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DEVELOPMENT OF DIRECTORY OF URDU ASSESSMENT & DIAGNOSTIC TOOLS: SPEECH & LANGUAGE PERSPECTIVE.

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Abstract:

Background: Urdu is a commonly spoken language, especially in the Indo-Pak subcontinent. It has limited standardized testing and diagnostic resources & no directory listing such tools is available, resulting in difficulties for clinicians & researchers who wish to use Urdu tools.

Aim: To develop a Directory of Urdu Speech & Language Assessment and Diagnostic tools.

Material & Methods: The current cross-sectional study with non-probability convenience sampling was conducted at Riphah International University, Islamabad from August to November 2023. The study recruited speech-language pathologists, researchers, and linguists from across Pakistan, both physically and online through Google Forms. Self-developed tools and a basic demographic sheet were used for data collection. Statistical analysis was done using SPSS 21.

Results: Results revealed that 12(21%) Urdu language tools were developed by professionals, 11(19%) were translated and the remaining 35(60%) stand in the list of grey literature, which were never published.

Keywords: Assessment Tools, Diagnostic Tools, Directory, Screening Tools, Speech and Language Development, Urdu Language.

Introduction

Speech is one of the primary ways that people communicate their ideas, feelings, and thoughts to other people. Speech and language are essential for human communication (1). Speech & Language disorders are highly prevalent with a prevalence of 9.42% of communicational issues in India alone (2) Speech-language pathologists (SLPs) diagnose speech and language impairments using clinical acumen and instruments for diagnosis, analysis and integration of this data to assess candidature for management (3). SLPs assess speech and language problems using a variety of instruments and methods and are essentially required to take linguistic and cultural variances into account (4). Standardized tests, observational methods, and interviews can be employed to evaluate many facets of language and speech development (3).

Urdu the National language of Pakistan is the mother tongue for many Pakistanis and is spoken as a second language by 100 million globally, incorporates Persian, Arabic, and Turkish influences due to historical Muslim dominance. With 50 million Urdu speakers in India, the language adapts the Arabic script with additional letters to represent Persian and Indian sounds (5). In Urdu, noun phrases, verbs, and adjectives are categorized by gender, number, and case, while post-positions follow verbs and nouns instead of English prepositions (6).

To guarantee that Urdu speakers with speech and language difficulties receive complete care, SLPs frequently collaborate with other experts, including educators, parents, and other specialists. Despite being one of the most commonly spoken languages in the world, Urdu has limited standardized testing and diagnostic resources (7)

The significant gap in the development of the Urdu directory of assessment and diagnostic tools is the lack of culturally and linguistically appropriate tools for speech and language assessment of Urdu speakers. Roepke and Alvi's evaluation of the Urdu language exams that are available for use with children and adults helped to identify this gap (4). This gap has the consequence of preventing speech-language pathologists from having access to the right resources for evaluating speech and language impairments in Urdu speakers, resulting in the performing tasks of other professionals (7).

A directory is an information listing or catalog that is structured and usually arranged in a hierarchical or categorized fashion. Directories are vital in the medical and rehabilitation fields because they make it easier to obtain important data, resources, and services. They are crucial instruments for raising the general caliber, effectiveness, and accessibility of healthcare and rehabilitation services (8). Hence, current research endeavored to develop a Directory of Urdu Speech & Language Assessment and Diagnostic tools. This study is of significant importance since by creating a directory of evaluation and diagnostic tools, professionals, educators, academicians, and researchers will be able to get easy information about available tools making it easier to discover learn, and use different tools for clinical and research purposes.

Materials & Methods

The current cross-sectional study was conducted at Riphah International University Islamabad over 4 months from 1st August 2023 to 30th November 2023. The study was conducted following ethical approval of research from the Research Ethics Committee, Riphah College of Rehabilitation Sciences vide Ref No. RIPHAH/ RCRAHS/Letter-1003), dated July 11, 2023.

Participants

For assessment of content validity, 10 SLPs with vast clinical and research experience evaluated the questionnaire.

