RESEARCH ARTICLE

Descriptive survey on the practice patterns of Filipino speech-language pathologists on voice disorders

Kathy B. Reyes[1], **Kerwyn Jim C. Chan***[1,2]

*Corresponding author's email address: kcchan@dlshsi.edu.ph

[1]*Department of Speech and Language Pathology, College of Rehabilitation Sciences, De La Salle Medical and Health Sciences Institute, Cavite, Philippines*
[2]*Department of Clinical Epidemiology, College of Medicine, University of the Philippines Manila, Manila, Philippines*

Presented in the Virtual Poster Exhibit during the 23rd NIH Conference last March 3, 2021 (online)

ABSTRACT

Purpose: Filipino speech-language pathologists (SLPs) face challenges in applying evidence-based practice (EBP) due to lack of training, exposure, and experience. Without EBP being embedded in the educational curricula and clinical practice guidelines (CPGs), SLPs will continue to face barriers in providing evidence-based services. This study aimed to map the practice patterns of SLPs on voice disorders and benchmark these practices with international evidence-based practice guidelines.

Methodology: A cross-sectional descriptive survey design was used. Seventeen out of 61 (28%) Filipino SLPs with clinical experience in voice disorders responded to an online survey form. The form was composed of these sections: (1) Practice Profile, (2) Etiologies of Voice Disorders, (3) Case Study, and (4) Clinical Practice Perspectives. The quantitative and qualitative data sets were analyzed to obtain the practice profiles of SLPs and identify gaps in relation to established evidence-based practice patterns.

Results: The study revealed that 70% (n=12) of clinicians fall within five years of practice and work at hospitals. Majority of their clients are adults between 26 to 80 years old. On average, clinicians see one to two clients with voice disorders every week and hold around seven to nine voice therapy sessions prior to discharge. Structural pathologies were the most frequent etiology reported. Content analysis revealed that clinicians rely on the use of clinical experience and patient values for assessment and intervention of voice disorders.

Conclusion: The findings suggest that Filipino SLPs managing voice disorders predominantly rely on clinical experience and patient values for clinical decision-making. They sparsely use external evidence in assessment, differential diagnosis, and intervention which might compromise the quality of care. To ensure the best patient care, EBP needs to be incorporated in undergraduate education, professional development, and regulatory requirements of the Philippine Association of Speech Pathologists.

Keywords: *clinical practice patterns, Filipino speech-language pathologists, voice disorders*

Introduction

Voice disorders occur when a person's vocal quality, loudness, or pitch becomes inappropriate in relation to age, gender, and culture [1]. Since using one's voice is important in carrying out activities across the lifespan, these disorders impair a person's ability to communicate and participate in social activities [2]. In the Philippines, local studies on voice disorders have been published. However, as these are limited to retrospective studies, large-scale epidemiologic studies are still lacking. For instance, two retrospective record reviews reported that 17% (88 out of 507) [3] and 33% (211 out of 632) [4] of clients who underwent videoendoscopy and stroboscopy have vocal nodules as a result of prolonged voice use. The clients in the two local studies were predominantly professional voice users (i.e. call center agents and teachers). In the country, reports estimate that there are approximately 1 million call center agents [5] and 880,000 teachers [6,7]. A literature review

reported a conservative estimate that 13% of salespeople (e.g. call center agents) and 7% of teachers will develop voice disorders in the span of their careers [8]. Using these estimates, it would seem that 130,000 call center agents and 61,600 teachers would probably develop voice disorders in the Philippines. Using the data, it can be surmised that the burden of voice disorders among professional voice users in the country is evident and must therefore be addressed.

To address this burden, speech-language pathologists (SLPs) provide services to clients with voice disorders. However, Filipino SLPs are relatively few compared to the number of clients needing these services. According to the Philippine Association of Speech Pathologists (PASP) directory as of May 2021, there are 688 certified SLPs. Only around 13% (n=88) cited voice disorders as one of their areas of interest, unspecified if they currently practice [9]. The 2019 Filipino SLP Survey also reported that 29 out of 95 respondents (31%) provided services to adult clients with voice disorders, while only 4 out of 245 (2%) managed pediatric voice disorders [10]. With a population of 100.98 million (2015 Philippine census) [11], it may be inferred that a large proportion of people with voice disorders do not have access to SLP services.

In the Philippines, SLPs have relied on professional certification by the PASP, the accredited professional organization (APO), for the past 39 years [12]. The Speech Language Pathology Act (Republic Act No. 11249) was signed and enacted in July 2019 [13], thereby regulating the profession through a mandatory licensure examination. Currently, the implementing rules and regulations of the law have not been drafted which then leads to the licensure examination not being enacted. In the absence of board exams, regulation of practitioners in the country falls under the PASP.

An entry-level Filipino SLP would have taken a three-unit course on voice disorders in their undergraduate curriculum (Commission on Higher Education Memorandum Order [CMO] 59 s. 2017) [14]. This course includes basic training on assessment procedures and intervention techniques but does not integrate the use of evidence-based protocols. Students are then given the opportunity to practice clinical management across the various domains of Speech and Language Pathology (SLP) including voice disorders in their internship year. However, clinical internship does not require a specific number of patient contact hours on voice disorders [12,14]. In contrast, a national survey in Australia reported that clinicians must have access to specialized voice training to enhance clinical practice in voice disorders [15]. It is important to remember that a clinician's access to current best evidence and ameliorated practice guidelines plays an active role in their ability to implement evidence-based practice (EBP) for clinical practice.

