Original Article :

Public Awareness of Audiology and Speech-Language Pathology in Saudi Arabia

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Abstract

Background :

There is a literature gap addressing the Saudi general public's understanding of audiology and speech-language pathology (SLP). This study aimed to examine the public awareness of audiology and SLP professions in Saudi Arabia.

Methods:

This was a cross-sectional study design consisted of two parts. The pre-test part aimed to provide content validation for the major questionnaire study. The full-scale study addressed the aim. An electronic questionnaire was prepared and distributed. The questionnaire contained three sections: demographics, experience with hearing and communication disorders, and audiology and SLP knowledge.

Results:

A total of 50 and 512 participants completed the questionnaires for both parts, respectively. Most of participants were Saudi citizens (98.8%), aged 18–30 years, and lived in Riyadh. The questions with the most correct response rates were mostly inductive (e.g., workplace), but some audiology and SLP services (e.g., diagnosis and management of tinnitus, vestibular and swallowing disorders) were not well-identified by the participants. Of the total, 78.7% and 87.5% of participants correctly identified that the work of audiologists and speech-language pathologists (SLPs) was not like the work of teachers of deaf and hard of hearing and special education teachers, respectively.

الملخص

الخلفية:

هناك فجوة بحثية بخصوص فهم المجتمع السعودي لتخصص علم أمراض واضطرابات السمع والتخاطب. هدفت هذه الدراسة إلى تحديد مدى وعي المجتمع السعودي لهذا التخصص.

طريقة البحث :

تم تصميم دراسة مقطعية وصفية لتحقيق هدف الدراسة. كان الجزء الأول عبارة عن اختبار تجريبي هدف إلى التحقق من صحة المحتوى الذي سوف يستخدم في الدراسة الرئيسة. بينما كان الجزء الثاني عبارة عن الاستبيان الأساسي لتحقيق هدف الدراسة الرئيس. تم قياس مستوى الوعي من خلال إعداد استبيان إلكتروني وتوزيعه حيث احتوى على ثلاثة أقسام: التركيبة السكانية، والخبرة في اضطرابات السمع والتخاطب، والمعرفة بتخصص علم أمراض واضطرابات السمع والتخاطب.

النتائج:

أكمل ٥٠مشاركاً الاختبار التجريبي، بينما أكمل٥١٢ مشاركًا الاستبيان الرئيس. غالبية المشاركين كانوا من المواطنين السعوديين (٩٨,٨٪)، الذين تتراوح أعمارهم بين ١٨-٣٠ سنة، ويعيشون في الرياض. كانت الأسئلة (على سبيل المثال: مكان العمل) ذات معدلات الاستجابة الأكثر دقة، بينما الأسئلة التي كانت تتعلق ببعض الخدمات الصحية في السمع والتخاطب (مثل تشخيص وعلاج طنين الأذن واضطرابات الجهاز الدهليزي والبلع) لم يتم الإجابة عليها بدقة من قبل المشاركين. من مجموع المشاركين، ٧٨,٧٪ منهم استطاع التفريق بشكل صحيح بين عمل أخصائيي السمع وعمل معلمي الصم وضعاف السمع، بينما ٨٧,٥٪ منهم استطاع التفريق بين عمل أخصائيي أمراض النطق واللغة وعمل معلمي التربية الخاصة.

Conclusion:
A reasonable level of public awareness of audiology and SLP in Saudi Arabia was identified. Still, more public awareness campaigns and educational materials about audiology and SLP are needed. Stakeholders are advised to strengthen public awareness efforts at the national level.

Keywords:
Audiology; awareness; communication disorders; hearing loss; Saudi Arabia; speech-language pathology.

الخلاصة:
بيّنت هذه الدراسة مستوى معقول من وعي المجتمع بتخصص علم أمراض واضطرابات السمع والتخاطب في المملكة العربية السعودية. ومع ذلك، لا تزال هناك حاجة إلى المزيد من حملات التوعية العامة والمواد التعليمية حول هذا التخصص. لذلك يُنصح أصحاب المصلحة بتعزيز جهود التوعية العامة على المستوى الوطني.

الكلمات المفتاحية:
علم أمراض واضطرابات السمع والتخاطب، الوعي، اضطرابات التواصل، المملكة العربية السعودية.