For data collection institutions all over the Pakistan were targeted several times through email and what's app groups but there was poor response. Institutions all over Pakistan were targeted but these institutes that provided the data were Riphah University Islamabad and Lahore, Allama Iqbal Open University, University of Punjab, Centre for Clinical Psychology, Lahore , University of Child Health Sciences Lahore, Primal support Abbottabad, Fauji Foundation Hospital, King Edward Medical University, Autism Resource Centre (ARC), Child Developmental Centre (CDC), Armed Forces Institute of Rehabilitation Medicine (AFIRM), Profiles Speech Therapy Clinic. Nexegen Hearing Centre, Shifa International Medical College and Hospital, Islamabad, Dow university of Health Sciences, Karachi, Agha khan University, Karachi, Medical and Dental College, Abbasi Shaheed Hospital, Karachi, Liaquat National Hospital, Karachi, speech Therapy Research Centre, National institute of rehabilitation medicine Islamabad., Zayed Higher organization for people of determination Abu Dhabi, Usman medical center Haripur, Manchester Metropolitan University UK and Sindh Institute of Physical medicine and Rehabilitation Karachi.

The study was worked out in two phases:
Phase I: Development of the Tool for data collection
Phase II: Data Collection.
Development of Instrument
In this phase a questionnaire was developed for data collection in two steps:
i) The first step was item generation which was based on a thorough literature review and inductive and deductive methods. The questionnaire was constructed in three sections:
a. Section I for researchers who developed new Urdu assessment tools – 15 questions
b. Section- II for researchers who translated Speech and Language tools into Urdu language- 24 questions
c. Section –III for researchers who either developed or translated a Speech and Language tool but whose research work was not published yet (grey literature) category- 22 questions.
ii) The second step of the first phase was content validity. After item generation of the three sections of the questionnaire, the content validity was done. A group of specialists i.e. 10 SLPs evaluated the questionnaire. Each item was being assessed for relevancy, ambiguity, simplicity, and clarity. Two rounds of content validity were done, in the first round 4 items were deleted and 5 items were revised based on the expert's feedback. The changes were being incorporated and the second round of content validity was done. The experts graded each item and the degree of agreement between them was determined by calculating the Content Validity Index (CVI).

Data Collection:
In this phase, the developed questionnaire was converted to Google form and distributed extensively to professionals in the field, including Speech-Language Pathologists, Special Education teachers, and Linguistics experts and researchers.
For data collection forms were sent several times through email and WhatsApp groups but there was poor response. Then the questionnaires were circulated physically and by Google form utilizing different channels including professional networks, email invitations, and relevant online platforms. Ethical consideration was upheld during the data collection process by taking the consent. In the first round, fewer responses i.e.11 responses were received. Then the questionnaires were circulated physically and by the Google form. The number of responses increased to 23. Overall, the total number of responses that were received was 58.

Urdu Tools included in the study included Speech disorders screening and diagnostic tools, Language disorders screening and diagnostic tools, Dysphagia screening and diagnostics tools, hearing screening tools in Urdu, Cranial nerve examination tools, Cognitive/orientation assessment tools, and Other Urdu tools those are involved and helpful in speech and language disorders screening and diagnosis were included. Tools in all other languages were excluded from the study.

Results

To develop a Directory of Urdu Speech & Language Assessment and Diagnostic tools the questionnaire developed had an excellent Content Validity Index (CVI) of 0.98 (table 1).

The study data was collected from 60 institutes all over Pakistan from Speech-Language Pathologists, Special Education teachers, and Linguistics experts who either developed, translated, or are in the process of developing or translating Speech and Language Assessment and Diagnostic tools in Urdu language. The sample included majority of 48(83%) females who were mostly 22(38%) SLPs (table 2).

Results revealed that 12(21%) Urdu language tools were developed by professionals, 11(19%) were translated tools and the remaining 35(60%) stand in the list of grey literature, which is not published.

Discussion:

The current study developed a directory concerning various clinical areas directory of Urdu assessment and diagnostic tools used for speech and language. In the current study, the questionnaire used to identify the data was divided into 3 sections to identify responses for Urdu speech and language assessment and diagnostic tools. A study of similar types was carried out in Spain in 2021 to create a directory of care services. The instrument used was separated into 4 sections, and 78 different care services that were coded were identified. The current study identified 58 Urdu Speech and Language tools that can be employed in academic and clinical settings, a study was conducted in Spain to formulate the directory of social and health care, utilized and identified data of the directory to decide about support system to guide planning in complex areas and integrate social and health (9). Among the developed tools (table 3), in the speech area, "Test of Articulation and Phonology in Urdu" (TAAPU) provides a comprehensive and culturally appropriate instrument for Speech Sound impairments (SSD) (10).