The medical community has been gearing towards the use of EBP since the start of the 21st century. The primary goal of EBP is to ensure safer, consistent, and cost-effective patient care by applying research and scientific knowledge [16]. To guarantee quality services, SLPs must apply the principles of EBP in clinical care. The American Speech-Language-Hearing Association (ASHA) [17] defines EBP as "the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients... [by] integrating individual clinical expertise with the best available external clinical evidence from systematic research." In 2004, ASHA released EBP guidelines on clinical practice which became the gold standard that led to changes in the SLP curriculum across the United States [18].

In the Philippines, PASP has no EBP implementation guidelines for voice disorders. A qualitative study on the EBP profile among Filipino SLPs showed that clinicians have positive attitudes regarding the implementation of EBP in clinical activities [19]. However, there is no published study describing how clinicians understand the conceptual pillars of EBP and their ability to translate its principles and procedures for clinical practice. Additionally, the study inferred that Filipino clinicians typically based clinical decisions on traditional references which have not necessarily been systematically examined. The author concluded that clinical decision-making patterns were based on low-level evidence [19].

The absence of EBP implementation guidelines is further aggravated by the lack of clinical practice guidelines (CPGs). These guidelines serve as frameworks for clinical decisions to optimize patient care. CPGs help associations regulate practice to set standards for patient care [20]. Without CPGs to guide clinicians, we can expect large variations in practice which may lead to malpractice and negligence secondary to loosely informed clinical practices. Currently, PASP has published only one CPG covering tele-practice. However, CPGs for voice disorders and other conditions are still not available.

The lenient continuing education requirements of SLPs may also affect optimal patient care in the Philippines. PASP only requires one continuing education unit of any topic per certification renewal [21]. This is not congruent with world trends of approximately 30 hours or three continuing

education units for certification renewal [22]. Due to the evolving nature of clinical practice, continuing education is necessary to keep pace with the current standards in the field and to ensure that knowledge is relevant and up to date [23]. It also provides the clinician a deeper understanding of the profession and facilitates reflection of clinical practice implications on stakeholders. The absence of professional licensure examination, lenient continuing education requirements, and lack of practice guidelines open the question as to how Filipino SLPs implement EBP [24]. It is known that adherence to CPGs and the use of EBP lie in the heart of good clinical practice. With these two lacking, clinicians will continue to face barriers in providing quality SLP services.

To date, no previous study has investigated the clinical practices of SLPs in the Philippines specific to voice disorders. The hypothesized variations in clinical practices due to the absence of CPGs and EBP implementation guidelines highlight the need to document these practice patterns. With the rising numbers of professional voice users in the country, it is essential to know how clinicians apply EBP in practice to provide quality services to these clients. By providing baseline data on the practice patterns of Filipino SLPs, the study can identify any existing evidence-practice gaps. Understanding these gaps will support the promotion of evidence-based patient care. Policymakers from PASP, Commission on Higher Education (CHED), Department of Health (DOH), and other APOs may use the results in formulating health policies and evidence-based CPGs for voice disorders. Consequently, these policies and guidelines will expand the service delivery and promote quality care to Filipinos with voice disorders.

The investigators conducted a survey to describe the current practice patterns of Filipino SLPs related to the assessment and intervention of patients with voice disorders. Specifically, the study sought to address the following questions:

1. What are the practice profiles and characteristics of Filipino SLPs managing this clinical population?
2. What types of voice cases are most frequently seen?
3. What are the current practices of Filipino SLP with regard to assessment and intervention of these cases?
4. What are the similarities and differences between the local practice patterns and international guidelines?
5. What factors influence their clinical decision-making process?

Methodology

Research Design

This study used a descriptive cross-sectional study design. An online survey was conducted from March 1, 2020 to April 30, 2020. Ethical clearance was given by the Technical Review Committee and Independent Ethics Committee of the De La Salle Medical and Health Sciences Institute (DLSHSI-IEC2019-58-04-A). All respondents provided their consent to participate.

Population and Sampling

Individuals were considered eligible to participate in the survey if they were: (1) Filipino citizens, (2) graduates of any government-accredited BS-SP or BS-SLP program from any Philippine university, and (3) practicing SLPs who have provided clinical services to at least one client with a voice disorder in the Philippines within the past 6 months. Filipino SLPs practicing abroad or foreign nationals practicing in the Philippines were excluded from the study as their clinical experience may not be representative of the local practice context. Active clinical practice within the last 6 months was specified as an inclusion criterion to ensure that participants are up to date with current practices. The sampling frame for this study was the list of all SLPs (n = 61) in the directory of PASP who have indicated voice disorders as one of their areas of interest. Non-probability sampling methods such as convenience and snowball sampling were used to obtain respondents.

Invitations were sent through the PASP secretariat. Interested participants were asked to send an email to the principal investigators and were assigned participant control numbers. To increase the response rate, announcements were posted on social media and respondents were encouraged to invite colleagues who were eligible to participate. They were then given the hyperlink to the survey which included the consent form. They were free to ask questions or raise concerns at any point in the study.

Data Collection

A de-identified online survey form was developed using Google Forms (Google LLC). The survey was based on literature regarding voice disorders practice patterns [25] and related areas of practice [26,27]. The initial survey items consisted of three clinical vignettes and open-ended questions. To assess the relevance, clarity, and comprehensibility of the survey tool, content validation was done by four SLPs with a minimum clinical experience of five years in handling voice disorders. Five

out of 29 items were retained, while the remaining were revised due to issues with phrasing, content, or data privacy. A single clinical vignette was retained to avoid respondent fatigue. The validated survey form was then pilot tested to seven SLPs working in the Philippines for at least one year, but by criteria were not eligible to participate in the study. Most items were intelligible to the respondents, except for one due to a grammatical error. The comments were consolidated, and the form was finalized for dissemination.