Introduction

According to Article 19 of the Universal Declaration of Human Rights, it is every human's right to communicate.[1] However, there is a global lack of awareness of the needs of people with communication disorders.[2] Therefore, six international audiology and speech-language pathology (SLP) professional bodies established the "International Communication Project (ICP)" to raise awareness about communication disorders.[3] The ICP focuses on identifying potential opportunities for the acknowledgment of communication disorders by governing bodies and advocate for accessing services.[2] A steppingstone to this acknowledgment and advocacy is assessing the general public's level of knowledge on audiology and SLP.

The professions of audiology and SLP are "inextricably linked".[4] Both professions provide various services to a wide array of individuals from pediatrics to geriatrics. The following is a list of audiology service delivery areas as per the Saudi Society of Speech-Language Pathology and Audiology (SSSPA): hearing, balance, tinnitus, cognition and auditory processing.[5]

SLP service delivery areas include: speech production, language, fluency, cognition, voice, resonance, feeding and swallowing, auditory habilitation and rehabilitation.[6]However, limited public awareness of hearing and communication disorders remains. For example, according to a survey distributed among American Speech and Hearing Association (ASHA) members, audiologists, and speech-language pathologists (SLPs) indicated that public awareness of the early warning signs of communication disorders is low.[7]Both professions are considered relatively new in Saudi Arabia. Many audiologists mentioned that "Saudi Arabia needs better understanding of the field among other healthcare professionals and in the com-

munity".[8] SLPs also stated that there needs to be "better recognition of the profession by national authorities".[8] There is an imbalanced distribution of audiologists and SLPs across Saudi healthcare sectors. A contributing factor to this phenomenon might be the limited public awareness about the professions.[9] Getting an idea of the public's understanding of the services audiologists and SLPs provide will help identify areas of ambiguity and potentially clarify them. Different studies were carried out pertaining to public awareness of audiology, SLP and hearing and communication disorders in different countries. For example, awareness of dysfluency in Brazil and China,[10,11] awareness of aphasia in England,[12] awareness of audiology, hearing and hearing health in South Africa,[13] and ear and hearing health among mothers of young children in India.[14]Yet, limited research was done on public awareness of audiology and SLP in Arab countries. For example, Mahmoud et al. found that public awareness and knowledge of SLP in Amman, Jordan was limited.[15] Alshehri et al. investigated the public awareness of ear health and hearing loss in Jeddah, Saudi Arabia and found that the overall awareness was fair.[16] They illustrated the need for preparing educational materials for the community including those with hearing loss and their families. There is still a gap in the literature addressing levels of understanding the Saudi general population has pertaining to audiology and SLP professions and the role of audiologists and SLPs. Addressing this gap will better identify current public awareness levels and serve as a segue to remediate any misunderstandings about both fields.

Methods

This cross-sectional, descriptive study was designed to examine the public awareness of audiology and SLP professions including their roles in Saudi Arabia.

This study was approved by the Institutional Review Board of King Abdullah International Medical Research Centre (#RC20/031/R). Informed consent was obtained from all voluntarily willing participants. No identifiable or health information was collected. Only the authors had access to the data.

This study was established in Riyadh, Saudi Arabia. The inclusion criteria included all people who lived in Saudi Arabia and who aged ≥ 18 years old at the time of completing the questionnaire. Healthcare providers and incomplete questionnaires were excluded. Healthcare providers' awareness of audiology and SLP in Saudi Arabia will be investigated by the authors in a separate study.

This questionnaire was established and

conducted in two parts. The pre-test part aimed to provide valuable content validation for the major study. The second part, the full-scale study, investigated the awareness level that public has about both professions in Saudi Arabia.

The pre-test part

A self-administered English questionnaire was developed for data collection after a review of the literature and a focus group of experts in the fields. This questionnaire consisted of 22 questions distributed into three sections: demographics, experience with hearing and communication disorders, and knowledge of audiology and SLP (https://drive.google.com/file/d/1cjdnDIW0nDnHlrwtaOrhgHoCmag5el9q/view?usp=sharing). In the first section of the questionnaire, participants responded to nine questions related to personal and demographic data: gender, age, nationality, region of residency, education, occupation, place of work, marital status, whether or not they have children, and number of children if applicable. The second section included five questions that invited participants to comment on their experiences with hearing and communication disorders. The third section consisted of eight questions that explored the participants' awareness of audiology and SLP.

