTs [ $F(10,102) = 0.18$ ,  $p = 0.083$ ].

#### Teachers' Awareness and Knowledge of Communication Disorders

Table 8 summarises the teachers' responses based on their judgement of five different communication disorder scenarios: articulation disorders, voice disorders, dyslexia, language delay, and fluency disorders. Most participants agreed that articulation (68.6%) and fluency disorder (75.2%) cases warrant an evaluation by SLTs. This is a good sign, indicating the possibility of adequate awareness and knowledge or a general belief about the involvement of SLPs in treating these communication disorders. However, 42.9% of the participants disagreed and 35.2% were uncertain about the involvement of SLTs in dyslexia cases, indicating that the teachers may not have adequate awareness and knowledge to make a correct judgement about whether an SLT's evaluation is needed in the treatment of dyslexia cases.

Table 8 Teachers' awareness and knowledge about communication disorders

Behavioural profiles that describe communication disorders	Teachers' judgement on the behavioural profiles warrants an evaluation from an SLT		
	Agree % (n)	Neither agree nor disagree % (n)	Disagree % (n)
<i>Articulation disorder</i>			
Ahmad is 8 years old. He couldn't say the "s" sound correctly and used the "c" sound instead. For example, Ahmad says "cucu" for "susu." Should Ahmad be evaluated by a speech-language pathologist?	68.6 (72)	15.2 (16)	16.2 (17)
<i>Voice disorder</i>			
Ali is 8 years old. He has a rough voice. His mother said that Ali always shouts. Should Ali be evaluated by a speech-language pathologist?	12.4 (13)	22.9 (24)	64.8 (68)
<i>Dyslexia</i>			
Sarah is 8 years old. She has trouble reading and writing even though she does not have problems talking to her friends and family members. The school plans to give her several tests to find the cause of her problem. Should Sarah be evaluated by a speech-language pathologist as well?	21.9 (23)	35.2 (37)	42.9 (45)
<i>Language delay</i>			
Tasha is 3 years old. She uses about 50 words and is starting to put words together, like "nak biskut." She understands simple questions and can name pictures and her body parts. Should Tasha be evaluated by a speech-language pathologist?	12.4 (13)	9.5 (10)	78.1 (82)
<i>Fluency disorder</i>			
Shafiq is 5 years old. He sometimes repeats sounds or words when he's excited but never seems to notice it. For example, he might say, "TeTeTe-tengok saya, mak!" Shafiq's parents are not concerned about his speech. Should Ahmad be evaluated by a speech-language pathologist?	75.2 (79)	15.2(16)	9.5 (10)

Moreover, most participants disagree that SLTs involve in treating voice disorder (64.8%) and language delay (78.1%) cases. The result indicated that most teachers thought the child did not need an evaluation from SLTs. The inability to make a correct judgement suggests a lack of knowledge in differentiating between normal and abnormal language delay symptoms and the need to refer a child to SLTs.

Finally, the participants were required to decide on 15 cases that SLTs typically treat from those that SLTs do not treat. As shown in Table 9, most of the teachers correctly identified all four types of disorders that SLTs do not typically treat (people with pneumonia, people with leukaemia, adults who lose their eyesight, and people with tonsillitis).

Regarding the cases that SLTs typically treat, 68.6% of the teachers indicated fluency disorders (adults who stutter) as one of the cases that SLTs treat. Most teachers probably knew about the diversity of communication disorders that warrant treatment from SLTs, as 53.3% of the teachers believed that SLTs treat autistic children, and 59% indicated that SLTs treat people with cleft lip or palate (resonance disorder). Next, almost half of the teachers (49.5%) knew that SLTs treat people with intellectual disabilities, and 43.8% of the teachers identified hearing loss as one of the types of disorders that SLTs treat. Unfortunately, many participants did not know SLTs' role in treating voice-related cases. The data shows that only 26.7% of teachers indicated that SLTs treat people who have had their voice box or vocal folds removed, and 19% of teachers indicated that people with strained voice quality should receive treatments from SLTs.

It is worth noting that many respondents were not aware of the involvement of SLTs in treating cases related to brain difficulties. As indicated in Table 9, only 28.6% of the teachers correctly identified that SLTs treat people with diseases or brain injuries, and 27.6% of them indicated that SLTs treated people with memory deficits. On the other hand, a small number of teachers (23.8%) correctly identified that SLTs treat people who have had strokes, and 13.3% knew that SLTs could also treat people with muscle diseases.

## DISCUSSION

### 4.1 Teachers' Awareness and Knowledge about Speech-Language Therapy and the Roles of SLTs

The present study aims to identify the awareness and knowledge of Malaysian primary school teachers about the speech-language therapy profession. Unfortunately, most teachers have not heard about this profession, even though SLTs have been practising in Malaysia for over 20 years. The findings are consistent with those of Mahmoud et al. (2014) and Irani et al. (2014) that the public's knowledge of the speech-language therapy profession is inadequate, but contradicts those of Chu et al. (2019), who found that many members of the general public were aware of the profession.

