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A Survey of Linguistic Considerations of Assessment of Communication Disorders by Speech Language Therapists/Pathologists in Pakistan

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The foundation of success of speech therapy plans depends on appropriate assessment procedures. Assessment for communication disorders must be carried out in the subjects' native language in order to be reliable and valid. The survey was designed to explore the screening/assessment/diagnosis tools currently used by speech and language therapists (SLTs) in Pakistan and to evaluate the psychometric properties of these tools in terms of their linguistic appropriateness. Two questionnaires were constructed. Questionnaire 1 (Cronbach alpha, 0.80) included 46 items about the demographic variables and tools being used by SLTs for screening/assessment/diagnosis. Questionnaire 2 consisted of 18 items about psychometric properties of the tools used by SLTs. Validity of both questionnaires was established through pilot testing. 242 SLTs practicing in institutes, hospitals, clinics and rehabilitation settings were contacted through electronic and postal media. 103 SLTs (16 male and 87 female) participated in the study. 103 screening/assessment/diagnosis tools were found to be used by SLTs. Only 6 assessment tools were found to be linguistically appropriate. Either assessment was carried out in the patients' second language or English language or self-translated Urdu words

were used during assessment of patient's linguistic competence. The study provided evidence of inappropriate assessment procedures used by the majority of SLTs in Pakistan and highlighted the need for future research regarding development of linguistically appropriate assessment tools. Development of either new assessment tools in national/regional language or a validated Urdu version of the tools is required urgently.

Key words: *Communication disorders, Assessment tools, Speech therapy, Urdu*

Introduction

Speech-language therapists/pathologists (SLTs) work to prevent, assess, diagnose, and treat speech, language, social communication, cognitive-communication and swallowing disorders in children and adults. Most common communication disorders found in the population are problems with articulation, phonation, fluency disorders, specific language impairment and neurogenic disorders like aphasia, dyslexia etc (NIDCD, 2002; NIDCD 2010; NIDCD, 2011). An estimate of 23 million Pakistanis (Dawn, 2015) suffering from communication disorders indicated the importance and requirement for speech therapy services. Even the prevalence of 17.6% articulation disorders found in school going children between ages of 8-12 years further support the notion of increasing therapeutic support to the community (Azmat, Sikander, Manzoor, Ibrahim, Sadia, & Safa, 2014).

The American Speech-Language-Hearing Association (2004) considered speech and language assessment as a complex process, which involves assessing, describing, and interpreting an individual's communication ability via integration of a variety of information gathered in the evaluation process. It includes a case history, patient/client/student and family interview, review of auditory, visual, motor, and cognitive status, identification of potential for effective intervention strategies and follow-up services to monitor communication and swallowing status. The most important aspect of assessment involves standardised and/or non-standardised measures of specific aspects of speech, spoken and non-spoken language, cognitive-communication, and swallowing function and the selection of these standardised measures.

Assessment is the central element of speech therapy practices requiring highest quality tools for screening and assessment. A lack of standardised tools has been reported by both national and international experts (Ivanova & Hallowell, 2013; Pauranik, 2014; Butt, 2016, Iftikhar, Gulzar & Malik, 2015). As the tools developed for one population in one's language is not suitable for other population settings locally designed and prepared tools are recommended by experts. Although some tool development process has been initiated in Pakistan the number of available tools for practitioners is still very scarce (CSALT, 2017; Noor & Arif, 2017; Grech & Mc Leod 2012; Mc Leod, 2017; Khurana, Mann & Bernhardt 2012; Afreen, Butt & Malik, 2014). Further evaluation of the developed tools is also required in order to be sure about the

validity and reliability of the results obtained (Jull, 2002). The process of tool development in the form of computer applications needs to be accelerated to provide a sound basis to evidence based practices in the field of SLT. Wyatt (2012), Ebert & Pham (2017) reported that linguistic considerations are equally important when analysing data from case histories, observations, formal and informal testing, and making a final differential diagnosis. It was further added that tests and language samples complement each other during assessment. All speech samples and tests are needed to be taken in patient's native language so that the impact of second language may not affect the test results. Even if the patient can speak the language of test, the testing in both languages is recommended. Grech & McLeod, (2012) reported two primary barriers to appropriate assessment. The first barrier is the use of translated tests because language structures are always different and the result is inaccurate identification of impairment. The second barrier is the difficulty of compiling test norms for multilingual children because it may be inappropriate to use tests that were standardised on monolingual children with bilingual patients. Therefore, it is always recommended to test the communication skills of the patient in native language.

There are numerous monolingual speech assessments available in languages other than English, including Arabic, Cantonese, Dutch, German, Spanish, Turkish etc. Development of speech and language tests in Urdu and regional languages of Pakistan have also been initiated (McLeod, 2017). Pauranik (2014) reported the paucity of speech therapists in the South Asian region and declared that no indigenous test battery in South Asian languages has been developed. The reason behind the slow tool development in Urdu language is the lack of resources. An online version of the first phonetically rich speech corpus developed by the Center for Speech and Language Technologies has been available since Feb 13, 2017. Currently only a few speech therapy assessment and diagnostic tests are available as indicated below:

1. Test of Articulation and Phonology (TAPU) by Noveen, Habibullah & Masood (2017)
2. Action Picture Test (APIT) BY Afreen, Butt & Malik (2014)
3. Aphasia Naming Test in Urdu by Khan (2013)
4. Urdu Speech Perception Test (USPT) by Noor & Arif (2017)

There are few multilingual speech assessments. The multilingual speech assessments available for Pakistani-heritage languages (Mirpuri, Punjabi, Urdu) was developed by Stow & Pert (2006). Similarly, the process of computer programs and Urdu Speech Therapy applications has been initiated by Pakistani engineers (Daily Pakistan, 13 May,2017), but still a lot is needed to be done in order to create valid and reliable assessments through collaboration between speech language therapists and test developers (Macleod, & Verden, 2014). For the purpose of linguistically appropriate assessment tools, a base line study was required to get insight about the availability of adapted and translated version tests in use by the professionals. There is a need to collect information about current assessment practices of SLTs so that future decision

about the need of new, adapted and/or translated tools for assessment, diagnosis, screening of varied communication disorders in Pakistan can be finalised. Therefore, the current baseline survey was planned with the following objectives:

1. To explore the assessment, diagnostic and screening tools currently used by speech therapists in Pakistan.
2. To evaluate the validity and reliability of the currently available assessment tools in Urdu Language.