Because Arabic is the primary language in Saudi Arabia, the authors followed the WHO process of translation and adaptation of instruments.[17] The original English questionnaire was translated into Arabic by two independent bilingual (in English and Arabic) experts. Then, the expert panel identified and resolved any inadequate expressions or concepts of the translation. The Arabic version was then translated back into English by two independent bilingual (in English and Arabic) experts. Later, 50 participants were presented with hard copies of the questionnaire for the pre-test part. Before completing and submitting the questionnaire, the participants had to read and complete the informed consent that included necessary elements, such as the purpose of the research, inclusion criteria, benefits and risks, handling of data, and contact information. Those 50 participants were not included in the sample size of the main study. To ensure no misunderstanding of any question, the participants in the pre-test part were asked about the clarity of all questions. They had correct understanding of the questions, and no comments were received.

The face validity and internal consistency of the final version of questionnaire was established. The data of 50 participants were analysed by using Statistical Package for Social Sciences (SPSS) for Windows v. 25.0 (IBM SPSS Statistics, IBM Corporation, Armonk, NY, USA). Cronbach's α score was calculated and Principal Com-

ponents Analysis (PCA) was performed for validation of the questionnaire. A Cronbach's α score of 0.71 was obtained, KMO and Bartlett's test yielded results depicting that variables are significantly correlated on PCA. No changes were done on the translated version which was considered to be the final version of the questionnaire used in the main study.

The full-scale study

According to the results from the pre-test part, the content of the questionnaire was not modified. A convenience sampling technique was used in this research. The questionnaire was prepared electronically on Google Forms (Google LLC, Mountain View, California, United States) to reach many people all over Saudi Arabia in a time-efficient and cost-effective way. The link to the questionnaire was emailed to a random sample of people and posted on and shared via social media (Twitter, Facebook, Linkedin, and WhatsApp). An electronic informed consent was obtained in the full-scale study as well. Because the total population in Saudi Arabia is around 33,660,923 excluding approximately 584,708 healthcare providers,[18,19] the sample size was calculated to be 385 participants using Raosoft sample size calculator (Raosoft, Inc., United States) with 5% margin of error, 95% confidence level, and 50% response distribution. The questionnaire link was accessible for five months. Monthly electronic reminders were sent. Participation was voluntary, and answers were anonymous.

Results

A total of 512 participants were included in the analysis based on the inclusion criteria. Data were analysed using descriptive statistics. Seven uncompleted surveys were excluded. The results were prepared according to the following sections: (a) demographics, (b) experience with hearing and communication disorders, and (c) knowledge of audiology and SLP.

Nine items explained background characteristics of participants. Most of the participants (98.8%) were Saudi citizens, residing in the region of Riyadh. Of the total, 52% participants were male, and the majority aged 18–30 years. Of the participants,18.9% aged between 31–40 years, 13.3% belonged to the age group of 41–50 years old, 11.3% aged between 51–60 years old, and 8.2% aged between 61–70 years old. Only 0.8% participants were older than 70 years. Regarding education, more than half of the participants had a minimum of a bachelor's degree or higher. The greater proportions of participants were either students or employed individuals. Exactly, 45.7% of participants reported having children. Of the participants who had children, 56% of them had three

to five children. The participants' demographics are summarized in Table 1.

Table 1: Demographics of participants

Variables	Answer Options	Responses *n* (%)
Age Range	18–30	243 (47.5)
	31–40	97 (18.9)
	41–50	68 (13.3)
	51–60	58 (11.3)
	61–70	42 (8.2)
	71 and over	4 (0.8)
Region	Riyadh	434 (84.7)
	Eastern	38 (7.4)
	Makkah	29 (5.6)
	Northern Borders	5 (1.1%)
	Asir	3 (0.6)
	Bahah	2 (0.4)
	Qassim	1 (0.2)
Educational Level	Bachelor's degree	239 (46.7)
	High school or equivalent	153 (29.9)
	Master's degree	53 (10.4)
	Diploma	35 (6.8)
	Doctor of philosophy	22 (4.2)
	Below high school	10 (2)
Occupation	Student	198 (38.7)
	Employed	170 (33.2)
	Retired	71 (13.9)
	Unemployed	55 (10.7)
	Self-employed	18 (3.5)
Marital Status	Married	254 (49.6)
	Single	239 (46.7)
	Divorced	11 (2.1)
	Widow	8 (1.6)
Children	No	278 (54.3)
	Yes	234 (45.7)
Number of children	3–5 children	131 (56)
	6 children or more	53 (22.6)
	2 children or less	50 (21.4)

Of the total, 67% of participants have never personally visited or had one of their family members visit an audiologist or a speech-language pathologist. Of those who had, a bigger portion (18.8%) visited audiologists than SLPs (6.8%), whereas 7.4% participants visited both professionals. Most of participants 87.3% have nev-

er been diagnosed with hearing loss or a communication disorder. Forty-six (9%) participants were diagnosed with hearing loss, 14 (2.7%) with communication disorders, and five (1%) with both.

