RESEARCH ARTICLE

A survey of selected cognitive-communication assessment and intervention practices of Filipino speech-language pathologists working with stroke patients: A preliminary practice patterns study

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ABSTRACT

Background: Speech and language pathologists (SLPs) are responsible for the management of cognitive-communication disorders brought about by cerebrovascular diseases (CVD). These disorders are managed to support positive and functional changes in the skills needed to participate in the social, education, and vocational responsibilities of an individual.

Objective: This study aimed to describe the demographic information and practices of Filipino SLPs through self-ratings of their knowledge, confidence, and experience in relation to their use of cognitive-communication assessment tools and intervention practices when working with clients with post-CVD who have cognitive-communication disorders. It also aimed to identify the felt needs of SLPs in this area of practice.

Methodology: The survey tool was patterned after the questionnaire used by Reideman and Turkstra (2018) in a similar study. It was validated by local SLP experts in cognitive-communication disorders, and pilot tested by SLPs who met inclusion criteria for study participants.

Results: A total of 34 Filipino SLPs with at least one year of experience working with patients post-CVD responded to the survey. Results showed that the SLPs were most knowledgeable, experienced, and confident in the use of a non-standardized translation of the Western Aphasia Battery (WAB) and in the use of counseling and education as an intervention method for their patients with cognitive-communication disorders. Despite familiarity with the WAB, they showed a preference for informal assessment practices.

Conclusion: The SLPs felt the need for additional training on assessment and treatment practices in cognitive-communication disorders and emphasized the need for culturally-appropriate materials and established practice guidelines for the Filipino clientele.

Keywords: *cognitive-communication disorders, cerebrovascular disease, practice patterns, survey*

Introduction

Human beings use cognitive processes such as attention, memory, and executive functioning to perceive, acquire, and interpret knowledge and to function in our everyday lives. We are able to allocate our attention in order to process information [1]. Memory functions allows us to encode, retain, recognize, and retrieve information [2]. Executive functions are a set of complex processes that allow us to navigate the world that we live in [3].

Disruptions in cognitive processes can lead to communication difficulties; these difficulties are referred to as cognitive-communication disorders (CCD) [4]. Speech-language pathologists (SLPs) are responsible for working with persons with cognitive-communication disorder, intending to provide positive and functional changes in that patient's communication skills, enabling the patient to better participate in social interactions, education, and vocational responsibilities [4]. The roles of an SLP include

prevention, screening, assessment, diagnosis, and management of disorders of communication brought about by cognitive deficits.

Commonly known as a "stroke", cerebrovascular disease is the second-highest cause of death in the Philippines with 61,959 deaths due to CVD in 2018 [5]. The national stroke prevalence rate ranges from 0.486% to 6.0% [6,7] indicating that in 2020, between 529,912 to 6,542,121 Filipinos were living with stroke based on the total national population of 109,035,343 reported by the Philippine Statistics Authority for that year [8]. An estimated 21-38% of stroke survivors present with aphasia while 22-77% have a cognitive impairment that may impact on communication post-stroke [9-11]. Stroke most commonly occurs in older persons, with the age at incidence of a nonfatal stroke estimated to be 74.3 years [12,13].

An estimated 707 speech pathologists are currently practicing in the Philippines (Ma. Carmela Castillo-Go, p.c. 2022), yet in contrast to the numerous patients estimated to require speech pathology services post-stroke, the Philippine Association of Speech Pathologists (PASP) found that only 38% of the respondents in a national survey of speech pathologists work with adult patients [14].

There appears to be a need to foster adult practice among Filipino speech pathologists, in order to meet the needs of stroke and other patients. What is the speech pathology service delivery pattern for stroke patients with cognitive-communication disorder? What can be done to increase and enhance these services?

This study attempted a step in this direction: a survey aimed at describing the current practice patterns of Filipino SLPs who work with adult clients post-stroke to support the cognitive-communication needs of these clients and to document the felt needs of these speech pathologists. The specific objectives were to (1) describe the respondents' demographic information; (2) describe their perceived knowledge, confidence, and experience in the use of assessment tools and treatment protocols for this patient population; (3) identify the felt needs of SLP practitioners regarding training or resources needed to improve their provision of service for adults with cognitive-communication disorders.