The final survey form was comprised of four sections: (1) Practice Profile, (2) Etiologies of Voice Disorders, (3) Case Study, and (4) Clinical Practice Perspectives. The first two sections aimed to describe the demographic and caseload characteristics of the participants. The remaining sections were designed to collect information on SLPs' practices related to voice assessment and intervention as well as insights related to their clinical decision-making process. The survey form included closed-ended and open-ended questions, checklists, rating scales, and a clinical case vignette regarding a Parkinson's disease-related voice disorder. The survey form was made accessible for two months to increase the response rate.

Data Analysis

Survey responses were exported into an online spreadsheet. Quantitative data were analyzed using descriptive statistics and summary tables. Qualitative data from open-ended questions underwent content analysis following communication theory and factist perspective which were deemed appropriate for examining multifaceted and sensitive phenomena such as practice patterns and clinical decision-making [28]. Three researchers (i.e. two investigators and one research assistant) independently coded the qualitative data. To standardize coding procedures, a coding manual and template were developed and data analysis procedures were discussed and reviewed. The initial coding results were then presented to an external validator and revised accordingly. Final codes were grouped into themes/domains reflecting the identified practice patterns in relation to the EBP framework [29]. Local practice patterns were compared against international clinical practice guidelines on voice disorders to benchmark best practices. Trustworthiness and validity in qualitative data analysis were established through the use of documentation, peer briefing, reflexive journaling, audit trails, triangulation, and member checking [30]. All meetings and discussions of the three researchers were video-recorded for the audit trail. Data analysis was conducted using Microsoft Excel (Microsoft Corporation) and Google Sheets (Google LLC).

Results

Out of the 61 SLPs invited, 34% (n = 21) expressed intent to participate. Two respondents were excluded since they did not meet the third inclusion criterion of providing services to at least one client with voice disorder within the past six months. Another two did not complete the survey and were lost to follow-up. The survey completion rate was 89% (17 out of 19).

Practice Profiles

The characteristics of the survey participants are summarized in Table 1. Twelve respondents (70%) have been practicing for 1-5 years. Only two had been practicing for 5-10 years, while three respondents had more than 10 years of clinical experience. For practice settings, 11 clinicians (65%) worked in one setting, while the remaining worked in multiple settings. Interestingly, no participant reported working in a school-based setting (Table 1). Most worked in hospitals (n=13), had 1-2 patients with voice disorders on their caseload per week (n=10), conducted voice therapy once a week (n=9), and reported doing at least 5 therapy sessions before discharging patients (n=14).

Caseload Characteristics

Otolaryngologists were the most frequent source of referrals (n=11), followed by physiatrists (n=7). Majority (n=13) handled adult patients (i.e. between 18-80 years old). Children and adolescents with voice disorders were rarely seen. No participant reported treating pre-school children with voice disorders.

Benign laryngeal lesions, particularly vocal fold nodules (82%) and polyp/s (71%), were the most frequently encountered cases (Table 2). Neurological disorders (e.g. Parkinson's disease, spasmodic dysphonia) and inflammatory conditions (e.g. laryngopharyngeal reflux, acute laryngitis) were seen by 28% and 12% of the respondents, respectively. Systemic conditions (e.g. dehydration) affecting voice were the least frequently reported type.

Voice Assessment and Intervention Practices

Based on the clinical case presented, all 17 clinicians recommended screening the patient (Table 3). Preferred screening procedures were interview (100%), auditory-perceptual assessment (100%), and self-report questionnaires (94%). All of them also recommended case history taking through informal interviews (94%), chart review (82%), and

Table 1. *Characteristics and practice profiles of Filipino SLPs handling clients with voice disorders in the past six months (n = 17)*

Years of practice	n (%)
<5	12 (70)
5-10	2 (12)
>10	3 (18)
Work Settings	**n**
Hospital	13
Home-based	6
Private clinic	3
Academe / University Clinic	2
Research	1
Tele-practice	1
School-based	0
Number of clients with voice disorder seen per week	**n (%)**
1 to 2	10 (59)
3 to 4	4 (24)
5 to 6	1 (6)
7 to 8	1 (6)
≥ 9	1 (6)
Frequency of voice therapy sessions per week	**n (%)**
1x	9 (53)
2x	6 (5)
3x	1 (6)
≥ 4x	1 (6)
Total number of sessions prior to discharge	**n (%)**
≥ 9	6 (35)
7 to 8	4 (24)
5 to 6	4 (24)
3 to 4	2 (12)
1 to 2	1 (6)

use of survey/questionnaire (59%). Eighty percent of the respondents recommended laryngeal visualization using laryngoscopy and videostroboscopy.

Majority of SLPs (94%) recommended conducting oral mechanism examinations. Thirteen clinicians conducted standardized assessments (e.g. structured cranial nerve testing and oral mechanism examination), while four recommended cursory evaluation and observation. Fifteen SLPs performed cursory assessment of respiratory pattern and coordination, while seven clinicians performed instrumental assessments using a spirometer. Only one opted not to recommend an aerodynamic assessment.

All clinicians recommended performing auditory-perceptual assessment using a combination of two or more tasks. The most common tasks were sustained phonation (100%), serial counting with varying loudness (100%), conversation (100%), s/z ratio (88%), and standard reading passages (88%). In conducting standardized voice assessment, SLPs preferred to use the GRBAS Scale (80%) and CAPE-V (73%). Most clinicians also performed acoustic voice assessment with audio-recording using digital devices (75%) and analysis using an acoustic software (69%). For quality of life assessment, clinicians preferred to use VHI-10 (88%), followed by V-RQOL (38%) and VAPP (25%).

The respondents recommended a combination of two or more therapy techniques for intervention (Table 4). Most clinicians (94%) performed respiratory training for intervention. Strategies that facilitate patient awareness such as biofeedback (88%), counseling (82%), and postural modifications (76%) were also common. Approaches that directly target phonation including vocal function exercises (59%), Boone's Voice Facilitating Techniques (41%), and semi-occluded vocal tract exercises (41%) were recommended less frequently.