Over half of the participants (56.6%) knew someone with hearing loss, a communication disorder or both. Those who reported knowing people with hearing loss were more than double those who reported knowing people with communication disorders. Of the total, 47.4% of the participants stated their relationship to individuals with hearing loss or communication disorders. First degree relatives were the biggest portion of responses where 84 participants (34%) had a parent, full sibling or child with hearing loss or a communication disorder. This was followed by friends and acquaintances with 58 responses (24%), then third-degree relatives, such as first cousins, which had a 23% response rate (n=55). Exactly, 36 respondents (15%) had a second degree relative such as aunts, uncles, nieces, nephews, grandchildren, grandparents and half-siblings with hearing loss or a communication disorder. More than half of the participants have never seen, heard, or read anything about hearing and communication disorders. Among those who had, 115 (22.5%) participants encountered information for both hearing and communication disorders, 68 (13.3%) for hearing disorders only, and 65 (12.7%) for communication disorders only.

Eight items were devoted to establishing the level of awareness of audiology and SLP. Regarding to the type of workplaces for audiologists and SLPs, most of the participants (80.9%) reported hospitals being the main workplace for both professionals, while the least responses (7.2%) were military (Figure 1).

While the majority of participants (n=201; 40.8%) indicated that no referral is needed to see audiologists or SLPs, more than a third of the participants (n=190; 36.9%) did not know if a referral is needed to access services. The remaining participants (n=115; 22.3%) reported that referrals are needed to see audiologists or SLPs. The responses to the age groups that audiologists and SLPs most commonly work with were as follows: toddlers, school-aged children, elderly, teenagers, adults then infants, respectively. Toddlers and school aged children had over 60% response rate for each. This was followed by the elderly, teenagers and adults with over 40% response rate for each. Infants had the least response rate with almost 24%. Surprisingly, 116 of the participants (22.7%) were not sure of the population audiologists and SLPs most commonly work with.

An equal portion of the participants (26.6%) believed that it takes two–three

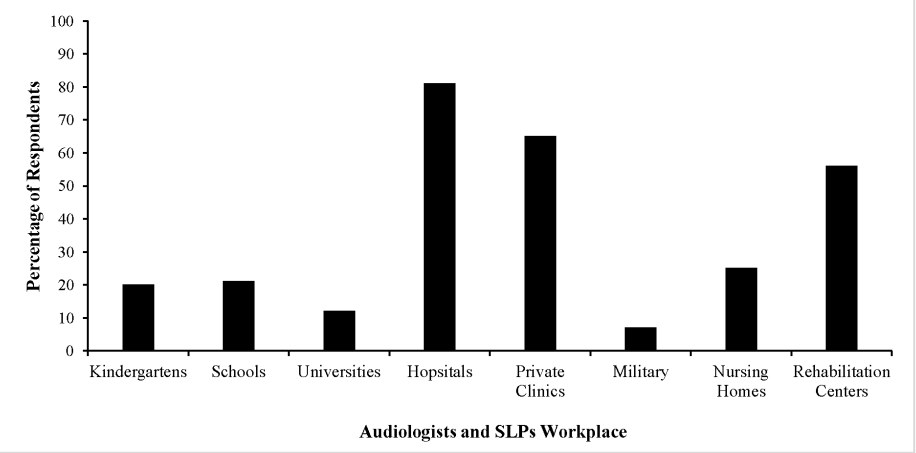


Figure 1. The distribution of potential workplaces for audiologists and speech-language pathologists (SLPs) in Saudi Arabia reported by the participants (*n*= 512). *Note.* The participants stated more than one workplace, so percentages sum to more than 100%.

