

Knowledge of Communication Disorders and The Profession of Speech-Language Therapist (SLT) Among Medical and Allied Health Sciences Students

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ABSTRACT

Background: Healthcare professionals, like doctors and allied health sciences professionals, are the first point of contact with patients. Their role involves identifying individuals with communication disorders and referring them to speech-language therapists (SLTs) for further evaluation and management. However, studies have shown a significant lack of awareness regarding the profession of SLTs among healthcare professionals. As medical and allied health sciences students represent the future healthcare workforce, assessing their understanding at the early stage is essential to ensure their comprehensive knowledge of these matters. This study aimed to investigate the knowledge of communication disorders and the profession of SLTs among medical and allied health sciences students, given the critical need to address gaps in understanding among future healthcare professionals. **Methods:** A cross-sectional study was conducted among 201 medical and allied health sciences students at International Islamic University Malaysia (IIUM), Pahang, Malaysia. The Knowledge and Attitude about Communication Disorders and SLT Profession among Publics (KACS-P) questionnaire was distributed using both online platforms and printed questionnaires (paper-pencil format). **Results:** Both groups of students demonstrated a moderate to high level of knowledge of communication disorders and the SLT profession. No significant difference in knowledge levels about communication disorders was observed between medical and allied health sciences students. Nonetheless, there was a significant difference in knowledge levels regarding the SLT profession between medical and allied health sciences students, with the latter demonstrating a superior level of understanding. The academic year does not seem to exert a noteworthy influence on these knowledge levels. **Conclusion:** The study provided insights into the knowledge levels of medical and allied health sciences students regarding communication disorders and the SLT profession, which is crucial for improving their curriculum content and structures to ensure comprehensive patient care in the future.

Keywords:

Communication disorders; speech-language therapists; knowledge; students

INTRODUCTION

Effective communication is the cornerstone of human interaction, influencing personal relationships, educational pursuits and professional endeavours. However, individuals facing communication impairments often encounter significant obstacles when navigating social interactions, which can significantly diminish their quality of life (Kavya et al., 2022). This is where speech-language therapists (SLTs) play a crucial role, stepping in to assist individuals in overcoming these hurdles. SLTs are responsible for assessing, diagnosing and providing tailored interventions for those with communication impairments—language impairment, speech disorders, cognitive-communication issues, as well as swallowing disorders for individuals spanning from infancy through the geriatric stage (American Speech-Language-Hearing Association [ASHA], 2017; Annitha et al., 2023).

Patients with communication challenges often interact

first with doctors and allied health professionals like physiotherapists and dietitians, prioritising immediate health issues over communication difficulties (Baskaran, 2000). Consequently, they may overlook the ‘treatability’ of their communication problems and the potential benefits of seeking help from SLTs, leading to undiagnosed and untreated conditions (Chu et al., 2019). Addressing these challenges requires active involvement from healthcare professionals, who serve as patients’ primary point of contact. However, a lack of knowledge about SLTs among healthcare professionals can lead to delayed referrals or neglect of care, impacting treatment quality (Alhamidiet al., 2021). To address this gap, it is essential to assess healthcare students’ knowledge of SLTs during their training, as they represent the future workforce.

Speech-Language Therapist

SLTs serve an array of settings, including university clinics, public and private schools, and healthcare institutions

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such as hospitals, medical rehabilitation centres, and private centres (Schurr, 2018). In healthcare institutions, SLPs work alongside other healthcare professionals such as medical doctors, audiologists, dietitians, and physiotherapists to provide holistic treatment by catering to those with communication impairments.

In Malaysia, despite having provided services for over 60 years, there still needs to be more SLTs to meet the demand (Chu et al., 2019). Malaysia has only 156 SLTs employed in the Ministry of Health (as of May 15, 2023), and approximately 201 registered with the Malaysian Association of Speech-Language & Hearing (MASH) (Department of Statistics Malaysia, 2023; MASH, 2022). However, the actual number may be higher, as MASH registration is optional. This scarcity is evident, with one SLT responsible for the care of approximately 209,615 individuals in Malaysia, compared to 59.3 SLTs per 100,000 residents in the United States (Ministry of Health of Malaysia [MOH], 2023). Currently, only three public universities in Malaysia offer undergraduate SLT certification: Universiti Kebangsaan Malaysia, Universiti Sains Malaysia, and International Islamic University Malaysia.