Table 2. *Most common etiologies of voice disorders managed by Filipino SLPs in the past six months (n = 17)*

Etiology (Type) of Voice Disorders	n (%)
Vocal Fold Nodules (structural pathology)	14 (82)
Parkinson's Disease (neurologic disorder)	13 (76)
Vocal Fold Polyp/s (structural pathology)	12 (71)
Laryngopharyngeal Reflux (inflammatory condition)	12 (71)
Acute Laryngitis (inflammatory condition)	10 (59)
Gastroesophageal Reflux Disease (non-laryngeal aerodigestive disorder)	8 (47)
Adductor Spasmodic Dysphonia (neurologic disorder)	8 (47)
Unilateral Recurrent Laryngeal Nerve (RLN) Paralysis (neurologic disorder)	7 (41)
Vocal Fold Sulcus (structural pathology)	6 (35)
Abductor Spasmodic Dysphonia (neurologic disorder)	6 (35)
Primary Muscle Tension Dysphonia (other disorder affecting voice)	6 (35)

Table 3. *Recommended voice assessment procedures of Filipino SLPs based on the clinical case (n = 17)*

Voice Assessment Procedures	n (%)
Screening	**17 (100)**
Interview	17 (100)
Perceptual assessment (e.g. cursory assessment of vocal quality)	17 (100)
Self-report Questionnaire/s	16 (94)
Formal screening tool/s	12 (71)
Laryngeal visualization (e.g. results of laryngoscopy)	9 (53)
Other: Acoustic Analysis	2
Case History	**17 (100)**
Informal interview	16 (94)
Chart review	14 (82)
Survey/questionnaire	10 (59)
Standardized interview	7 (41)
Laryngeal Visualization	**14 (82)**
Videostroboscopy	8 (57.14)
Laryngoscopy	8 (57.14)
Other: Flexible Endoscopic Evaluation of Swallowing (FEES)	1
Oral Mechanism Examination	**16 (94)**
Standardized assessment (structured cranial nerve testing and oral mechanism examination)	13 (81)
Informal assessment (cursory evaluation and observation)	4 (25)
Aerodynamic Assessment	**16 (94)**
Informal assessment (e.g. assessment of respiratory pattern and coordination)	15 (94)
Instrumental assessment (e.g. spiropet/spirometer)	7 (44)
Auditory-Perceptual Voice Assessment	**17 (100)**
Maximum phonation time	17 (100)
Counting with increasing and decreasing loudness	17 (100)
Conversation	17 (100)
s/z ratio	15 (88)
Standard reading passages	15 (88)
Pitch glide	12 (71)
Singing up and down the scale	11 (65)
Vowel prolongation	10 (59)
Informal reading tasks	10 (59)
Contrastive stress drills/referential tasks	8 (47)
Serial counting (60-99)	4 (24)
Standardized Voice Assessment	**17 (100)**
GRBAS Scale by Hirano (1981)	12 (80)
Consensus Auditory-Perceptual Evaluation of Voice (CAPE-V) by Kempster, *et al*. (2009)	11 (73)
Voice Profile Analysis by Laver, *et al.* (1981)	2 (13)
Buffalo Voice Profile by Wilson (1987)	1 (7)
Acoustic Voice Assessment/Procedures	**16 (94)**
Audio-recording using digital devices (e.g. cellphone, tablet, laptop)	12 (75)
Acoustic analysis using software (e.g. Multi-Dimensional Voice Program, Praat)	11 (69)
Audio-recording using specialized hardware (e.g. microphone, Computerized Speech Lab)	3 (19)
Calibration of instruments	1 (6)
Measurement of noise level (e.g. background/environmental noise)	1 (6)
Quality of Life (QOL) Assessment	**16 (94)**
Voice Handicap Index 10 (VHI-10) by Rosen, *et al.* (2004)	14 (88)
Voice Related Quality of Life (V-RQOL) by Hogikyan & Sethuraman (1998)	6 (38)
Voice Activity and Participation Profile (VAPP) by Ma & Yui (2001)	4 (25)
Voice Handicap Index (VHI) by Jacobson, *et al.* (1997)	3 (19)
Voice Outcome Survey (VOS) by Giklich, Glovsky, & Montgomery (1999)	2 (13)
Voice Symptom Scale (VoiSS) by Dreary, *et al.* (2003)	1 (6.25)

Table 4. *Recommended voice intervention procedures of Filipino SLPs based on the clinical case (n = 17)*

Voice Intervention Procedures	n (%)
Respiratory training (inspiratory and expiratory muscle strength training)	16 (94)
Auditory and visual biofeedback (mirror, dB meter, audio/video-recording)	15 (88)
Vocal hygiene and counseling (hydration, proper voice use, vocal misuse/abuse)	14 (82)
Postural modifications (facilitating proper sitting and standing posture during speech)	13 (76)
Compensatory strategies (voice rest, amplification, environmental modifications)	12 (71)
Lee-Silverman Voice Treatment (voice treatment for Parkinson's disease and other neurological conditions)	12 (71)
Relaxation techniques (circumlaryngeal massage, progressive relaxation)	10 (59)
Vocal Function Exercises (vowel prolongation, pitch glide)	10 (59)
Boone's Voice Facilitating Techniques (chant-talk, yawn-sigh, confidential voice, easy onset)	7 (41)
Resonant Voice Therapy (anterior vocal placement, production of nasal sounds)	7 (41)
Vegetative vocalizations (sighing, coughing, laughing)	2 (12)
Semi-Occluded Vocal Tract Exercises (cup bubble, trills, straw phonation)	1 (6)