or four years of study and training after high school to become an audiologist or a speech-language pathologist. Roughly, 30% of the participants indicated that it takes five years of study and training, whereas 53 (10.4%) participants believed it takes more than five years to become a specialist in either field. The remaining participants (n=31; 6.1%) thought it took at least a year. While the majority of the participants (78.7%) differentiated between the nature of work that audiologists and teachers of the deaf and hard of hearing do, 109 (21.3%) participants believed that audiologists and teachers of the deaf and hard of hearing do the same work. As for the nature of work that SLPs and special education teachers have, only 64 (12.5%) participants believed that SLPs and special education teachers do the same work. Again, most of the participants (87.5%) differentiated between the two professions. Most of the participants indicated that diagnosing hearing loss, improving hearing, and prescribing and fitting hearing aids and assistive listening devices were the main services audiologists preform. Less than half of the participants believed that audiologists diagnose and manage tinnitus, whereas only 35.5% of them believed that diagnosing and managing vestibular disorders were within the services that audiologists provide. The majority identified that prescribing medication and surgical intervention were not tasks that audiologists preform. Of the total, 19.7% participants stated that they did not know the job of audiologists (Figure 2).

The most prominent responses about SLP services were all verbal communication skills. Over half the sample believed that improving speech, diagnosing, and man-

aging communication disorders and managing stuttering were within the expertise of SLPs. This was followed by improving receptive language skills and managing voice disorders with 41.4% and 40.8% response rates, respectively. Diagnosing and managing swallowing disorders had the least response rate with only 25.6% of participants believing it is within the scope of practice of SLPs. Most participants identified the foil items and did not agree that prescribing medication and surgical intervention were tasks that SLPs preform. Of the total, 18.2% participants reported that they did not know the job of SLPs (Figure 3).

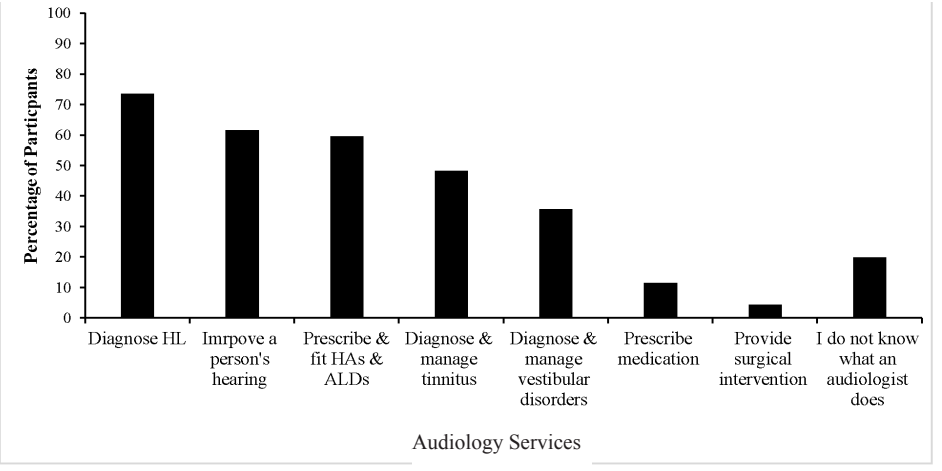


Figure 2. The distribution of the job of audiologists in Saudi Arabia indicated by the participants (*n*= 512). *Note*. The participants reported more than one service, so percentages sum to more than 100%; HL: Hearing loss; HAs: Hearing aids; ALDs: Assistive listening devices.

Discussion

In this study, a questionnaire was administered to study the public awareness of audiology and SLP professions in Saudi