The main assumption of the study/project was that standardised linguistically appropriate tools of speech and language therapy are not available to practitioners. Therefore, the adapted tools are being used by Pakistani SLT practitioners. Following are the research questions of the study:

1. Which tools are currently being used by SLTs in hospitals, rehabilitation centers, special education institutes, medical institutes, universities and clinical settings for communication disorders?
2. How many of these tools used are linguistically appropriate for the targeted patients?
3. What is the suitable protocol to evaluate the methodological description of the developed tools?
4. What is the status of validity and reliability of the linguistically appropriate tools being used?
5. Which of the linguistically appropriate screening and assessment tools of communication disorders are still required?

Methodology

Descriptive research design and survey method was used to explore the current speech and language therapy assessment practices. The population comprised of speech and language therapists/ pathologists practicing in all provinces of Pakistan in varied settings including private clinics, hospitals, rehabilitation centers, special education institutes, medical institutes, and universities, were selected. No SLTS' national organisation directory/ certification authority or practicing regulatory body exists in Pakistan to date. Therefore, to reach out to the sample of speech therapists working in clinics, medical institutes, rehabilitation centers and hospitals throughout Pakistan, an internet search was conducted using search engines of Google, Bing, Yahoo and social media sites of Facebook and Instagram. Several search Keywords were used, which include 'speech therapist in Pakistan', 'speech pathologist', 'Speech and language therapy institutes and colleges', 'speech and language pathology in universities', 'faculty of speech and language therapy colleges and universities', 'speech therapist/ pathology jobs' etc. The same keywords were used for an internet search in combination of name with different provinces/ cities of Pakistan.

Names of medical institutes, hospitals, universities and non- government organisations (NGOs) throughout Pakistan were searched in combination with SLTS, which were offering Diploma/MS in speech therapy/pathology, and 26 such government and private institutes and universities were located. The names, postal addresses, contact details of their heads/ officer in charge/ principals of departments, faculty, staff were obtained through an internet search and phone calls. Lists of SLTs were finalised.

Based on the mode of delivery of questionnaires, two lists were prepared. If both postal and electronic addresses were found through internet search, contact through electronic media was preferred. One list consisted of 80 postal addresses of speech and language therapists/ pathologists, working in NGOs, medical institutes and universities obtained from the internet search. It was decided they would be contacted through postal mail services. The second list was assembled based on email addresses and mobile numbers found through an internet search and, it was decided these professionals would be contacted through electronic media. The list consisted of 50 speech therapists/pathologists.

The third list was prepared from a WhatsApp group of 112 speech and language professionals practicing in varied settings including clinics, hospitals, rehabilitation centers, medical institutes and universities, in different provinces of Pakistan after contact through group admin to obtain contact details of all members. A total of 242 SLTs were contacted through postal and electronic media.

All the population was taken as the sample. 242 SLTs were contacted. However, 103 speech and language pathologists/ therapists (SLTs) participated in the study voluntarily.