Methodology

Research Design

This is a cross-sectional study that aimed to obtain data on SLP practice. A questionnaire was drafted and refined using key-informant interviews, face validity content validation, and pilot testing. The survey was made available for 40 days and approved for implementation by the University of the Philippines Manila Research Ethics Board.

Participants

The study recruited participants who have been practicing the profession for at least one year and had worked with at least one adult patient six months prior to the study (or prior to the start of the COVID-19 pandemic, as pandemic conditions in the Philippines prevented clinical work with geriatric patients for some months immediately prior to data collection).

Data Collection

A questionnaire was patterned after the study of Riedeman and Turkstra [15] with items that documented the clinicians' demographic profiles such as years of practice, highest educational attainment, and work experience in terms of work setting and estimated headcount of patients. They were then asked questions relevant to their practice in terms of prioritization of assessment of communication areas, and their knowledge, experience, and confidence in using specific standardized assessment tools and intervention strategies. They were also asked to describe any informal assessment procedures they use when working with patients with CVD. The majority of the questions were formatted as multiple-choice questions or Likert-scale items. Two open-ended questions were included, one asking participants to describe any informal assessments used, and a second asking about what areas of future training they felt they need in relation to working with patients with CCD.

The three SLPs asked to review the questionnaire were practitioners with varying years of experience (mean = 14 years) in handling patients with stroke. They were interviewed to gain insights on the current practices of SLPs, and evaluate the appropriateness of the questions and choices in the questionnaire for the intended audience. Ratings of 1-4 were provided for each question and a section for providing narrative comments was provided. Review of the questionnaire followed immediately after the interview. Suggestions made by the experts involved minor rephrasing of questions and an addition of one choice per item. Revisions were made to the questionnaire based on these suggestions.

The study was initially pilot tested on three SLPs with the same profile as the participant inclusion criteria. They had worked with adult patients with CVD for at least one year and had handled a patient within six months prior to participating in

the pilot test. A rating form regarding the overall questionnaire experience was completed by the three participants. Suggestions regarding layout changes were provided and an additional item was added regarding treatment practices.

Following the revisions from this pilot testing, the survey questionnaire was disseminated to the participants with the assistance of the Philippine Association of Speech Pathologists, the national organization for SLPs in the Philippines. Purposive sampling was used. All members of the Philippine Association of Speech Pathologists who had at least one year of experience in the profession and had worked with at least one adult patient six months prior to the study (or prior to the start of the COVID-19 pandemic, as pandemic conditions prevented clinical work with geriatric patients for some months immediately prior to data collection) were invited to participate. A follow-up reminder was sent two weeks after the initial email. Based on the PASP Directory, the questionnaire was distributed to some 697 practicing speech and language pathologists; of these, 259 had indicated aphasia and/or work with adult patients as an area of interest and were hence the target respondents. A follow-up reminder was sent two weeks after the initial email. Individual messages were also sent to 113 SLPs belonging to a Facebook Messenger group "used to seek the services of SLPs who work with adult clients" inviting each SLP to participate in the study. The survey was made available for 40 days from January 13 to March 3, 2022. Qualtrix registered a total of 75 attempts to open the questionnaire. Of these, a total of 34 completed responses were received and included in the final data analysis (response rate: 13%; 34/259 expected participants).

Data Analysis

Descriptive statistics was used to analyze survey responses. Response frequencies were tabulated and graphed; mean and mode were used to indicate central tendencies for Likert-type items such as a self-rating of knowledge about a specific assessment tool. Items that required qualitative responses were collated and grouped into similar themes based on the descriptions provided. The percentage of the similarity of responses was calculated and described as well.

Results

The application registered a total of 75 attempts to open the questionnaire. Of these, a total of 34 completed responses were received and included in the final data analysis.

Demographic Information

Of the 34 participants, a majority (n = 21 or 62%) had 0-5 years of experience in practice as speech pathologists, eight participants had 6-10 years of practice, two participants had 11-15 years of experience, while three professionals had been practicing for more than 15 years. Thirty participants possessed a Bachelor's Degree (88%) in Speech Language Pathology (BSSLP) or in Speech Pathology BSSP) or three SLPs had completed master's degrees, and one had completed a doctoral degree.