Table 5. *List of codes extracted from qualitative data on clinical practice perspectives*

Final Code (#)	Definition	Sample Verbatim Response
Considering perceptual signs and symptoms (#1)	Clinicians would consider perceptual signs and symptoms of voice disorder in differential diagnosis, prioritization of goals, monitoring, discharge, and follow-up.	“I will need to take into consideration the different voice parameters that I have obtained"
Integrating etiology, history, and vocal symptomatology (#2)	Clinicians would integrate etiology/medical diagnosis and case history with patient's voice symptoms in differential diagnosis, prioritization of goals, monitoring, discharge, and follow-up. This also includes prognosis and progression of medical condition.	“I will consider the client's present diagnosis which is Parkinson's disease and note what voice disorders to expect from such. Then, I will also put into consideration the client's history – medical, work, recreational, etc..."
Recommending further assessment, testing, and referral (#3)	Clinicians would recommend further assessment, testing, and referral to other professionals to aid in differential diagnosis and management.	"First, I would suggest that a laryngoscopy be done to see if there are structural problems affecting voice production. If there are problems with the structure, I will refer to an ENT and let the doctor recommend whether she needs to take meds, undergo surgery, attend therapy, or all of it.”
Considering patient-reported task participation and expectations (#4)	Clinicians would consider patient-reported task participation and expectations in differential diagnosis, goal setting, monitoring, discharge, and follow-up. This also includes quality of life and functional communication outcomes.	"...management goals will be formulated and prioritized around what she considers important for her to live a good, communicative life.”
Prescribing diagnosis, therapy goals and program (#5)	Clinicians would prescribe diagnosis and therapy goals/activities without explanations as to the clinical decision-making involved in the absence of use of tangible data.	“After discharge from therapy, I'll still recommend that I meet the client for follow-up sessions once every 2 weeks."
Counseling and educating patient (#6)	Clinicians would counsel and educate patients regarding the medical condition, prognosis, vocal hygiene, assessment results, and carry-over of tasks at home.	“The clinician will counsel the client about the nature of the neurodegenerative voice and the factors that contribute to frequent vocal behavior changes. By doing so, the rationale for follow-up sessions may be established. Both the clinician and client will confer with each other and agree on when the next follow-up will be."
Considering the typical voice production process (#7)	Clinicians would consider the normal sequence of voice production, normative values, self-awareness, monitoring, as points of reference in differential diagnosis, prioritization of goals, monitoring, discharge, and follow-up.	“Given the results above, I would prioritize her respiration as this is an important factor in producing audible voice and improved vocal quality…”
Monitoring of home program and activities (#8)	Clinicians would monitor follow-up of home programs and activities endorsed to the patient and family.	“The succeeding session will then start by asking for an update re: the exercises/pointers given the previous session. The clinician's email is given to the client during the end of the evaluation for any concerns that they might have in between sessions."
Documenting performance (#9)	Clinicians discussed note-taking procedures, audio- or video-recording, and identifying perceptual differences in the patient's voice across tasks and sessions.	“Voice recording will be taken every session. This will be used as a basis for comparison for the next session. Monitoring sheets will also be prepared for documentation and will be used as a basis for comparison."
Conducting reevaluation (#10)	Clinicians would recommend conducting reevaluation as a parameter for discharge and to monitor progress.	“...Re-evaluation may be done after 3 months"

Clinical Practice Perspectives

Ten codes were extracted using content analysis from the open-ended questions regarding the case (Table 5). These codes reflected the clinical practice perspectives of respondents on voice assessment, intervention, and clinical decision-making.

Eight out of ten codes were categorized under clinical experience (Codes #1,2,3,5,7,8,9,10), while the remaining two were placed under patient values (Codes #4,6). No code was categorized under external evidence (i.e. use of norm-referenced criteria, journal article appraisal). Around 80% of the assessment and management practices of the respondents relied on clinical experience to provide services to clients.

Around 52% of the respondents integrated the etiology of the condition, case history, and symptoms of voice problems (Code #2) in performing differential diagnosis. Forty-seven percent considered perceptual signs and symptoms (S/S) (Code #1) and recommended further testing to confirm diagnoses (Code #3). Around 41% of the cohort prescribed a diagnosis (Code #5) based on preliminary data.

For goal setting, 82% of the respondents considered the normal sequence of voice production (Code #7) where improved respiratory support is prioritized before addressing other concerns. Aside from normal phonation, 41% of the clinicians considered perceptual S/S (Code #1) and patient's goals (Code #7).

For progress monitoring, 82% recommended documenting the patient's performance (Code #9). Each clinician has an individualized method of documenting performance which commonly includes notetaking, and audio or video recording. Forty-seven percent recommended identifying differences in perceptual S/S (Code #1) across tasks and sessions.

The respondents (64%) primarily considered patient-reported outcomes (Code #4) when recommending discharge. These outcomes included quality of life and functional communication. Around 41% of the clinicians prescriptively recommended discharge (Code #5) after completing a specified number of sessions, or upon achievement of prescribed goals. Only 11% of the clinicians conducted reevaluation (Code #10) prior to discharge.

Recommendations for follow-up sessions varied across respodents. Around 88% prescribed follow-up sessions (Code #5) with varying parameters like the schedule of next visit and frequency of sessions. Among respondents, 35% monitored home program and activities (Code #8) during follow-up sessions, while 29% considered patient needs and concerns (Code #4).

Discussion

This descriptive cross-sectional study aims to describe the practice patterns of Filipino SLPs related to the assessment and intervention of patients with voice disorders. It examines their work profile, and the types of cases they frequently manage in the hopes of describing the participants' clinical decision-making and determining whether these are consistent with the basic tenets of EBP.