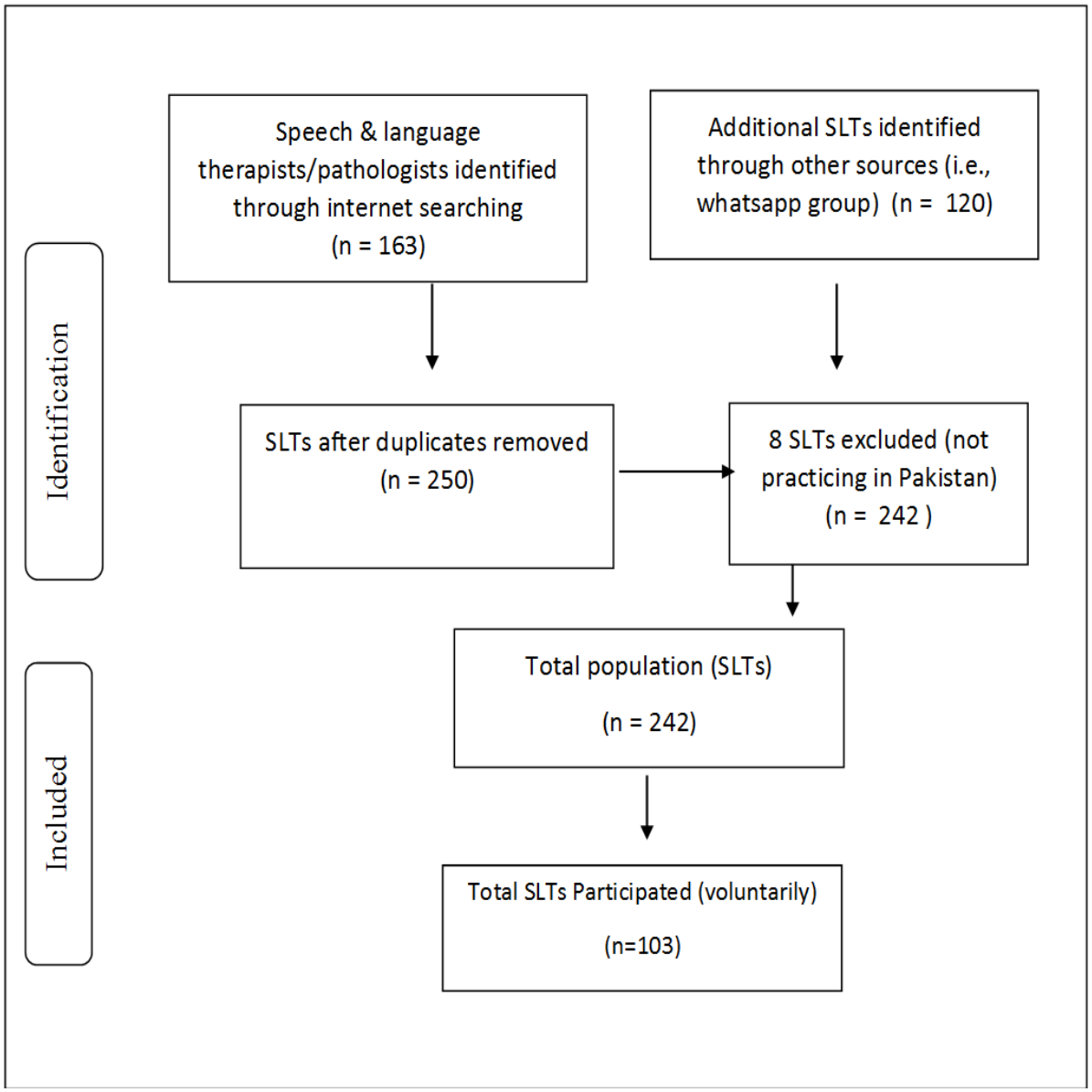

Figure 1: PRISMA flow chart

Tools of the research

Two questionnaires were developed and pilot tested. The questionnaire I was constructed to find out information about the diagnostic, assessment and screening tools, being used by speech therapists practicing all around Pakistan. Initially questionnaire I contained a total of 48 items; 10 items were about demographic variables, 38 were about the use of tools used by SLTs for several communication disorders. For pilot testing of the questionnaire I, it was administered to three speech therapists, personally by the researcher. It was found that (1) questionnaire was quite lengthy, (2) there was some confusion that whether to attach the tool or not, and (3) acronyms were used and the full name of the tool was not mentioned by SLTs. Moreover, a need was felt by SLTs to get information about the consistency of the specific tool usage so

one item about the frequency of tools' usage was added. Therefore, keeping in mind speech therapists' recommendations and problems faced during administration, the required changes were made to finalise the questionnaire I.

These final questionnaire 1 was divided into four broad categories: (1) Ten short questions related to the attributes of speech therapist (demographic variables) including gender, professional qualification, experience and their current practice; (2) Thirty six yes/ no items, addressing the use of different tools by speech therapists for varied communication disorders, (3) Each thirty-six category of communication disorder had open-ended questions that asked respondents to provide names of all tools they are using and (4) multiple-choice questions designed to find out the tools' purpose, language, source/ link from where to obtain each tool etc. A cover page was attached with the questionnaire, describing the aim and purpose of the research.

The final version of the questionnaire I was converted into Google forms, in which the length of the questionnaire was reduced by merging some columns related to purpose, availability in language, source and usage of the tool, and adding multiple options in the items. Questionnaire I in google forms was sent by WhatsApp and also through email to 11 speech therapist. The collected data of the pilot study was analysed using SPSS version 20. To measure the internal consistency of the items of questionnaire I, the reliability of scale (Cronbach's alpha) was calculated which was found to be 0.80 that shows that questionnaire I has internal consistency.

Questionnaire II was developed to evaluate psychometric properties of tests/ tools currently used by speech therapists, developed in Urdu language or any other Pakistani regional language. Questionnaire II consisted of 23 items related to test/ tool's administration, age group, areas assessed, specific test requirements, required time, total items, publications article details, item analysis, reliability and validity. The items were categorised into three groups (1) multiple-choice questions, (2) yes/no items and (3) short questions.

For pilot testing, questionnaire II was administered to 4 speech therapists. Taking into account speech therapists' suggestions some changes were made which were (1) eleven items were merged into four items related to requirements for tests, detail of reliability, validity, publication of tool (2) two items were added in the questionnaire, which were about scoring schemes and translated versions of the tools. The final questionnaire II contained 18 items. Questionnaire II was also converted into a google form. It was administered only to those speech therapists who had mentioned names of the tools used in questionnaire I about their assessment practices.

Data Collection

A total of 242 SLTs were contacted through postal (80) and electronic media (162). A consent form was constructed to attach to questionnaire 1I. Participation of the sample was voluntary, and participants were free to withdraw at any time. No pressure was placed on them if they chose not to continue. Data protection was taken seriously to secure the sample's privacy and confidentiality.

80 SLTs with postal addresses were sent questionnaire I with a cover letter. An invitation phone call/ email address was sent to 162 speech therapists with mobile numbers and electronic addresses. They were provided information about purpose of the study and were invited to participate. After the call, the link of the questionnaire I with a cover page in Google form was sent by WhatsApp and through emails. A thank you email/ letter/ message on WhatsApp was sent to those SLTs who submitted their responses.

After two weeks of waiting, a reminder message was sent to all SLTs who were contacted through emails/ WhatsApp/ mobile phone. A total of six reminders were sent to them till 30th July, 2019. A total of 103 tools were obtained from SLTs working in varied settings including institutes, rehabilitation centers, clinics and hospitals.

For exploration of psychometric properties of assessment, diagnostic and screening tools used and mentioned in questionnaire I, SLTs were contacted again. For every three to four repeatedly mentioned tools, only one SLT was asked to fill in the questionnaire II, which was about each specific tool, through WhatsApp and emails with the cover message. They were sent three reminder messages at intervals of every two weeks. All mentioned tools were evaluated against the following criteria:

1. Description of assessment protocols and procedures.
2. Conceptualising of speech and language assessment; purpose, content, scope, items, presentations, scoring etc.
3. Operationalising of speech and language assessment; tester's qualification and administration procedure, sample size, item analysis, content, construct and predictive validity, test-retest and inter-rater reliability etc.