Teachers who know about this profession receive the information through the internet, social media, television, newspapers, and magazines, as online resources are more accessible than traditional research methods, such as locating library resources (Mahmoud et al. 2014). However, only a few teachers have heard of speech-language pathology on the radio, in exhibitions, and in lectures or talks. At this point, the Malaysian Ministry of Education (MOE) should realize that the

Table 9 Teachers' responses regarding the diversity of disorders treated by SLTs

Types of disorders treated by SLTs	Teachers' response	
	Yes % (n)	No % (n)
People with diseases or injuries to the brain	28.6 (30)	71.4 (75)
People with hearing loss	43.8 (46)	56.2 (59)
Adult who stutters	68.6 (72)	31.4 (33)
Autistic children	53.3 (56)	46.7 (49)
People with pneumonia*	1.0 (1)	99.0 (104)
People with intellectual disability	49.5 (52)	50.5 (53)
People who have their voice box or vocal folds removed	26.7 (28)	73.3 (77)
People who have had strokes	23.8 (25)	76.2 (80)
Adults who lose their eyesight*	3.8 (4)	96.2 (101)
People with cleft palate or lip	59.0 (62)	41.0 (43)
People with strained voices	19.0 (85)	81.0 (85)
People with leukaemia*	1.0 (1)	99.0 (104)
People who have a memory deficit	27.6 (29)	72.4 (76)
People with muscles diseases	13.3 (14)	86.7 (91)
People with tonsillitis*	18.1 (19)	81.9 (86)

Notes \* Cases not treated by SLTs

teachers' sources of information about speech-language therapy and SLTs services are insufficient. To support the success of the Malaysian Education Blueprint (MOE 2013), it is suggested that the MOE organize talks to deliver important information regarding speech-language pathology, SLTs roles, and communication disorders to teachers in order to improve their awareness and knowledge. Furthermore, since SLTs are considered a part of the educational team (ASHA 2010), it is crucial to allow SLTs to play their role in educating teachers on language and communication disorders. This initiative could pave the way for future collaboration between teachers and SLTs.

Regarding the teachers' awareness and knowledge of the SLTs' titles, the title "speech therapist" was unanimously chosen by the teachers, probably due to the information provided in the Project Information Sheet, which stated that the field of speech-language pathology is also known as speech-language therapy. Thus, this finding might be biased due to prior exposure to the title. It was also interesting to note that some teachers believed that SLTs were called "doctors", which is not true. Teachers may believe that SLTs are either medical doctors who specialize in this field, or it simply means that SLTs may be given the title of "Doctor" upon graduation. As a result, it is critical to educate and clarify to teachers that SLTs are not doctors but they are highly educated and specialized healthcare professionals. They often work closely with doctors, nurses, and other specialists and professionals (ASHA 2016).

Moreover, some of the teachers were unsure of the referral procedure, and many teachers felt that a reference from a medical officer was required, although referral letters from medical doctors are not

compulsory for seeing SLTs. This finding is inconsistent with those of Baxter et al. (2009) and Mahmoud et al. (2014) studies, in which only a quarter of their respondents were unsure how to refer a child to the SLTs. The reason could be that in the study by Baxter et al. (2009), schools that provided speech and language therapy services were included, but this was not the case in the present study. Because of the inadequate awareness and knowledge among primary school teachers, this suggests that SLTs should start making efforts to ensure policies and procedures are completely understood in schools in their area. Besides, some medical doctors may not know enough about communication disorders to make an appropriate referral to SLTs (Mahmoud et al. 2014).

Since the MOE is committed to moving more students with special educational needs towards the inclusive education model following the Salamanca Statement and Framework for Action on Special Needs Education 1994, accurate information on referral and contact must be provided so that teachers can make direct referrals, access support, and advice from the SLTs. This could be collectively conducted through seminars organized by the MOE or professional bodies such as MASH. MASH is also encouraged to continue its "Better Hearing and Speech Month Campaign", which began in May 2011 to raise public awareness about the importance of hearing and speech in daily life, as well as to educate the public about the roles and services provided by SLTs (MASH 2016).

The present study also revealed that the teachers had inadequate awareness and knowledge about SLT employment settings: special education schools, universities, rehabilitation centers, government hospitals, and private hospitals. Even

though most teachers knew that SLTs work in government hospitals and special education schools, they did not realize that SLTs could work in other settings. Due to a lack of knowledge, it seems that teachers will be unable to provide appropriate information about SLTs to children or locate treatment facilities.

In addition, the teachers were found to have insufficient knowledge of client groups treated by SLTs. For example, even though most teachers knew that SLTs treat preschool and primary school children, the findings revealed that most teachers were unaware that SLTs can also treat adults, the elderly, babies, and teenagers with communication impairments. The inadequacy of knowledge about the specific groups of clients that SLTs are qualified to treat may result in restricted services to the targeted population. For example, the participants' limited belief that SLTs only treat children may result in teachers with voice disorders not coming forward for treatment. Therefore, SLTs should spread awareness to general education teachers regarding the SLTs' employment settings, as educating the public about speech-language pathology services also falls under the scope of practice of SLTs (ASHA 2016).