Practice profiles

Since SLP in the Philippines is relatively young, it is not surprising that a large proportion of respondents have been practicing between 1 to 5 years. All 17 respondents had an active caseload of clients with voice disorders within the past six months. Most of these clinicians work in either the hospital or home care settings and cater to the adult population. Since most of the respondents work within the private and public hospital systems, it is expected that the majority of referrals came from otolaryngologists. Our findings on reported etiologies were similar to established data on laryngeal pathologies in the Philippines. These conditions include vocal cord nodule (17.4%), laryngopharyngeal reflux (16.6%), vocal cord paresis or paralysis (12.9%), vocal cord cyst (10.4%), and vocal cord polyp (8%) [3,4].

Upon scrutiny, it can be observed that there are very few pediatric referrals. The results suggest that voice services are not commonly provided to pediatric patients in the Philippines which is consistent with the findings of local studies [3,4]. One possible reason for this finding is the limited referrals from medical practitioners. Interprofessional collaboration is an emerging practice in the country. Majority of health-related training programs focus on developing individual clinical expertise and tend to neglect the importance of collaborating with other members of the team. Another possibility is that 74% of SLPs practice in private clinics [10] and rarely advertise their services for caseload management purposes. Community advocacy regarding voice disorders and care have also been scarce. Because of this, awareness regarding conditions that warrant therapy, including voice disorders among the pediatric population, is second to none.

In this study, we found that the number of clients with voice disorders seen by clinicians was limited to only 1 to 2 on

average. The reduced number of clients with voice disorders among Filipino SLPs may also be attributed to the present condition of healthcare service in the Philippines. Currently, clients pay out of pocket for therapy sessions. This is consistent with the report of the Philippine Statistics Authority where 54.5% of healthcare expenditures are out-of-pocket payments [31]. Provided that the median professional fee of 500 pesos for each therapy session [10] is equivalent to the minimum daily wage in the National Capital Region [32], it is safe to assume that services are priced beyond the budgetary constraints of an average Filipino family with multiple expenses living in the region. Despite having the Universal Health Care Act, only children with developmental disabilities are eligible for subsidized speech therapy services by the Philippine Health Insurance Corporation (PhilHealth) [33]. The existence of financial constraints, logistical issues, and lack of accessible health care services can further explain why there are very few individuals with non-critical conditions seeking speech intervention.

Practice Patterns

Most assessment procedures recommended by the respondents are in line with clinical guidelines presented by the ASHA [34] and Royal College of Speech Language Therapists (RCSLT) [35]. These procedures include the following: (1) case history taking; (2) physiologic assessment of laryngeal musculature and aerodynamic measures; (3) instrumental evaluation such as laryngeal imaging and audio recording; (4) perceptual voice assessment and acoustic analysis; and (5) client self-assessment measures [34,35].

While most procedures are in line with guidelines, the number of respondents rarely use norm-referenced scores when identifying data as normal or dysfunctional (e.g. minimum dB which can be considered as typical vocal loudness). Preference for non-standardized methods (e.g. informal interview, informal respiration assessment) and the use of past clinical experience rather than norm-referenced standards to scrutinize assessment data were evident. The responses of 17 SLPs do not reflect the use of norm-referenced material to objectively determine the aerodynamic and perceptual qualities of voice. This is congruent with a previous study [19] which stated that Filipino SLPs base their findings on traditional references without systematic evaluation of norms. To address this concern, clinicians may refer to a local study on the acoustic voice parameters of Filipino adults [36]. The study presented exploratory values on fundamental frequency, intensity, jitter, and shimmer for vowel phonation and spontaneous speech tasks. However, it was apparent from our findings that respondents do not use the available local norms and prefer to use default measures (e.g. previous knowledge and experiences) as standards of care. This strengthens our hypothesis that there is indeed a variation in assessment practices which might not adhere to the benchmarked guidelines of more advanced SLP APOs. This shows the need to develop CPGs and EBP implementation guidelines as well as more stringent continuing education requirements.

In terms of formulating diagnostic impressions, our respondents were found to predominantly integrate patient history with subjective findings. However, prior clinical experience becomes the primary basis for clinical judgments with little emphasis on external evidence. This finding is consistent with the results of an online survey of 317 SLPs from the United States with clinical experience of approximately 10-20 years [18]. The study concluded that the lack of EBP courses in the curriculum acts as a barrier for clinicians to integrate findings using external evidence. In the Philippine setting, this barrier was also found to be consistent with the results of a qualitative study [19]. The author reported that lack of training and exposure to the EBP process remains to be a barrier to EBP implementation in clinical practice. In our study, knowledge of voice disorders appears to be the foundation for differential diagnosis, which was identified to be inconsistent with the current benchmarked trends from other professional organizations. The RCSLT [35] recommends the development of a working hypothesis for differential diagnosis which highlights the use of various evidence to guide evaluation and management. When the results of our study were compared with international standards, it can be noted that there is a significant gap between the clinical practice patterns of Filipino SLPs and the expected practice patterns to ensure accurate differential diagnosis.

To add to this gap, respondents also rely on prior clinical experience to perform goal setting, monitor therapy progress, and plan for discharge as well as follow-up sessions. Aside from prior clinical experience, clinicians consider patient values for intervention. Participants recommended the use of direct and indirect treatment approaches, as well as patient education and counseling, in managing voice disorders. However, they do not utilize external evidence (e.g. use of standardized criteria for discharge) in performing these tasks. These practices do not satisfy all three components of EBP (i.e. clinical expertise, patient values, and external evidence).