Majority of the data about psychometric properties of tools was obtained by consulting the research publication of these tools. Professionals were also contacted to get information about psychometric properties of the tools especially of general observation checklists. The discrepancy between the self-researched analysis of psychometric properties of tools and the respondents' provided data was found. So, it was decided to carry over the detailed analysis of psychometric properties of tools in consultation with the research publications. If evidence from literature was not available, then the data provided by practitioners was consulted.

Results

Regional diversity of the practicing professional was reflected by the data obtained from 103 speech and language therapists/ pathologists practicing in all provinces of Pakistan in varied settings including clinics, hospitals, rehabilitation centers, special education institutes, medical institutes and universities.

Data was extracted using Software i.e., Google sheets, which were linked with responses on Google forms. 103 speech therapists (16 male and 87 female) filled the questionnaire I. The majority of SLTs belonged to Punjab province, Sindh and the capital city, Islamabad as shown in Figure 1.

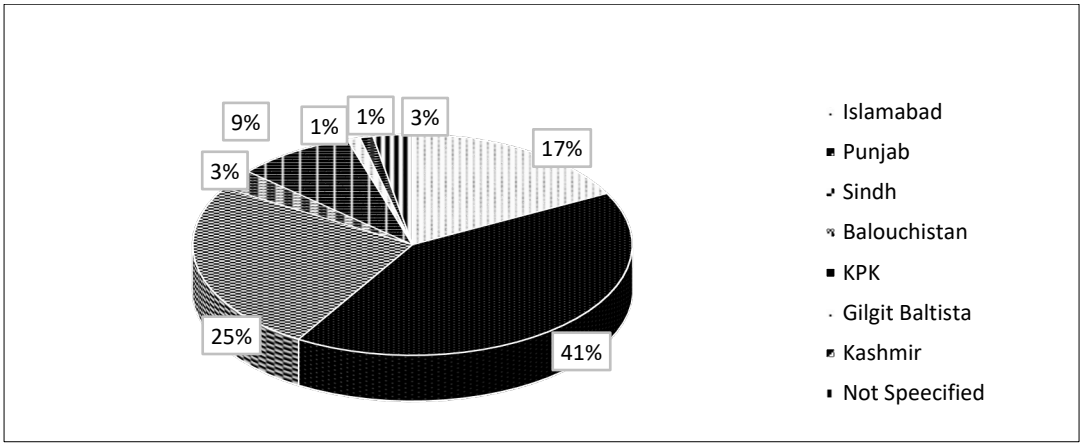

Figure 1: SLTs working in the different geographical locations of Pakistan

The majority of SLTs were practicing in special schools and clinics as shown in table 1.

Table 1

Speech therapists practicing in teaching institutes, special schools, hospitals, clinics and any other settings

	Teaching Institutes	Special Schools	Hospitals	Clinics	Any other
SLTs	26	49	12	36	5

A few SLTs were working in hospitals or in other organisations/ institutes. 22 speech therapists mentioned that they work in more than one and/or two work setting.

Results showed that only one SLT obtained a degree from the UK. All other SLTs completed their education from varied institutions and universities in all provinces of Pakistan. These include NIRM, NIH, Riphah University, Foundation University, Isra University, Karachi

University, Punjab University and University of Baluchistan. However, the majority of SLTs had undertaken their degrees/ certificates in NIRM, Islamabad. It was found that 76% of SLTs had completed post graduate diploma in speech and language therapy. Very few SLTs have M.Sc (7%), MS (6%) and M.phil (9%) education and only 2% of SLTs have completed Ph.D (Figure 2).

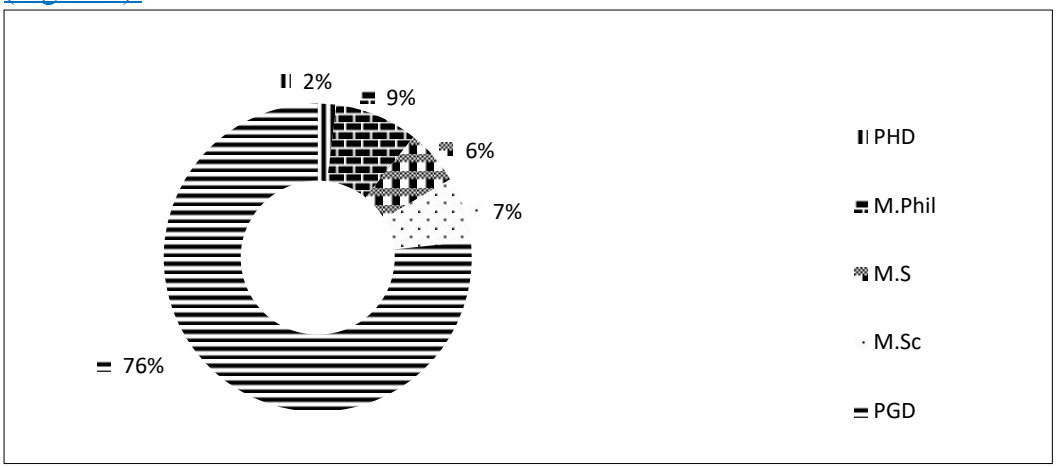

Figure 2: Qualification of SLTs

A majority of SLTs have 4 to 6 years of experience in their field and only few of them had more than 10 years of experience as shown in table 2.

Table 2
Post Qualification Experiences of SLTs in Years

Sr. No.	Years	Experience of SLTs
1	1 to 3	18
2	4 to 6	46
3	7 to 9	22
4	10 to 12	7
5	13 to 15	3
6	More than 15	8

After excluding 33 tools reported repeatedly by SLTs, 103 tools related to different categories of speech and language disorders and were used by the SLTs of Pakistan as shown in table 3.