Work Setting and Practice

The SLPs were asked to identify their work setting (summarized in Table 1). A majority of the participants (n=23 or 68%) provided assessment and/or intervention for adult and geriatric patients in either home care or telehealth settings; 62% of respondents worked in an acute-care hospital setting. Only 11 of the respondents (32%) worked in private clinics. Those in long-term care hospitals were few. The majority of the SLP respondents (82%) worked in more than one setting while 6 (18%) clinicians answered that they worked in only one workplace setting.

The participants were asked to identify the age range of their adult patients seen throughout their entire practice, regardless of medical diagnosis per age range. The respondents estimated that most (64%) of their patients were aged 18 to 30 years old. Throughout their practice, a majority (60%) of the respondents had worked with an estimated headcount of between 5 to 30 adult patients. Three participants (9%) had worked with over 200 adult patients from 18 to more than 75 years of age.

All the participants (n=34) in the study indicated they had worked with patients with CVD. Slightly fewer than half (44%) worked with patients with right hemisphere damage. Eight SLPs (24%) indicated they had seen adult patients with head and neck cancer, which can sometimes come with associated cognitive impairments [16], thus contributing to cognitive-communication concerns. Results summarized for medical diagnosis seen in adult and geriatric patients with CCD can also be seen in Table 1.

Assessment Practices

When asked what SLP areas of function they prioritize during assessment, averaged responses indicate that cognition was prioritized followed by language and swallowing. A number of the participants (n = 19, 56%) identified cognition as the most important area of assessment when evaluating patients with CVD. Language and swallowing concerns were ranked first by 6 clinicians (18%).

Respondents reported using a variety of procedures to assess patients such as interviewing clients and their families

Table 1. *Information Regarding SLP Respondents*

Years of practice of SLP respondents	n	%
0-5 years	21	62
6-10 years	8	24
11-15 years	2	6
More than 15 years	3	9
TOTAL	34	100
Highest degree obtained of SLPs	**n**	**%**
Bachelor's Degree	30	88
Master's Degree: Msc, MA SP, Master for Learning Intervention for deaf	3	9
PhD: Developmental Psychology	1	3
TOTAL	34	100
Work settings	**n**	**%**
Home service	23	67.65
Telehealth	23	67.65
Hospital-Acute Care	21	61.76
Private clinic	11	32.35
Hospital- Long-term care	8	23.53
Others	0	0.00
Medical conditions seen by SLP respondents	**n**	**%**
Cerebrovascular disease	34	100.00
Parkinson's Disease	19	55.88
Traumatic Brain Injury	18	52.94
Dementia	17	50.00
Right Hemisphere Damage	15	44.12
Head and Neck Cancer	8	23.53
Other	6	17.65

or significant others (97%) and reviewing medical charts (94%). Preference for using non-standardized tools for assessing cognition (88%) and language (88%) was seen, although some did use tools standardized for English-speaking populations for assessing cognition (65%) and language (71%).

The respondents were asked to rate their knowledge of, amount of experience with, and confidence in using the following formal assessment tools using a Likert scale (0 = not knowledgeable, no experience using this and extremely not confident; 5 = very knowledgeable, "I use it all the time" and extremely confident). The assessment tools that were included in the questionnaire were Boston Diagnostic Aphasia Examination (BDAE) [17], Western Aphasia Battery

(WAB) [18], Mini-Mental State Examination (MMSE) [19], The Communication Activities of Daily Living (CADL-2) [20], Functional Assessment of Communication Skills for Adults (ASHA-FACS) [21], Montreal Cognitive Assessment (MoCA) [22], and Cognitive Linguistic Quick Test (CLQT) [23].