Knowledge of The Speech-Language Therapy Profession and Communication Disorders

Several studies have delved into the awareness and perspectives of medical and allied health sciences students regarding the scope of practice of SLTs. A study among final-year Bachelor of Medicine and Bachelor of Surgery (MBBS) students in Pakistan and another among Nepalese MBBS students both revealed a lack of awareness and knowledge about the role of SLTs in the medical field (Adhikary & Bhattarai, 2018; Tariq et al., 2020). Similarly, a cross-sectional survey in India showed that occupational therapy students had relatively higher awareness and understanding of SLTs' role in stroke rehabilitation compared to other allied health science groups (Annitha et al., 2023).

In Malaysia, no known study specifically compares the knowledge of medical and allied health sciences students regarding the SLT profession and communication disorders. Nonetheless, two studies examined public awareness of SLT. One study found that 55.5% of respondents demonstrated a high level of knowledge about the SLT profession, with higher education correlating with greater awareness (Chu et al., 2019). Another study revealed a lack of public awareness of SLT services and professionals, with only 38.5% of respondents having heard or read about SLT, revealing a concerning gap in public knowledge (Tang & Chu, 2021).

In terms of communication disorders, public and professional awareness remains insufficient despite the increasing prevalence of communication disorders globally (Mahmoud et al., 2014). For instance, approximately 10% of the U.S. population experiences communication difficulties, yet only one-fifth receive appropriate evaluation and treatment (Morris et al., 2016). This gap in awareness is also seen among healthcare professionals, raising concerns about the understanding of communication disorders and the importance of speech-language therapy. A significant issue arises as a lack of awareness may cause the adoption of a 'wait and see' approach by caregivers of children with speech and language difficulties that contributes to delayed diagnosis and treatment (Chu et al., 2019). This delay can lead to long-term social, emotional, behavioural, and cognitive challenges (Sunderajan & Kanhere, 2019).

While most mentioned studies focused on the public and health professionals, there remains an evident gap in understanding the knowledge of medical and allied health sciences students, who are likely to work closely with SLTs in their future professional roles.

Aims of Study

In response to the above needs, the aims of the current study are threefold. The first aim is to evaluate the knowledge level of the profession of SLT and communication disorders among medical and allied health sciences students. The second aim is to compare the knowledge level of the profession of SLT and communication disorders among medical and allied health sciences students. The final aim is to compare the level of knowledge about communication disorders and the profession of SLT between students with different years of study.

MATERIALS AND METHODS

Study Design

A cross-sectional study was conducted at the International Islamic University Malaysia (IIUM) between February and May 2023. A questionnaire was distributed among students via online platforms and printed questionnaires to assess their knowledge of the SLT profession and communication disorders among medical and allied health sciences students.

Participants

The inclusion criteria of the participants encompassed undergraduate students who are taking any allied health sciences or medical programmes from the first to the fifth year of their studies. Those enrolled in speech-language pathology and audiology courses, however, were excluded. Postgraduate students were also excluded, considering they might have had experience dealing with SLT.

Instrument

The Knowledge and Attitude about Communication Disorders and SLT Profession among Publics (KACS-P) questionnaire was used to evaluate students' knowledge levels. The questionnaire was developed by Chu et al. (2019). Permission to use the questionnaire was obtained from the original author, Chu Shin Ying [email approval, 22 January 2024]. This questionnaire consists of three sections and a total of 35 items. Section A comprises items related to participants' demographic information. Section B contains nine items on knowledge about communication disorders and SLT, presented in multiple-choice and yes/no formats. One of the items in this section consists of five case scenarios in which participants must identify whether the cases need to be seen by a SLT. The scenarios portrayed bilingual individuals and individuals with autism spectrum disorder (ASD), dementia, voice disorder and/or language delay. Section C includes 19 items related to attitudes toward individuals with communication disorders and the SLP profession. However, Section C was excluded from this study, as the focus was solely on investigating the knowledge regarding communication disorders and the SLT profession. The questionnaire has been validated by experts and the reliability of the knowledge and attitude sections was confirmed with Cronbach's alpha values of 0.70 and 0.69, respectively. For this study, the original language of the questionnaire, which was English, remained, considering that the participating students were from the IIUM, in which the primary communication medium is English.

Procedure

The research obtained ethical clearance from the IIUM Research Ethics Committee (IREC) under reference number IREC 2023-KAHS/DASLP18 before commencement. Informed consent and the KACS-P questionnaire were integrated into a Microsoft Form and distributed online and in print. The introduction section provided participants with research details, including purpose, eligibility, procedures, risks and benefits, confidentiality, and anonymity assurances. The survey was

shared via platforms like WhatsApp and Telegram, and printed questionnaires were distributed in person. A poster announcing a lucky draw was circulated alongside the survey to encourage participation, and three random respondents were selected as prize recipients.