Clinical Decision-making

The study revealed that the practice patterns of 17 Filipino SLPs managing clients with voice disorders rely on clinical

experience and patient values. They sparingly consult external evidence for voice assessment and intervention. It is interesting to note that clinicians preferred to use standardized measures (e.g. spiropet for aerodynamic assessment). However, when asked to discuss how they perform differential diagnosis and measure therapy progress, they reverted to using only perceptual measures (e.g. patient's perception of voice and clinician observations) without specifying the basis for their decisions. This discrepancy in the knowledge and actual practice supports the hypothesis that there are variations in practice patterns among Filipino SLPs. This practice pattern reflects inadequate consultation with standardized norm-referenced data for objective assessment of diagnosis and therapy progress. Functional voice production requires that all structures are functioning at their optimal level. The absence of consultation with norms and standards fails to guarantee prevention of future damage to the voice mechanism. This can have implications to the clinician's competence and open the practice to possible legal repercussions such as medical malpractice or negligence.

Limitations and Recommendations

Since only one clinical case vignette was presented in the survey, it is possible that the findings only apply to Parkinson's disease. Adding other case vignettes (e.g. structural pathologies) may provide a generalized picture of practice patterns depending on the nature of the voice disorder. A larger sample size may also provide better representation of the practice patterns of Filipino SLPs. Lastly, adding survey items pertaining to interdisciplinary practice can highlight the application of EBP when dealing with voice disorders.

This study highligted the absence of Filipino SLPs practicing solely in pediatric voice disorders. However, the survey conducted did not explore pediatric practice following the premise that clinical decision-making for clients with voice disorders would be parallel regardless of the client's age.

To address the study limitations, the authors recommend that a focus group discussion (FGD) be conducted to describe individualized clinical decision-making and practice variations related to voice disorders. The FGD would reveal decision-making processes and provide extensive insight on the respondents' understanding and application of EBP. It could also provide possible perspectives and themes surrounding pediatric voice disorders.

The results of the study revealed that there is a need to make changes in the implementation of EBP in the Philippines. It is recommended that professional policies require capacity-building on applying EBP in clinical practice. Capacity-building may involve continuing education on EBP, inclusion of EBP units for certification maintenance, and creation of an EBP special interest group. The authors also recommend the re-inclusion of EBP courses in the BS-SLP curriculum to streamline the application of EBP from education to practice. Lastly, it is imperative that health policies be modified to include EBP as a cornerstone in optimal patient care. This can be achieved by creating a technical working group under DOH or PhilHealth to draft guidelines, review evidence-based speech therapy services, and develop a benefit package for patients with voice disorders.

Conclusion

SLP in the Philippines is a relatively young profession. The responses of the participants revealed variations in practice patterns across all clinical tasks. They prefer to use previous knowledge, perceptual voice measures, and prescribed criteria in the assessment and intervention of voice disorders. Filipino SLPs rely on prior clinical experience and patient values to guide clinical decision-making. When these practices are compared with international standards, the practice patterns of the 17 respondents showed gaps in the use of external evidence. These gaps in the current practices need to be addressed to ensure high-quality healthcare. This study is the first to provide information on the practice patterns of Filipino SLPs and benchmark these patterns with international standards. The data gathered may be used by various stakeholders to guide policy making. The results of the study lay the groundwork in developing CPGs for voice disorders and for conducting future research on this population.

Acknowledgements

This study was solely funded by the College of Rehabilitation Sciences of the De La Salle Medical and Health Sciences Institute. We would like to thank Mr. Steven Angelo J. Maristela for his significant contributions in data collection, data analysis, and manuscript writing. We also thank the professors from Seton Hall University and La Salle University Philadelphia and our Filipino colleagues who validated the survey instrument and reviewed the initial manuscript.

References

1. American Speech-Language-Hearing Association. Voice Disorders. (2021) Available from: https://www.asha.org/practice-portal/clinical-topics/voice-disorders/