The participants were most knowledgeable, experienced, and confident in one test, the WAB mostly with ratings of 4 to 5. This was followed by the cognitive assessment tools MoCA, CLQT, and MMSE. The BDAE received ratings on the parameters from moderate to low knowledge, experience, and confidence with ratings of 2 to 3. The assessment tools in which the participants were least knowledgeable, experienced, and confident were the CADL-2 and ASHA-FACS with ratings of 0 to

Table 2. *Average Weighted Rating of Knowledge, Experience, and Confidence in Assessment Tools and Intervention Strategies*

Knowledge, experience, and confidence in assessment tools (mean)							
	WAB	**MoCA**	**CLQT**	**MMSE**	**BDAE**	**CADL-2**	**ASHA-FACS**
Knowledge average rating	4.59	3.68	3.56	3.35	2.44	1.97	1.35
Average Weighted Rating (Knowledge)	2.99						
Experience average rating	4.44	3.24	3.06	2.94	1.79	1.32	0.94
Average Weighted Rating (Experience)	2.53						
Confidence average rating	4.47	3.35	3.32	3.15	1.97	1.50	0.94
Average Weighted Rating (Confidence)	2.67						

Legend. BDAE: Boston Diagnostic Aphasia Examination; WAB: Western Aphasia Battery; MMSE: Mini-Mental State Exam; CADL-2: Communication Activities of Daily LIving-2; ASHA-FACS: American Speech-Language-Hearing Association Functional Assessment of Communication Skills for Adults; MoCA: Montreal Cognitive Assessment; CLQT: Cognitive-Linguistic Quick Test

Knowledge, experience, and confidence in intervention strategies (mean)							
	Coun	**ST**	**GMT**	**Com Part**	**CST**	**EL**	**AD**
Knowledge average rating	4.35	4.03	3.97	3.88	3.68	3.44	2.50
Average Weighted Rating (Knowledge)	3.69						
Experience average rating	4.59	4.29	4.18	3.91	3.68	3.21	2.53
Average Weighted Rating (Experience)	3.77						
Confidence average rating	4.26	3.97	3.85	3.82	3.38	3.18	2.32
Average Weighted Rating (Confidence)	3.54						

Legend. Coun: Counseling and education; ST: Strategy training; GMT: Goal management training; Com Part: Training Communication Partners; CST: Conversation skills training; EL: Errorless learning; AD: use of assistive devices

2. The average weighted ratings for knowledge, experience, and confidence can be found in Table 2. No other standardized tests were mentioned by the participants when asked except for the Stroop Test.

Other assessment practices

Aside from rating the participants' knowledge, experience, and confidence in using formal assessment tools, they were asked to identify the informal assessment procedures as well. Open-ended questions were used that asked non-standardized procedures used for assessing attention, memory, executive function, language, visuospatial skills, reasoning and problem solving, and discourse. A summary of the informal procedures and tasks can be seen in Table 3.

Treatment Practices

The SLPs provide various intervention strategies for their patients with CCD. They were asked to identify from a list of intervention strategies: counseling and education, strategy training, training communication partners, goal management training, conversational skills training, errorless learning, and training in the use of assistive devices.

The participants were asked to rate their knowledge, amount of experience, and confidence in using the intervention strategies mentioned above. They were asked to rate each of the intervention technique using a rating scale from 0 to 5.

The participants rated counseling and education techniques as the intervention they are most knowledgeable about, experienced with, and confident in. This was followed by the provision of hierarchical cues and other cognitive strategies. Several of the participants gave themselves a rating of moderate to high for conversation skills training and use of errorless learning activities. The lowest rating for the listed intervention strategies was for the use of assistive devices in therapy sessions or the use of AAC. The average weighted ratings for intervention strategies can be found in Table 2.

Other Treatment Practices

The SLP respondents were asked to choose among the therapy techniques they also used in the clinics that were not rated above. These therapy strategies can be identified into two different categories: those used to facilitate communication and those used to improve specific cognitive areas. The participant responses for other treatment techniques can be seen in Table 3.