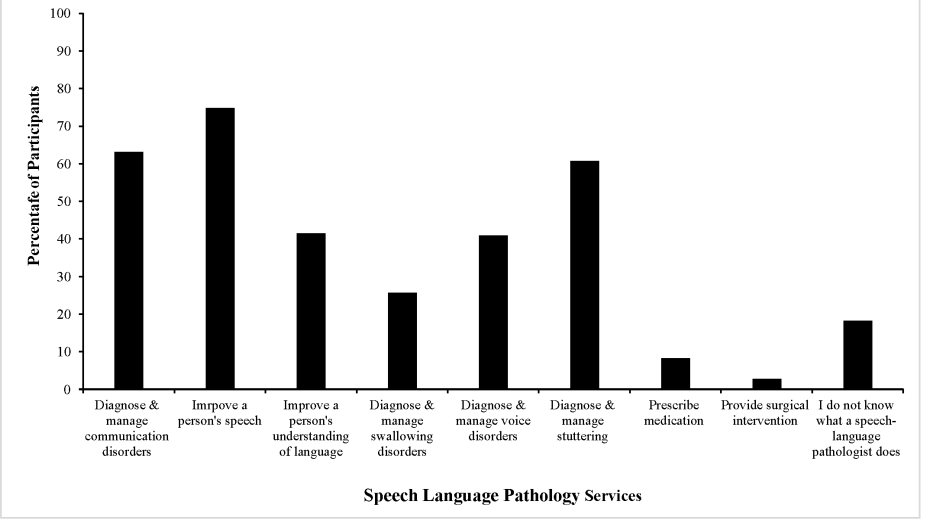


Figure 3. The distribution of the job of speech-language pathologists in Saudi Arabia opted by the participants (*n*= 512). *Note*. The participants reported more than one service, so percentages sum to more than 100%.

Arabia. A total of 512 individuals participated in the main study. Although more than half of them never visited an audiologist or a speech-language pathologist or was diagnosed with hearing loss or communication disorder, our results show an overall reasonable awareness of audiology and SLP. Most of participants were from three large regions: Riyadh, Eastern, and Makkah where audiology and SLP services are well established at different health workplaces (e.g., governmental hospitals and rehabilitation centers). Khojah and Sheeshah reported that most of the SLP services in Saudi Arabia are concentrated in these three regions.[9] Furthermore, the current existing audiology and SLP academic programs are offered by King Saud University, Princes Noura bint Abdulrahman University and Dar AlHekmah University, are located in Riyadh and Jeddah, the two largest cities in Riyadh and Makkah regions.[8] In our study, the majority of the population were highly educated with more than half the participants having a minimum of a bachelor's degree. This indicates an association between level of education and overall awareness of audiology and SLP. All these reasons might explain the level of awareness found in this study.

Only a few participants were diagnosed with hearing loss, a communication disorder or both; however, more than half of the participants knew someone with hearing and communication disorders. Most of participants who knew someone with a hearing and/or communication disorder were related in a first degree. The General Authority for Statistics in Saudi Arabia estimated that 1.4% of all citizens have mild, moderate or severe hearing difficulties.[20] Approximately 21.3% of disabilities among Saudi citizens are caused by congenital malformations.[20] Congenital hearing loss has been found in many families because of consanguineous marriage.[21]Interestingly, only 29% (n=149) of the study participants knew a second or third degree relative, friend or acquaintance with a hearing or communication disorder. Given the nature of some auditory and communication disorders, they may be not as visible and noticeable to others. In addition to the possible stigmatization associated with such disorders, some individuals with these disorders might shy away from sharing personal information within their community. That said, it is noteworthy that nearly half of the participants have never seen, heard, or read anything about hearing and communication disorders.

Although there is limited information about audiologists and SLPs employed in Saudi Arabia and their current practices,[8] the participants' awareness of the potential

workplaces for audiologists and SLPs was good. Most of participants correctly identified that hospitals, private clinics, and rehabilitation centres were the most workplaces for audiologists and SLPs. It is estimated that most audiologists and SLPs in Saudi Arabia worked in hospitals.[8]

Regardless the percentage of participants who selected schools and universities as potential workplaces for audiologists and SLPs in Saudi Arabia, there are limited numbers of audiologists and SLPs work in such places. Additionally, many in the educational field strongly agreed to the need of services delivered by both professionals in schools as well.[22]Toddlers and school aged children were selected as the age groups that audiologists and SLPs most commonly work with followed by the elderly, teenagers, and adults. Audiologists and SLPs work with all ages from infancy to adulthood. According to ASHA, SLPs practicing in the United States spent 60% of their clinical services time with adults, 14 % with infants and toddlers, 14% with pre-school children, and 13% with school-age children.[23] In the present study, a few participants might correlate words 'speech' and 'language' with infants and children, so kindergartens were selected as one of the workplaces of audiologists and SLPs in Saudi Arabia. The majority of participants believed a physician's referral was not required to see an audiologist or a speech-language pathologist, whereas more than a third of the total participants did not know if a referral is needed to access services. Whether the referral is required or not depends on where audiologists and SLPs practice. Since most audiologists and SLPs in Saudi Arabia work in healthcare settings; referrals from physicians are mandatory. However, with a 'direct access' system, patients will be able to see either professionals without a referral from physicians or other healthcare providers.[24]