RESULTS

The total number of participants involved in this study is 201: 101 students from the allied health sciences programmes and 100 from the medical programme. Among allied health sciences students, representation was from five different courses: Dietetics (n=24, 11.9%), Biomedical Sciences (n=40, 19.9%), Physiotherapy (n=10, 5.0%), Medical Imaging (n=13, 6.5%), and Optometry (n=14, 7.0%). All participants were Malaysian. Out of the total, 28 (13.9%) were male and 173 (86.1%) were female, with ages ranging from 20 to 24 years (Mean = 22.19, SD = 1.33).

Most participants (n=138, 68.7%) had heard about communication disorders, with 63 (31.3%) reporting no prior knowledge. Among those familiar, 54 (39.1%) recognised terms like "speech delay" and "language delay or disorder," 22 (15.9%) were aware of aphasia, 18 (13.0%) knew about stuttering, and 12 (8.7%) mentioned deafness or hearing impairment. Table 1 presents further information on the participants.

Table 1: Sociodemographic data of participants.

Sociodemographic Background		N (%)
Gender	Male	28 (13.9)
	Female	173 (86.1)
Academic Year	Year 1	36 (17.9)
	Year 2	38 (18.9)
	Year 3	38 (18.9)
	Year 4	53 (26.4)
	Year 5	36 (17.9)
Courses	Medicine	100 (49.8)
	Dietetics	24 (11.9)
	Biomedical Sciences	40 (19.9)
	Physiotherapy	10 (5.0)
	Medical Imaging	13 (6.5)
	Optometry	14 (7.0)
Have you ever heard about communication disorders?		
	Yes	138 (68.7)
	No	63 (31.3)

N = Total number of participants

Prior to the data analyses, the data gathered were assessed for their normality assumption. The z-score for the knowledge levels of communication disorders was 1.49 while for knowledge of the SLT profession was -2.72. Thus, the assumption of normality could only be made for the knowledge of communication disorders. Due to that, analysis using parametric tests like independent t-tests and one-way Analysis of Variance (ANOVA) would only be used for the knowledge of communication disorders. Conversely, data analysis for knowledge of the SLT profession was conducted using non-parametric tests such as the Mann-Whitney U and Kruskal-Wallis test. All p-values were evaluated under the assumption of two-tailed tests.

Knowledge Level of Communication Disorders and the Speech-Language Therapist Profession

Section B was split into two parts: one delving into the knowledge regarding communication disorders and the other into the SLT profession. Each part had a total score of 11, enabling classification into low (0-3), moderate (4-7), and high (8-11) knowledge levels, as used by Chu et al. (2019). For the level of knowledge of communication disorders and the SLT profession, none of the allied health sciences students were in the low category, while 5% (n=5) of medical students did. The percentages of students in the moderate and high categories were comparable for both groups for the knowledge of communication disorders and the SLT professions. It was found that many participants encountered challenges, with only 35.3% (n=71) recognising individuals with voice disorders and 18.4% (n=37) identifying individuals with dementia as someone who may have communication disorders and thus need further evaluation or treatment by SLT. In contrast, a significantly higher percentage correctly identified language delay (n=193, 96%) and ASD (n=187, 93%) as such.

Regarding the knowledge of the SLT profession, most of the participants identified hospitals (n=198, 98.5%) and private practices (n=171, 85.1%) as the primary work settings for SLTs. However, fewer participants mentioned other settings such as schools (n=81, 40.3%) and non-governmental organizations (NGOs) (n=110, 54.7%). In addition, the percentage of students in the high knowledge category regarding the SLT profession was higher for allied health students compared to the medical students, in which the percentage is 62.4% (n=63) and 50% (n=50), respectively. The details of the knowledge level of communication disorders and the SLT profession can be found in Table 2.

Table 2: Knowledge level of communication disorders and the SLT professions among medical and allied health sciences students

Knowledge Level	Communication Disorders N %		SLT Profession N %	
	AHS	Med	AHS	Med
Low (0-3)	0	5 (5.0)	0	5 (5.0)
Moderate (4-7)	52 (51.5)	50 (50.0)	38 (37.6)	45 (45.0)
High (8-11)	49 (48.5)	45 (45.0)	63 (62.4)	50 (50.0)

Note: AHS= Allied Health Sciences; Med= Medical

Comparison of the Knowledge Level between Medical and Allied Health Sciences Students

An independent samples t-test was conducted to compare the knowledge level of communication disorders among allied health sciences and medical students. Allied health sciences students (M = 7.5, SD = 1.33) scored higher than medical students (M = 7.16, SD = 4.1). However, the difference was not significant, p = 0.14.