Table 3. *Informal Assessment Procedures and Intervention Strategies Used by SLP Respondents*

Informal Assessment Procedures Used by SLP Respondents			
Area (total responses)	**Task**	**(n)**	**%**
Attention (31)	Answering questions	2	5.88
	Picture description tasks	2	5.88
	Following commands	3	8.82
	Sustained attention tasks	9	26.47
	Observation	11	32.35
	Conversation/interview	12	35.29
Memory (33)	Answering WH questions	4	11.76
	Conversation	8	24.53
	Immediate and delayed recall tasks	19	55.88
Executive function (29)	Discriminate relevant information	1	2.94
	Answering questions	2	5.88
	Following commands	6	17.65
	Observation	7	20.59
	Task completion	10	29.41
	Conversation	11	32.35
Language (31)	Writing tasks	2	5.88
	Repetion tasks	5	14.71
	Reading tasks	5	14.71
	Following commands	6	17.65
	Answering WH questions	8	24.53
	Picture description	10	29.41
	Picture naming	12	35.29
	Conversation	19	55.88
Visuospatial skills (29)	Interview	2	5.88
	Conversation	2	5.88
	Observation	4	11.76
	Line bisection tasks	5	14.71
	Writing tasks	5	14.71
	Drawing tasks	9	26.47
	Visual tasks	9	26.47
Reasoning and problem solving (27)	Obstacles and simple math problems	2	5.88
	Problem-solving questions	6	17.65
	Picture description task	8	24.53
	Conversation / interview	14	41.18
Discourse (33)	Picture description task	8	23.53
	Conversation	29	85.29

Table 3. *Informal Assessment Procedures and Intervention Strategies Used by SLP Respondents (continuation)*

Other Intervention Strategies Used by SLPs			
	Intervention strategies	**(n)**	**%**
Strategies to facilitate communication	Conversational coaching with video modeling	18	52.94
	Feedback and rehearsal	18	52.94
	Role-playing for interpersonal communication skills	24	70.59
	Story retelling and use of hierarchical cues	24	70.59
Strategies to address cognitive skills	Computer-assisted attention retraining	1	2.94
	Mnemonic training strategies for memory	12	35.29
	Verbal rehearsal training	18	52.94
	Strategic memory and reasoning training	18	52.94
	Analogical problem solving skills	18	52.94
	Auditory and/or visual modules for attention	21	61.76
	Compensatory and executive function training	24	70.59
	Spaced retrieval training	24	70.59

Supplemental Material (Examples of Tasks for Other Intervention Strategies Used by SLPs)

In terms of strategies to facilitate communication, participants used story retelling and story generation with hierarchical cues for treatment. This involved having the patient produce connected sentences by retelling stories from reading passages, videos, and past experiences.

Use of video models to coach patients in conversation. The clinician and the patient watch a video together; the video depicts communication breakdowns which the patient is given the opportunity to identify; he/she can then rehearse ways to address the communication breakdowns. When doing these tasks, the participants also chose to use feedback and rehearsal strategies for learned skills.

Interventions for improving specific cognitive areas included compensatory and executive function training, targeting skills "that allow us to navigate in the world we live in" (Mateer, 1999). Executive function training included fostering the initiation of tasks, response inhibition, sustained attention to tasks, organization, generative thinking, and awareness (Norman and Shallice, 1986).

Spaced retrieval training is when a patient is allowed to rehearse a limited set of items with the knowledge that he/she will be asked to retrieve those items periodically during the session; the periodicity of retrieval is gradually lengthened as skill improves. In between retrieval tasks, the patient is engaged in other (non-related) activities (Oren *et al*, 2014).

Patients who were asked to carry out active drills in therapy sessions, using verbal rehearsal training to facilitate remembering information. Strategic memory and reasoning training were utilized to improve memory. Clinicians also targeted attention skills by using auditory and/or visual tasks.

For clients with difficulties in problem-solving, the respondents used analogical problem-solving activities which involve the recollection of relevant past experiences and applying them to novel situations to solve problems. The use of computer-assisted programs and applications to retrain attention skills was used as well. These are applications that require the patient to attend to various tasks on a computer to exercise attention.

Mateer, C. (1999). Executive function disorders: rehabilitation challenges and strategies. Seminars in Clinical Neuropsychiatry, 4(1), 50-59. DOI: 10.1053/SCNP00400050. PMID: 10229793

Norman, D. & Shallice, T. (1986). Attention to action: willed and automatic control of behavior. New York: Plenum Press

Oren, Willerton, Small, J. (2014). Effects of spaced retrieval training on semantic memory in Alzheimer's Disease: a systematic review. Journal of Speech, Hearing and Language, 57, 247–270.