Table 3

Number of Assessment Tools used by Speech Therapists against each Communication Disorder Type

Sr. No.	Communication disorder arising due to	No. of Tools used by Speech therapists
1	Acquired Brain Injury, pediatric, Traumatic and Right Hemisphere brain injury, stroke, Aphasia	19
2	Apraxia of Speech (Adults, childhood)	3
3	Attention-Deficit/Hyperactivity Disorder	2
4	Autism Spectrum Disorder (ASD)	5
5	Central Auditory Processing Disorder (CAPD)	2
6	Cerebral Palsy	2
7	Cleft Lip and Palate	3
8	Dysarthria	1
9	Dysphagia (Adults, Pediatrics)	6
10	Fluency (Adults, Children), stuttering	9
11	Hearing Loss (Adults, Early children, newborn, school-age)	17
12	Intellectual Disability	7
13	Late Language Emergence, Mild Cognitive Impairment	6
14	Learning Disabilities	2
15	Oro-facial Myo-functional Disorders	2
16	Parkinson's Disease	1
17	Social Communication Disorder, Speech Sound Disorders, spoken and Written language disorders	6
18	Tracheostomy Ventilator Dependence, Velopharyngeal Dysfunction	5
19	Voice	5
	Total	103

The number of tools used for the category of communication disorders arising due to brain injury, stroke etc. and hearing loss were the greatest. Assessment of fluency disorders, dysphagia, delayed language and speech sound disorders was extensively covered by the practitioners. Speech therapists were found to be doing the work of other professionals due to lack of professional resources. Results revealed that 6 tests, which comes under the domain of psychologists, audiologists, and 11 medical tests which must be conducted in laboratory settings by medical doctors, were being used by speech and language therapists. Some speech therapists mentioned that subjective observations were being conducted by doing informal assessment using flash cards, real objects and models.

Psychometric properties of 81 tools after excluding 16 medical and psychological tests were evaluated. As reported, the majority of tools mentioned by SLTs were administered individually. 3 tools can be administered on both modes (individual and group), and only 1 tool was found to be useful for groups. Results also revealed that all tests/ tools could be administered by speech therapists and 67 of them could also be used by other professional as well. 17 and 11 tools could also be administered by teachers and parents respectively as shown in Figure 3.

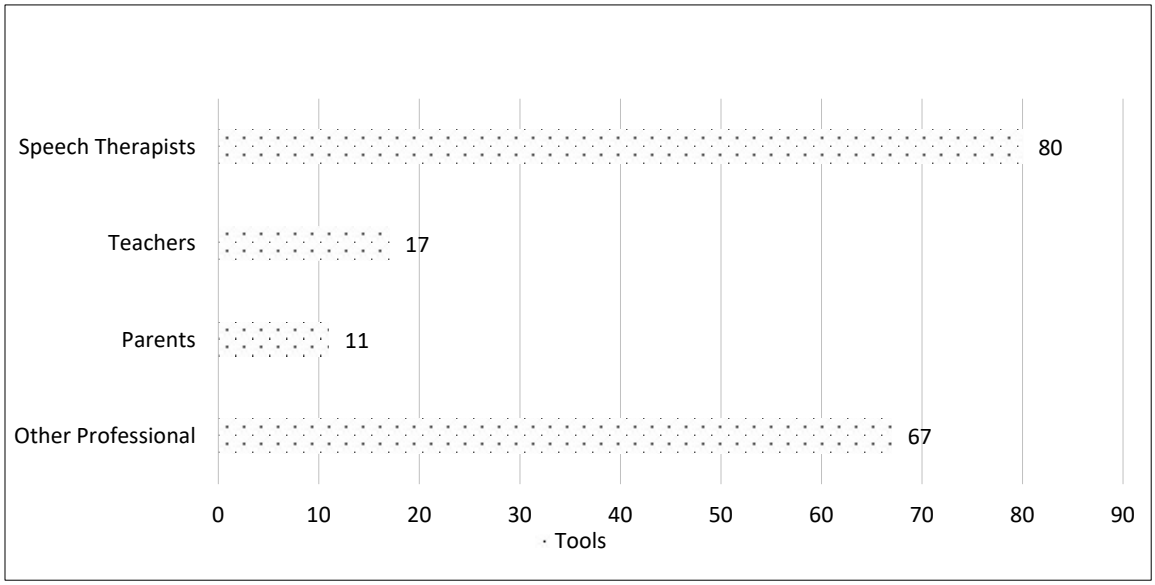

Figure 3: Administration of Tools

It is evident from table 4 that the majority of the tools required 15 to 30 minutes to be administered.

Table 4
Required Time for Assessment Tools' Administration

Sr. No.	Minutes	Tools
1	5 to 15	16
2	15 to 30	21
3	30 to 45	14
4	45 to 60	4
5	60 and Above	12
6	Not Mentioned	14

There were few tools that need an hour for administration and these may not suitable for small children. The practitioners didn't report the time required for the 14 tools for the assessment of varied communication disorders. Similarly total number of items of the one third tools/test used by SLTs were not mentioned by SLTs as depicted in Figure 4.