In addition, a Mann-Whitney U test was conducted to determine if there was a significant difference in knowledge of the SLT profession between both groups of students. Allied health sciences students had a median score of 8.00, which was higher than the medical students, with a median score of 7.50. The Mann-Whitney U test indicated a significant difference in scores between the groups, U = 3948.50, Z = -2.723, and p < 0.01.

Comparison of the Knowledge Level between Students in Different Academic Years

A one-way ANOVA and Kruskal-Wallis were conducted to investigate any significant difference in the knowledge level of communication disorders and the SLT professions across students in different academic years. The means and standard deviations for knowledge level of communication disorders for each year of study were as follows: Year 1 (M = 6.86, SD = 2.03), Year 2 (M = 7.32, SD = 1.60), Year 3 (M = 7.55, SD = 1.31), Year 4 (M = 7.43, SD = 1.56) and Year 5 (M = 7.33, SD = 1.44). However, the one-way ANOVA revealed no significant difference in the knowledge level across different years of study F (4, 196) = 1.87, p = 0.12.

Moreover, the median score for knowledge of the SLT profession across years of study were as follows: Year 1 (Mdn = 8.00), Year 2 (Mdn = 8.00), Year 3 (Mdn = 8.00), Year 4 (Mdn = 7.00) and Year 5 (Mdn = 8.00). Findings from

the Kruskal-Wallis test also indicate that the academic year did not significantly influence students' knowledge levels of the SLT profession $H(4) = 3.73, p = 0.44$.

DISCUSSION

This study aims to evaluate and compare the knowledge level of communication disorders and the SLT profession among allied health sciences and medical students. Our findings indicated that most allied health sciences and medical students possessed moderate to high knowledge of communication disorders and the SLT professions. These results align with previous research that found health professionals and students are more likely to be aware of the SLT profession and communication disorders than those in non-medical fields (Hill et al., 2018; Tang & Chu, 2021).

Nonetheless, further analysis of the current findings indicated that allied health students have higher knowledge of the SLT profession than medical students. The result was expected given that past studies have found that allied health students possessed a robust understanding of the role of SLTs (Byrne & Pettigrew, 2009) and the lack of awareness of the roles of SLTs among medical students (Adhikary & Bhattarai, 2018; Tariq et al., 2020). A possible explanation for this discrepancy is that medical education curricula may focus less on interdisciplinary collaboration than allied health sciences programmes (Adhikary & Bhattarai, 2018; Tariq et al., 2020). Due to their comparatively greater exposure to occupations such as SLT, allied health sciences students may be more able to comprehend the significance of the SLT profession in managing patients with communication problems.

Interestingly, the analysis of case scenarios suggests that regardless of participants' education programmes, many of them encountered challenges in recognising the necessities of individuals with voice disorders and dementia to meet SLTs, unlike language delay and ASD. These findings align with a study by Mahmoud et al. (2014), which revealed a significant lack of recognition among participants regarding these conditions as communication disorders. These findings emphasise the crucial role of SLTs not only in diagnosing and treating these conditions but also in raising awareness about them.

Additionally, the study revealed no significant effect of academic year on the knowledge level of communication disorders and the SLT professions, suggesting that the knowledge does not show progressive improvement throughout their academic journey. This may imply potential curriculum limitations. As they will be the future

healthcare providers who play critical roles in identifying and referring those with communication disorders, this knowledge gap may contribute to the low number of referrals, delays in diagnosis and reduced interdisciplinary collaboration when they are practising, which could lead to suboptimal patient outcomes (Agbu et al., 2024; Mustafa Kamal et al., 2012, 2015).

LIMITATIONS

The study's convenience sampling may restrict the generalizability of findings to broader populations of medical and allied health sciences students in Malaysia. Moreover, the overrepresentation of female participants might bias results, potentially overlooking male perspectives. Future research should strive for larger, more diverse samples to enhance representativeness and reliability.

CONCLUSION

The study provides insight into the knowledge of communication disorders and the SLT profession among allied health sciences and medical students in Malaysia. Although both groups of students posed a moderate to high level of knowledge, allied health sciences students have a significantly higher knowledge level than medical students, and the difference could not be seen across the academic year.

This study underscores the importance of integrating knowledge about communication disorders and the SLT profession into healthcare education to produce future health professionals with greater awareness of interdisciplinary collaboration to optimise patient outcomes. Future research should consider exploring the effectiveness of educational interventions designed to bridge these knowledge gaps.

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