Overall Knowledge, Experience, and Confidence

The SLPs were asked to rate their overall knowledge, experience, and confidence in the assessment and treatment of patients with cognitive-communication disorders resulting from cerebrovascular diseases on a 10-point scale. The overall average scores for the participants were 7.2 for overall knowledge, 7.3 for overall experience, and 7.1 for overall confidence which provided a rating of moderately high rating of their overall knowledge, experience, and confidence.

Perceived Needs

Nineteen participants (56%) responded when asked to identify what training they would want to receive relevant to working with patients with CCD.

Twelve participants (35%) mentioned additional training or specific certification programs (*e.g.* Cognitive Behavior Therapy, Mediated Learning Experience) would help respondents manage the treatment of their clients more

effectively. Given the rise of telepractice brought about by the pandemic, one respondent also felt that additional training in teletherapy services for this clientele would be beneficial. The participants (n = 4; 21%) also expressed interest in training in how to provide dyad/group interventions for these adult patients. One respondent mentioned that goal formulation is also a concern.

A few of the participants (14%) highlighted concerns regarding assessment practices such as limited access to culturally-appropriate materials since most of the materials accessible are western. They also wish to receive more standardized training on other formal tests and include adapting them to what is appropriate for Filipino clientele.

Three participants (8%) specifically mentioned the use of alternative and augmentative communication (AAC) and learning more about this specific modality in order to provide relevant activities for their older clients such as being able to perform household chores by communicating using AAC.

CCD can also co-occur with other conditions outside the scope of a speech-language pathologist. The respondents (14%) felt that they need more assistance when managing patients with psychological conditions or concerns brought about by the neurological insult.

Other topics mentioned were concerns about methods of improving the quality of life (QoL) for patients. There is a need to promote cognitive-communication-friendly environments. One respondent felt the need to be more proactive in involving the patient and their family members in setting goals to improve functional communication. They would also wish to look into topics such as pragmatics, discourse, and neglect, which come into play when there is acquired neurological damage affecting communication.

Discussion

The findings of the study aimed to describe the knowledge, experience, and confidence of SLPs in the use of formal assessment tools, intervention strategies, informal assessment practices of the respondents, and their felt needs when managing patients with CCD.

The results showed that the majority of the participants in the study had been graduates of either BS SP or BS SLP undergraduate programs within the past five years. For the assessment tool, the WAB-R received the highest rating across the knowledge, experience, and confidence among all

formal assessment tools for the majority of the participants, while ASHA-FACS received the lowest score for all parameters. A majority of the participants rated their knowledge, experience, and confidence in counseling to be higher in comparison to other modes of intervention, while the use of assistive devices received the lowest rating in terms of knowledge, experience, and confidence. The participants identified the following areas that need to be addressed so they can provide better services for Filipino patients with cognitive-communication disorders: concerns regarding assessment practices, identified limitations in therapy intervention techniques, lack of culturally-appropriate materials for the Filipino clientele, lack of training for teaching the use of alternative-augmentative communication for this population, and difficulties in managing patients with co-occurring psychological issues. The study revealed gaps in the above-mentioned areas.

Participants of the study prioritized cognition, language, and swallowing for patients post-CVD. Cognitive skills are needed to perform daily routines, make decisions, solve problems, and complete tasks by organizing and carrying out detailed procedures [10]. Language problems following CVD result in a condition called aphasia which affects an individual's ability to speak, understand, read, and/or write. Disruptions in cognition can affect communication skills, hence, the term CCD [4]. Problems in these two areas affect an individual's participation in daily activities and can result in a significant decrease in QoL. The SLP roles include the evaluation and treatment of these cognitive-communication deficits [4]. Hence the prioritization of these areas by our respondents is consistent with international practice.