The fact that 53.2% of participants reported two-four years after high school were required to be an audiologist or a speech-language pathologist is indicative of the community's limited recognition of the services provided by both professionals. In Saudi Arabia, a bachelor's degree is the entry level to work as an audiologist or a speech-language pathologist. The duration of study for this degree is five years including a training year (i.e., internship). It is encouraging evidence that the majority of participants differentiated audiologists from teachers of the deaf and hard of hearing, and SLPs from special education teachers. Only 21.3% of participants believed that audiologists and teachers of the deaf and hard of hearing do the same work, whereas 12.5% of participants be-

lieved that SLPs and special education teachers share similar work responsibilities. Although audiologists, SLPs, teachers of the deaf and hard of hearing, special education teachers are partners in education, their scopes of practice are different. Audiologists and SLPs should continue their efforts to educate the community about the services both professionals provide.

Most of the participants identified diagnosing hearing loss, improving hearing and prescribing and fitting hearing aids and assistive listening devices as the main services audiologists preform. These areas of practice are the main services audiologists practicing in Saudi Arabia provide.[10]

Less than half of the participants believed that audiologists diagnose and manage tinnitus and vestibular disorders. Most practicing audiologists in Saudi Arabia did not perform tinnitus and vestibular assessment and rehabilitation.[8] The participants were aware that prescribing medication and surgical intervention were not tasks audiologists preform.

Most of the participants identified that SLPs provide services pertaining to verbal communication skills including improving speech, diagnosing, and managing communication disorders and managing stuttering. All of which are more noticeable disorders given their nature. These areas of practice are the main daily jobs of practicing SLPs in Saudi Arabia in addition to improving receptive language skills. Also, it is worth noting that the Arabic translation of the term "speech-language pathologist" elicits an understating of professionals dealing with verbal communication disorders, whereas the scope of practice is wider than that.[6] Diagnosing and managing voice had 40.8% response rate. Another study reported similar findings where less participants identified voice and literacy to be within the speech-language pathologist's scope of practice as well.[22] It is estimated that approximately 32.4% of practicing SLPs in Saudi Arabia work with patients with voice and resonance disorders.[8]

In the current study, 25.6% of the participants believed that SLPs diagnose and manage swallowing disorders. Despite the lower rate of participants that believed swallowing was within the scope of SLPs, it is still a promising percentage as only 4% of registered nurses that participated in a hospital study identified SLPs as the professionals responsible for diagnosing and treating swallowing difficulties (i.e., dysphagia).[25] According to Alanazi, only 27% of SLPs worked with dysphagic patients in Saudi Arabia.[8] The majority of participants were aware that prescribing medication and surgical intervention were not tasks SLPs preform. The response rates of participants who did not know what the job of

audiologists and SLPs were nearly similar. This study calls for collaborative efforts between audiologists and SLPs, SSSPA, audiology and SLP academic programs, and other stakeholders (e.g., Ministry of Health, Ministry of Education) to continuously work together towards improving community awareness about both professionals' roles in addition to hearing and communication disorders at the national level.

Limitations

Although the required sample size was obtained, the sample did not represent all Saudi regions equally. Our questionnaire was designed and professionally reviewed, and was validated through the pre-test part; however, it is a new questionnaire that was not validated in other environments and countries. The correlation of variables, such as educational levels and experience with hearing and communication disorders with the participants' knowledge was not investigated. This an area warrant research attention. Future research will investigate healthcare providers' awareness about audiology and SLP in Saudi Arabia. Further research is also needed to investigate the public's awareness about specific hearing and communication disorders.

Conclusion

The present study investigates the public awareness of audiology and SLP professions in Saudi Arabia. Results suggest a reasonable level of public awareness. The main concept of both professions was present, but some audiology and SLP services were not well-identified by the participants. Although professional ethics prevent advertising, there is apparently a need for the public to be informed of the available audiology and SLP services. It is the responsibility of audiologists and SLPs to provide education about such services through media and public educational campaigns. Audiology and SLP services should be extended to reach rural areas in all Saudi regions which will consequently enhance public awareness. The use of tele practice at any time particularly during times, such as the time of Coronavirus disease 2019 (COVID-19) pandemic, is one of the solutions to overcome the shortage of such services in these areas.

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