As for the teacher's knowledge about the roles of SLTs, it is good to know that about half of the participants had a moderate level of awareness and knowledge. Nonetheless, it is surprising to learn that despite having many years of teaching experience and interaction with children with learning difficulties, the teachers did not thoroughly understand the roles of SLTs. Because no research has been carried out to specifically investigate schoolteachers' awareness of the roles of SLTs, more research is needed to shed light on this issue.

#### 4.2 Teachers' Awareness and Knowledge of Communication Disorders

Regarding awareness and knowledge about communication disorders, the participants were found to be aware of the involvement of SLTs in the treatment of articulation and fluency disorders compared to communication disorders of dyslexia, language delay, and voice disorders. The result is consistent with the findings of Mahmoud et al. (2014) that the participants were more aware of identifying communication disorders related to articulation and fluency disorders than other problems, such as swallowing and hearing impairment. Herein, it seems possible that the teachers' restricted belief that SLTs only treat speech-related problems comes from their impression of "speech-language therapy" or "speech-language therapists".

Regarding the teachers' awareness and knowledge about dyslexia, the majority had a neutral response or a disagreement regarding whether SLTs' evaluation is warranted in this case, which is in line with the study in Amman (Mahmoud et al. 2014). A general lack of awareness about the SLTs' expertise in managing dyslexia cases suggests that most of the teachers had never collaborated with SLTs before. This finding could also be due to the inadequacy of awareness and knowledge among teachers in identifying students with learning disabilities, as pointed out by many researchers (e.g., Moothedath & Vranda 2015; Saad et al. 2014; Kakabaraee et al. 2012). Given that dyslexia is characterized by difficulties in the development of literacy and language-related skills (American Psychiatric Association 2013) and is commonly identified among school-aged children (Amalu 2020), teachers should be educated on the roles and

responsibilities of SLTs in the management of such cases (ASHA 2010).

Besides educating teachers about dyslexia, it is also essential to educate them about SLTs' involvement in the treatment of voice disorder cases, as teachers are amongst the most vulnerable population to developing voice disorders at some point in their teaching career (Roy et al. 2004; Williams 2003). Voice care programs should also be implemented at teachers' educational institutes to educate and prevent teachers from acquiring voice difficulties. The findings revealed that many teachers did not know of the SLT's role in managing voice disorders and seemed less knowledgeable in identifying communication disorders related to the voice. Thus, the MOE and SLTs should take the responsibility to create awareness and educate the teachers about the services that SLTs are qualified to offer. Following disagreement about the involvement of SLTs in language delay cases, it may suggest that the teachers were not well aware of the normal and abnormal symptoms of language delay cases.

Furthermore, the teacher's knowledge about the language problem and how a child typically acquires language is minimal or absent in many initial teacher training programs (Dockrell & Lindsay 2001). The teachers also showed a lack of knowledge and awareness of communication disorders involving people with strokes, memory deficits, and muscle diseases, as they could not make correct judgments regarding the SLTs' involvement in treating these cases. This could be due to not being familiar with the medical conditions associated with communication disorders (Mahmoud et al. 2014). On the other hand, it was encouraging to know that the teachers may have some awareness and knowledge of

other communication disorders that SLTs treat. They identified the cases involving children with autism, people with cleft lip and palate, people with intellectual disabilities, and those with hearing loss.

To equip and improve the teacher's awareness and knowledge about speech-language therapy and communication disorders that require the services of SLTs, several steps and ideas are recommended. To begin, the MOE is encouraged to organize seminars or workshops that bring together SLTs and teachers to share knowledge about speech-language therapy, leading to the effectiveness of SLTs services (Baxter et al. 2009; Mahmoud et al. 2014). Moreover, the MOE and SLTs must come together to impart knowledge regarding the SLTs' role in language and literacy so that the students with learning disabilities can access the best services available to them. Workshops conducted by the SLTs may also provide the teachers with sufficient knowledge to identify students with potential communication disorders and ensure appropriate referrals for further evaluation. With this awareness and knowledge, teachers could be a helpful resource for parents who may need the services of SLTs for their children.

## CONCLUSION

The study's overall findings showed that the teachers' awareness and knowledge of speech-language therapy and the profession in general were deficient. Thus, professional knowledge and understanding of the roles and responsibilities of SLTs in helping people with speech-language disorders should be made compulsory for schoolteachers. An ongoing collaboration between SLTs and teachers is needed to ensure a positive impact on children's language and communication, social interaction, school performance, and

academic achievements. A more informed teacher may be a good source of referral and an important figure in ensuring the child in need receives suitable intervention.

#### ACKNOWLEDGMENT

We express our gratitude to Universiti Sains Malaysia, Malaysian Ministry of Education, the State Education Department of Kelantan, and the headteachers of the primary schools involved, for permitting us to conduct this study. Thank you to the teachers who participated in the study.

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