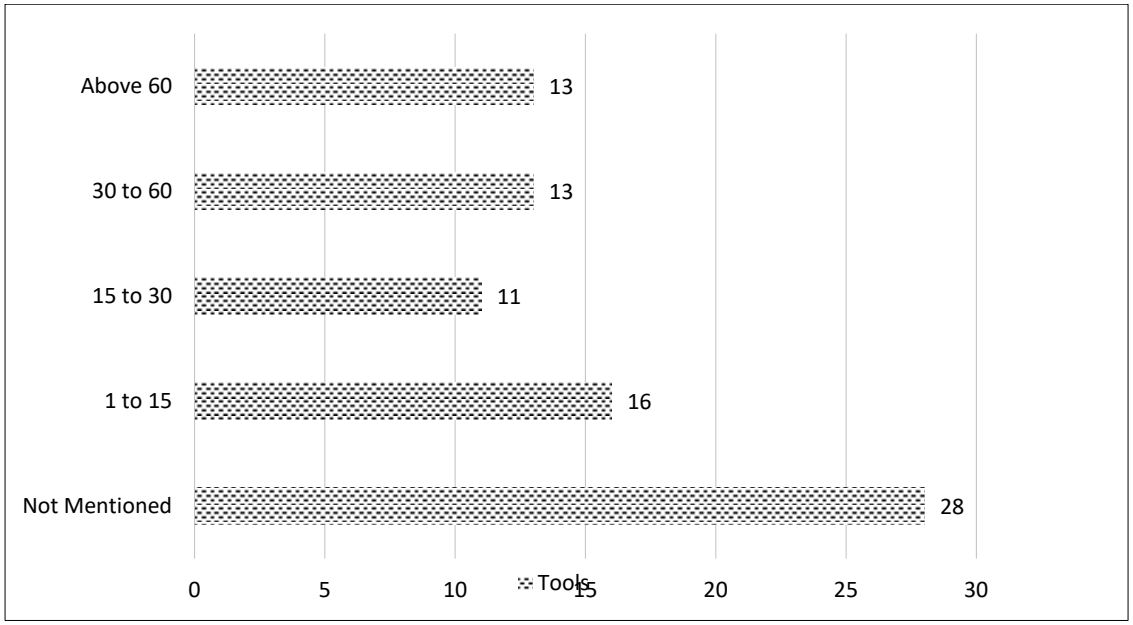

Figure 4: Number of Items in all Tools

Results revealed that the majority of the tools used by the SLTs were for individuals with age range from birth to 15 years of age and very few were constructed for all age range as shown in table 5.

Table 5
Age range covered by the speech and language screening, assessment and diagnostic tools

Sr. No.	Age in Years	No of Tools
1	Birth to 7	24
2	8 to 15	25
3	above 15	17
4	All ages	11
5	Not Mentioned	4

It was found that 39 tools had been published or had articles in some journals including 2 validated Urdu tools. Furthermore, pilot testing was conducted for 53 tools, 23 tools used random sampling whereas 10 applied non-random sampling. 23 tools were found to have some scoring scheme, score range, average and below average score, cut point scores, percentile ranks. Results also indicated that 58 tools had administration manuals, whereas 23 tools had no manuals as depicted in Figure 5.

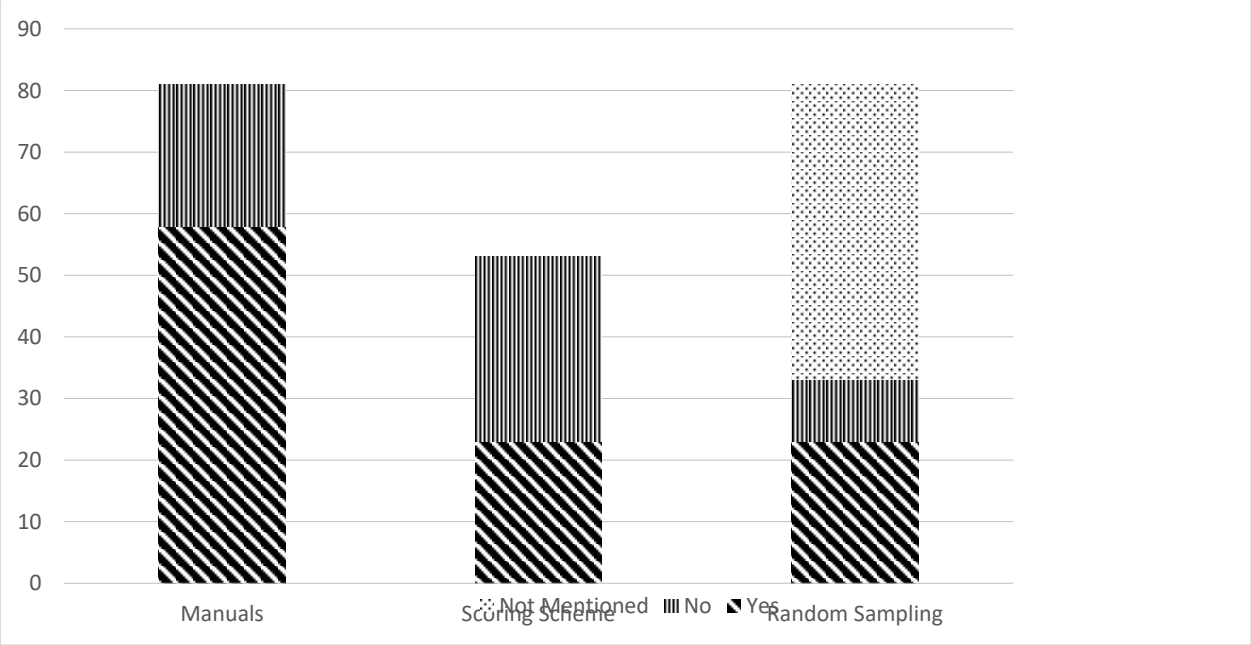

Figure 5: Manuals, Scoring Scheme and Sampling of Tools

Results showed that 16 tools do not require any specific administration conditions or requirements. Whereas the majority of tools need one to one sitting as most tools are administered individually as shown in table 6.

Table 6
Specific Requirements for tools administration as mentioned by SLTs

	One to one sitting	Sound-proof room	Any gadget, device/ hearing aid	Any other
Tools	65	1	4	24

The majority of the tools mentioned by SLTs were in English language and very few tools were available in other languages as depicted in Figure 6.