2. Colton RH, Casper JK, Leonard R. (2011) Understanding Voice Problems: A Physiological Perspective for Diagnosis and Treatment. 4th ed. Baltimore, MD: Lippincott, Williams & Wilkins.
3. Carrillo RJC, Holgado JWA, Hernandez ML, Tuazon RS. (2012) Prevalence of early laryngeal cancer and benign vocal cord pathology among patients undergoing videostroboscopy in Philippine General Hospital from 2008 to 2010. Acta Medica Philippina. 46(3):18–20.
4. Chan TCP, Fortuna MaCS, Enriquez PS. (2017) Demographic Profile and Risk Factors of Patients with Benign Vocal Fold Lesions Diagnosed through Laryngeal Videoendoscopy and Stroboscopy. Philippine Journal of Otolaryngology-Head and Neck Surgery. 32(1):27–9.
5. Lee D. The Philippines has become the call-center capital of the world. (2015) Available from: https://www.latimes.com/business/la-fi-philippines-economy-20150202-story.html
6. Novio EBC. (2019) Teachers now joining diaspora of Filipinos seeking greener pasture. Inquirer.Net. Available from: https://globalnation.inquirer.net/180294/teachers-now-joining-diaspora-of-filipinos-seeking-greener-pasture
7. Llego MA. (2020) DepEd Basic Education Statistics for School Year 2019-2020 - TeacherPH. Available from: https://www.teacherph.com/deped-basic-education-statistics-school-year-2019-2020/
8. Williams NR. (2003) Occupational groups at risk of voice disorders: a review of the literature. Occupational Medicine. 53(7):456–60. Available from: https://doi.org/10.1093/occmed/kqg113
9. Philippine Association of Speech Pathologists. (2021) Directory. Available from: http://pasp.org.ph/page-18206?&tab=1
10. Philippine Association of Speech Pathologists. (2020) 2019 Survey of Filipino Speech Language Pathologists. Available from: http://pasp.org.ph/Member/PASP-Filipino-SLP-Survey
11. Bersales LG. (2015) Highlights of the Philippine Population 2015 Census of Population. Available from: https://psa.gov.ph/content/highlights-philippine-population-2015-census-population
12. Concepcion JR, Olea-Santos T, Cuadro CK, Marzan JCB, Cheng W, Ligot FA. (2010) Speech pathology in the Philippines: perspectives of an evolving profession. Acquiring Knowledge in Speech, Language and Hearing. 12:87–90.
13. Official Gazette. (2019) An Act Regulating The Practice of Speech Language Pathology In The Philippines, And Providing Funds Therefor. Congress of the Philippines; p. 1–16. Available from: https://www.officialgazette.gov.ph/downloads/2019/03mar/20190322-RA-11249-RRD.pdf
14. Commission on Higher Education. CMO 59, s. 2017. (2017) Available from: https://ched.gov.ph/wp-content/uploads/2018/05/Policies-Standards-and-Guidelines-for-the-Bachelor-of-Science-in-Speech-Language-Pathology-BSSLP-Program.pdf
15. Chan AK, Mccabe P, Madill CJ. (2013) The implementation of evidence-based practice in the management of adults with functional voice disorders: A national survey of speech-language pathologists. International Journal of Speech-Language Pathology. 15(3):334–44. Available from: https://www.tandfonline.com/doi/abs/10.3109/17549507.2013.783110
16. Holloway S, Peart J. (2018) Evidence-based reviews : principles and methodological considerations. Wounds UK. 14(5). Available from: https://www.wounds-uk.com/journals/issue/554/article-details/evidence-based-reviews-principles-and-methodological-considerations
17. American Speech-Language-Hearing Association. Evidence-Based Practice in Communication Disorders. (2004) Available from: http://www.asha.org/policy/PS2005-00221/
18. Greenwell T, Walsh B. (2021) Evidence-based practice in speech-language pathology: Where are we now? American Journal of Speech-Language Pathology. 30(1):186–98. Available from: https://pubs.asha.org/doi/10.1044/2020_AJSLP-20-00194
19. Valdez M. (2018) A Qualitative Profile of EBP among Filipino Speech-Language Pathologists. Available from: http://pasp.org.ph/Abstracts
20. American Academy of Family Physicians. (2021) Clinical Practice Guideline Manual. Available from: https://www.aafp.org/family-physician/patient-care/clinical-recommendations/cpg-manual.html
21. Philippine Association of Speech Pathologists. (2016) Certified Regular Member. Available from: http://pasp.org.ph/Certified-Regular-Member
22. American Speech-Language-Hearing Association. (2021) Requirements for Maintaining Your ASHA Certification. Available from: https://www.asha.org/certification/maintain-ccc/
23. South African Institute of Printing. (2021) The importance of Continuing Professional Development (CPD). Available from: https://saippro.org/earn-cpd-points/6-the-importance-of-continuing-professional-development-cpd

24. Bondoc IP, Mabag V, Dacanay CA, Macapagal ND. (2016) Speech-language pathology research in the Philippines in retrospect: Perspectives from a developing country. International Journal of Speech-Language Pathology. 19(6):628–36. Available from: https://www.tandfonline.com/doi/full/10.1080/17549507.2016.1226954
25. Hartley NA, Braden M, Thibeault SL. (2017) Practice patterns of speech-language pathologists in pediatric vocal health. American Journal of Speech-Language Pathology. 26(2):281–300.
26. Rumbach A, Coombes C, Doeltgen S. (2018) A Survey of Australian Dysphagia Practice Patterns. Dysphagia. 33(2):216–26.
27. Krisciunas GP, Sokoloff W, Stepas K, Langmore SE. (2012) Survey of usual practice: Dysphagia therapy in head and neck cancer patients. Dysphagia. 27(4):538–49.
28. Vaismoradi M, Turunen H, Bondas T. (2013) Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. Nursing and Health Sciences. 15(3):398–405.
29. Sackett DL, Rosenberg WMC, Gray JAM, Haynes RB, Richardson WS. (2007) Evidence based medicine: what it is and what it isn't. 1996. Clinical orthopaedics and related research. 455(7023):3–5. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2349778/
30. Nowell LS, Norris JM, White DE, Moules NJ. (2017) Thematic Analysis: Striving to Meet the Trustworthiness Criteria. International Journal of Qualitative Methods. 16(1):1–13.
31. Perez J. (2018) Total Health Expenditures grew by 8.0 percent in 2017 [Internet]. Philippine Statistics Authority. Available from: https://psa.gov.ph/content/total-health-expenditures-grew-80-percent-2017
32. Department of Labor and Employment. (2019) National Wages Productivity Commission. Available from: https://nwpc.dole.gov.ph/
33. PhilHealth Introduces Z Benefit Package for Children with Developmental Disabilities | PhilHealth. (2021) Available from: https://www.philhealth.gov.ph/news/2018/zben_cdd.html
34. American Speech-Language-Hearing Association. (2004) Preferred Practice Patterns for the Profession of Speech-Language Pathology. Available from: http://www.asha.org/policy/PP2004-00191/
35. Royal College of Speech Language Therapists. (2017) Royal College of Speech & Language Therapists Clinical Guidelines. Royal College of Speech & Language Therapists Clinical Guidelines. Available from: http://tcssexed.weebly.com/uploads/1/2/5/9/12593116/ebp_rcslt_clinical_guidelines.pdf
36. Marzan JCB, Bayona HHG. (2017) Acoustic Parameters of Perceptually Normal Voice Production in Filipinos: An Exploratory Study Among Selected Adults in Metro Manila. Philippine Journal of Health Research and Development. 21(3):1–13. Available from: https://pjhrd.upm.edu.ph/index.php/main/article/view/190/100