As this is the case, it was noted that the participants provided higher ratings in terms of knowledge, confidence, and experience for WAB than cognitive assessment tools. Duff *et al.* also found that aphasia instruments were most frequently used for patients with CCD [24]. They noted that aphasia assessments targeted different linguistic domains as compared to cognitive domains needed to be assessed for CCD. Following the results of a similar study by Frith *et al.* [25], the SLP respondents used fewer assessment materials for cognitive impairments and relied more on language tools in their practice. The current study's results received lower ratings in terms of knowledge, experience, and confidence compared to WAB which appears congruent with the findings of Duff *et al.* [24] and Frith *et al.* [25].

Versions of MMSE (MMSE-P) and MoCA (MoCA-P) adapted for us int he Philippines are available on websites, thus, it was

expected that these should have higher ratings in the parameters the respondents rated. The low rating despite the availability of these tools may be due to the preference to use informal assessment methods such as observing skills instead of using standardized assessment tools. It is also possible that university programs that provide entry-level skills do not provide the exposure to and/or practice with these tools that would encourage their later use in independent clinical practice. Learning activities for undergraduate students should involve the development of critical thinking skills when choosing from a variety of assessment materials. Simulation activities and maximally-supervised handling of patients should highlight the use of a sufficient variety of assessment materials in the classroom appropriate for a given case.

The WAB received the highest ratings for parameters in the study. This may be because an unofficial non-standardized Tagalog version is available in clinics and is shared among professionals and this version is taught in universities.

The Tagalog WAB is an informally translated version of the assessment tool. A systematic adaptation would be more expected. Adaptation is different from translation in that the former requires the consideration of references to culture, use of appropriate content and wording in the test items, establishment of a uniform administration protocol, and appropriateness of normative scores for the population being tested [26-30].

It would be important to discourage the use of this non-standardized version, and instead, develop an appropriately adapted test that can help in the appropriate diagnosis and management of Filipinos with CCD. An adaptation of testing materials should be valid and reliable following knowledge and consent from the authors of the original material [30]. SLPs can spearhead the adaptation of these materials which can be performed as domain of professional practice [32]. Early training and exposure for undergraduate students may help them develop skills to be cognizant of the appropriateness of the use of materials during simulation and role-playing in the classrooms. The results of tests used on individuals who are not from the normative population would yield considerable differences when compared to the normative values of the original population it was intended for [26,31]. It may be unethical to use assessment tools that are not duly adapted for the Filipino population. The Filipino clients' skills would not be appropriately assessed, hence using non-standardized versions of formal tests may be a disservice to the clients. The creation of an appropriately adapted test will help in the appropriate diagnosis and management of Filipino patients with cognitive-communication disorders.

Standardized assessment tools for communication functionality received the lowest average rating from the respondents. Communication functioning is very culture-specific and it is possible that the standardized tools do not measure aspects of functional communication relevant to the Philippines.

Counseling received the highest rating across all the parameters in the study. Even participants with 0-5 years rated themselves high. Counseling here refers to providing patients, their families/caregivers, and other relevant persons with information and support about the condition to develop problem-solving strategies that enhance the rehabilitation process [33]. The involvement of the patient and their family/caregivers in establishing goals to facilitate strengths and address weaknesses will help in facilitating communication in patients with the assistance of the SLPs [24,33]. High ratings from the respondents may mean that the specific roles expected from SLPs are performed accordingly. It is likely that the 36 credit hours of basic counseling required for BSSLP programs in the Philippines, contributed to this high rating [34].

The SLP respondents highly value therapy strategies that target the functional communication of patients. However, the participants' familiarity with standardized measures of functional communication was low. There were limited responses pertaining to functional communication in informal assessment as well. It may be beneficial to investigate Filipino SLP practices regarding assessment and intervention for functional communication and evaluate their effectiveness when working with patients with CCD. A study may be conducted to describe typical patterns of functional communication for Filipino adults and be used as a point of comparison for those with CCD to foster a more holistic approach to assessment.

The limited training programs for adult patients compared to pediatric patients corresponds to the PASP survey results [14] that the majority of the Filipino SLPs are engaged in the pediatric practice. Studies exploring the attitudes and perceptions of Filipino SLPs when working with adults and geriatric patients could provide information on this gap.