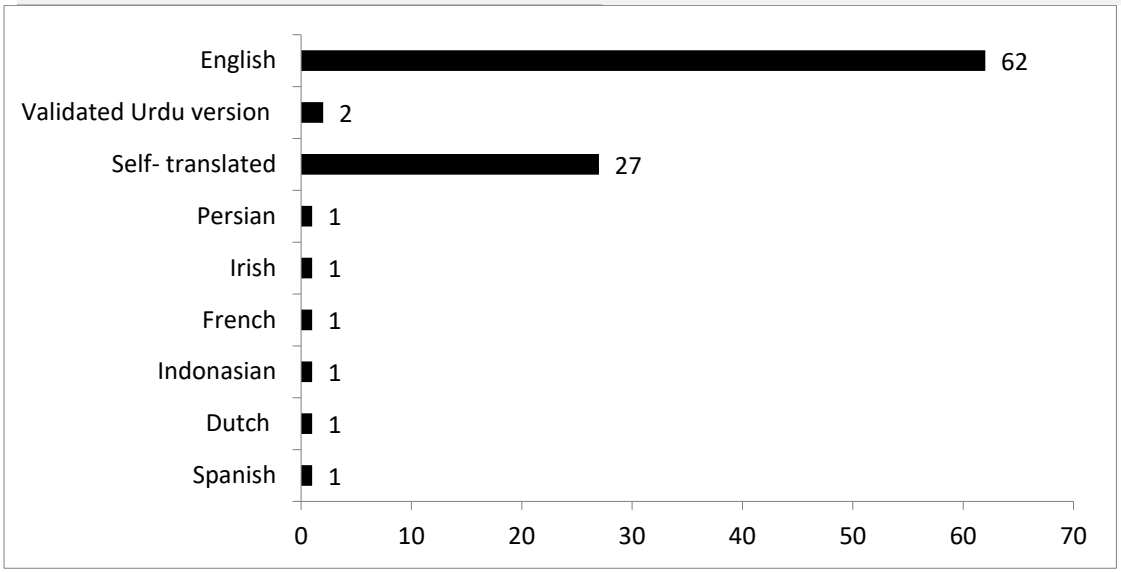

Figure 6: Languages of the Tools

Reliability, validity and item analysis of 81 tools is depicted in table 7.

Table 7
Reliability, Validity and Item Analysis of Assessment Tools in the English Language

Sr. No.	Properties of English Language tools	Number of Tools	Types of Validity	Validated tools (percentage)
1	Reliability	55	Content	11 (44%)
2	Validity	57	Face	9 (36%)
3	Item Analysis	54	Predictive	1 (4%)
			Constructive	2 (8%)
			Any other	2 (8%)

Although 57 tools were reported to have established validity and further details about validity analysis were provided for only 15 tools. The majority of the tools had established content validity as depicted in table 7. Further evaluation of reliability analysis of the tools being used by SLTs revealed that in addition to alpha reliable, 4 tools were also found to be having inter-rater reliable and 3 tools were having test-retest reliable as mentioned in Figure 7.

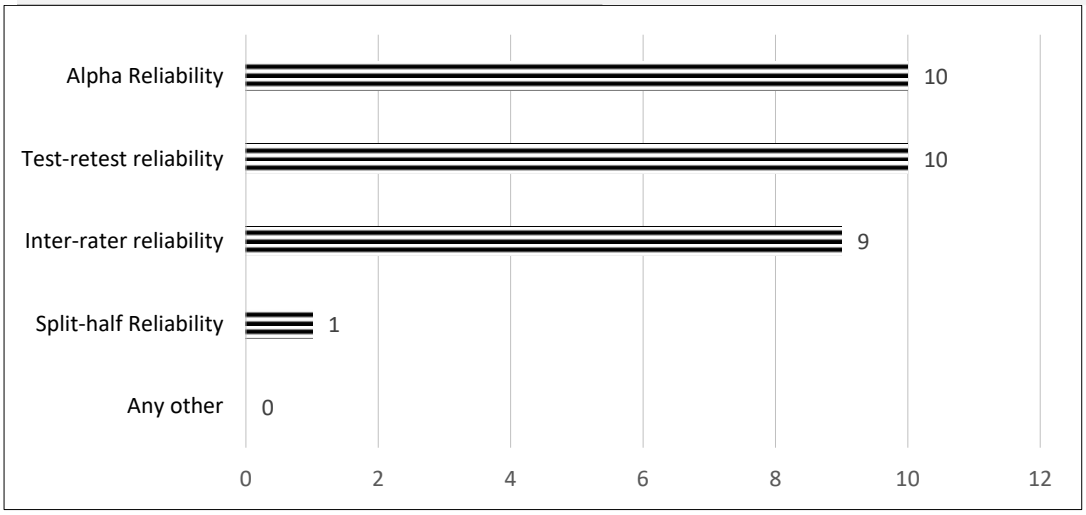

Figure 7: Different types of Reliability of Tools

Results revealed that out of these 81 tools, 23 were observational scales in the English language, which may not be translated in Urdu. But the remaining 53 assessment tools, used by SLTs, needed to be translated or adapted in order to be linguistically appropriate.

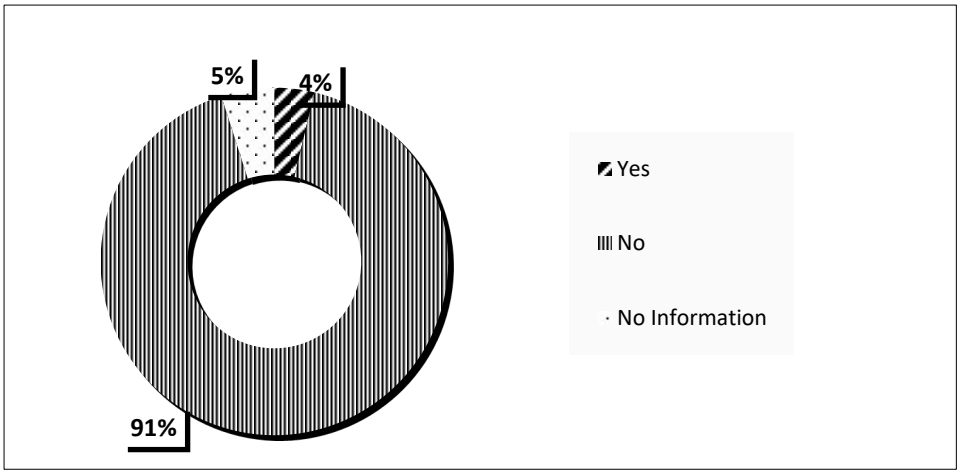

Figure 8: Availability of Urdu Version of Tools

It is clear from Figure 8 that the majority of tools being used by SLTs were not the Urdu version of the tools. SLTs reported to usingdifferent translated words for the majority of the tools being used. The use of self-translated words and appropriateness of such used words depended on the subjective decision of practitioners. The details about self-translated Urdu versions of the tool are shown in table 8.

Table 8
Use of Urdu translated words as substitute in the English assessment tools

Sr. No.	Use of Urdu Words	Tools (Percentage)
1	Different words	52 (70%)
2	Same words	6 (8%)
3	Not applicable	16 (22%)

Results indicated that there were only 6 tools that were reliable and valid in the native language (Urdu). Out of these 6 tools, 3 tools were reported telephonically and were linguistically appropriate, and basic information was provided but no further detail was given. However, details of other 3 Urdu validated tools are given in table 9.

Table 9
Details of Urdu Validated tools currently used by SLTs

Name of the Tool	Age Range	No of Items	Sampling	Sample size	Reliability	Validity
Urdu Speech Perception Test (USPT)	3 to 14	60	Random Sampling	130	Alpha, Test-Retest, Inter-rater, Split-half	Content, face, Predictive
Test for assessment of articulation and phonological disorders in Urdu (TAAPU)	4 to 8	60	Non-random	100	Alpha, test-retest	Content, face
Action Picture Information Test (APIT)	3 to 6	10	Non-random	200	Not specified	Not Specified

The research articles on these 3 tools have been published in journals. These tools are suitable for the Pakistani population and these are linguistically appropriate. However, speech therapists all over Pakistan are using tools that are either in English language or self-translated Urdu

versions of the English tools. Reliability and/or validity analysis was not carried out for any of the translated tools.

Discussion

Pakistan is a developing country that is still behind developed countries in many fields. Assessment of speech and language disorders is one of them. There are several associations; American Speech and Hearing Association (ASHA), All India Institute of Speech and Hearing (AIISH), Pearson Clinical assessment Canada, NJSHA (New Jersey Speech-Language-Hearing Association), NYSHA (New York Speech-Language-Hearing Association), IASCL (International Association for the Study of Child Language) in such countries that have formulated many assessment, screening and diagnostic tools for speech problems and are still working on the development of innovative methods of assessment. These associations also include many others.

The field of speech therapy in Pakistan was introduced much later when compared to the rest of the world and it is still in developmental phase. Although research work has been initiated throughout the country for developing validated and linguistically appropriate tools for assessment (Saleemi, 2014; Ahmed, 2014; Haider, 2015). However, the pace of progress in the field is slow and needs to be accelerated. There is a dearth of assessment tools that are linguistically appropriate. The majority of SLTs are using a self-translated Urdu version or English version of tools which is not appropriate for the population of Pakistan. There are only 6 tools that were found to be reliable and validated in the native language, which is a very small figure. Due to the lack of professionals SLTs were found to be doing the work of psychologists, audiologists and physicians as they were doing assessment by using psychological, audio logical and medical tests/ tools respectively. Most of the SLTs are assessing either with the help of English validated tools or the self-translated versions of the tool in patients' native language. The selection of substitute words for assessment varies from practitioner to practitioner. The most frequent assessment tools used by SLTs are for hearing loss, fluency, intellectual disability, dysphagia, delayed speech and articulation disorder. The assessment practices of fluency disorder with the help of English validated tools was also very common.

The contribution of the research in terms of awareness among general masses about a variety of communication disorders prevailing in the society and the dearth of appropriate speech and language tools for assessment and diagnosis is documented. It also involves awareness about the importance of timely intervention and treatment normally dictated by the assessment results. The results may seem as a source of guidance for the practitioners about nationally and internationally developed available tools for screening, diagnosis and assessment of communication disorders in the varied age group of Pakistani population.

In addition, the research has also given opportunities for the effective professional development of researchers. It supplied participants with insights, understanding and aided in the

development of critical, reflective thinking and effective communication skills. The busy clinicians appear to have less time to focus on the development of assessment tools in the national and regional languages of Pakistan, therefore, using self-translated versions. This research was an important step towards need assessment of more reliable and accurate ways to assess speech and language skills through formal means. This needs assessment survey was crucial to the researchers and practitioners to analyse the necessity for speech and language assessment tools in the national and regional languages of the country.

Conclusions and Recommendations

There was a total of 103 assessment tools mentioned by 103 SLTs. 53 tools need to be linguistically appropriate whereas 16 were found to be medical and psychological tests. Only 6 were reported to be validated in the Urdu language. The major practical and long-term contribution of the present research is that it provides much needed empirical data about the tools used by SLTs for the future development of linguistically appropriate tools. It is a baseline study for future researches on standardisation for speech and language practices, which in turn can lead to better intervention. A need was felt to further study the use and appropriateness of self-translated words used by SLTs in their practice. Future tool development and translation studies may prefer to develop tools for hearing loss, fluency, intellectual disability, speech and language performance assessment in the first phase. The results need to be triangulated by a surveying of most commonly found communication problems.

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