AAC is able to assist patients in participation, engagement, conversation, and message transfer following neurological insult [35], and is a topic of interest to the respondents. They rated themselves low on the use of this intervention strategy. It is recommended that SLPs participate in a one-year continuing education course offered by one university and attend workshops for AAC. Similar workshops may be offered by the PASP.

Several studies have advocated for the development and utilization of practice guidelines that provide current and best available evidence in the assessment and treatment of patients with CCD [11,15,25,36-39]. The use of practice guidelines helps clinicians engage in self-reflection to evaluate their own practice [15,25] and facilitate correct diagnosis, correct the description of deficits, and provide efficient means of treatment [39].

Within PASP, a special-interest group focusing on CCD may encourage professionals to research on this specific topic and population and eventually recommend local practice guidelines related to screening, assessment, and management specific to Filipino cultures and specific interventions for various cases, prevention, advocacy, and, lastly, patient education and counseling. The creation of culturally-appropriate assessment tools with normative scores may also be a project of this SIG.

Important collaboration with clinical psychologists are also in noted in this study. Patients with CCD also present emotional and personality changes after CVD [40]. The SLPs have limited training in this regard, thus, collaboration with psychologists, psychiatrists, and neurologists through appropriate referral channels is highly recommended [32].

The SLPs are expected to be knowledgeable, experienced, and confident in using a variety of formal assessment tools. These variations may be in the form of standardized and non-standardized measures of language, cognition, and functional communication. It is likely that the lack of availability of these tools contributed to the low ratings from the respondents. Given that these standardized tools are not applicable to Filipino clients, purchasing them may not be seen as cost-effective. Thus, it is noted that participants tend to utilize non-standardized assessment tools for cognition and language rather than standardized assessments. These materials are sometimes created by clinicians themselves [25,39,41] as is seen in Filipino SLPs. The effectiveness of non-standardized tools and procedures needs to be evaluated to determine if they can indeed be validly used.

Since standardized assessment tools are not available, ratings for the parameters are low as seen in the results of the current study. In contrast, slightly higher ratings were provided for intervention strategies which may be due to the currently greater accessibility of scientific journals that contain relevant articles related to intervention.

The participants of this study were aware that they were capable (but not extremely capable) of handling CCD following CVD. Their undergraduate training and continuous participation in professional development may have built their confidence in their professional abilities [42]. In comparison to their overseas counterparts, the SLP respondents were not confident at all in managing their patients with CCD following TBI, as they felt their university training did not equip them with the knowledge and skills required [25] and that lack of exposure and lack of mentoring by more experienced clinicians reduced their confidence [24].

Limitations

While this study collected objective measurable data, there are limitations to validity and reliability. The expected number of participants was 259 who indicated "aphasia" and "adult language" as an interest in the PASP directory. Only 34 of these practitioners answered the survey. Due to the limited number of participants, this study may not be representative of the population of Filipino SLPs managing cognitive-communication disorders in patients with cerebrovascular diseases. The responses were, nevertheless, consistent across participants and provided some real data regarding local practice patterns.

The use of self-rating measures for knowledge, experience, and confidence allowed easy documentation of the perceptions of clinicians regarding their own practice, however, this is prone to bias. Actual measures of competence in working with a specific population of patients might yield more information regarding gaps in knowledge than the self-ratings used by the study. A more qualitative study on practice patterns is recommended by using more open-ended questions for other items which could have provided more relevant information by allowing the respondents to describe their actual practice and identify reasons for preference for non-standardized measurements over standardized measures.

The above-recommended studies could contribute to the creation or development of practice guidelines specific to Filipino SLPs to enhance clinical services specific to Filipino clientele over time.

Conclusion

Speech-language pathologists are responsible for the management of cognitive-communication disorders in patients with cerebrovascular disease. The study aimed to contribute to the growth and change in clinical practice by providing suggestions on improvements in training programs and improvements in research. The study was able to

identify the urgent need for research aimed at developing culturally appropriate materials. Topics that would benefit clinicians if they had access to specific training and/or certification were also identified and may be offered by the national organization. These would increase the quality of services offered by Filipino SLPs to their Filipino clientele with cognitive-communication disorders resulting from cerebrovascular diseases.

Acknowledgments

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