In the category of learning difficulties is a Screening checklist for specific learning difficulties (11) consistent with Pakistani norms to help students in the sixth and seventh grades identify specific learning challenges (SLD) as early as possible. Its target users were teachers. The two-part checklist consists of scoring criteria-based assumptions and observing traits associated with SLD, such as sequencing, attention deficit, reverse retention, low self-esteem, and skipping. For assessment of Dyslexia "Assessment of Dyslexia in the Urdu Language" (12) Cronbach's α=0.80, except for Vocabulary, where $\alpha < .70$ and $y \leq 0.60$ is a reliable tool. It includes sub-categories of letter identification, letter-position processing, pseudoword reading, word reading, and word reading with and without diacritics.

In the category of Language tests is the "Urdu Receptive Language Scale" (URLS) (13), which assesses 59 receptive language abilities, across several age groups. It has a Cronbach's alpha of 0.948 & validated on a sample of 384 children, divided into 12 age groups. The Development of "Questioning levels in Urdu" (14) for typically developing children was validated on a sample of 52 children and has high validity. The third test of Language is "Phonological Awareness Skills in Urdu-English Bilingual Children" (15) to evaluate Urdu-English speaking youngsters in terms of their phonological awareness. It has Construct Validity 0.40-0.89 & was validated on 95 typically-developing Urdu-English bilinguals, in Grades 1-2.

The "Autism Spectrum Disorder Scale" (16) is a 15-items valid and reliable tool tested on 143 people with ASD. The measure showed good convergent validity with the Childhood Autism Rating measure (CARS). The "Bilingual Aphasia Test in Urdu" (17) includes a thorough evaluation of language impairment even if it does not have particular subcategories.

In the translated section of the directory, there were a total of 11 tools, 9% tools in the area of speech, 36% in language, and 55 % in the other category. 9% in the voice, both expressive and receptive language 9%, Autism 18%, developmental language disorders 9%, Memory and orientation 18%, and cognition 28%.

"Autism Spectrum Screening Questionnaire in Urdu" (18) for Autistic children has a Sensitivity of 0.91 and specificity of 0.86 and is standardized on 300 parents of children (6-17 years) with autism spectrum disorders.

In the category of cognition, the "Urdu Translation of Slosson Intelligence Test SIT-4 (Vocabulary) Sub-test for Adults" (19) utilized a sample of N= 900 revealed CFI =.002, X= 45.75 with DF= 34. The "Developmental Coordination Disorder Questionnaire'07 in Urdu" (20) (DCDQ-UR) empowers practitioners to recognize and manage developmental coordination concerns in a way that is acceptable for the local language and culture. "Mini-Mental State Examination (MMSE)" (21) translation and validation research in Urdu for the Pakistani population aimed at assessing mental health in this particular demographic and done on 400 participants. The other important test of "Montreal Cognitive Assessment" (MOCA) (22) Translation and Cultural Adaptation Guidelines Development was to provide methodical guidelines that guarantee the correct translation and cultural applicability of the MOCA in a variety of language and cultural situations, fostering more accurate cognitive assessments worldwide by improving the validity and reliability of the MOCA across a range of groups through the synthesis of qualitative findings. The "Developmental Coordination Disorder Questionnaire'07 in Urdu (DCDQ-UR) (20) is a valid and reliable tool with Cronbach's of 0.92. & was validated on 70 DCD children.

In the category of Language One useful instrument for assessing narrative language proficiency in many languages, including Urdu, is the "Multilingual Assessment Instrument for Narratives (MAIN) in Urdu" (23), evaluates a person's narrative talents and provides information on their language and cognitive capacities. The "Expressive Language Screening Assessment of Early Sentence Production for children with a Pakistani heritage background speaking Mirpuri, Punjab or Urdu as a home language in England" (24), was validated on 167 Pakistani heritage children aged 2yrs 6months to 7 yrs. 5months.

The concept of developing of directory is very common in other domains and directory of psychology was created as early as in 1969. It provided variable information to psychologists but as the field of Speech and language pathology is very new in Pakistan the directory of tools was not available in the field of Speech and language pathology (25), so the present study aimed to bridge that gap and provided valuable data for the clinicians and researches.

Conclusion

Several new Urdu speech and language tools have been developed. Many clinical tools important for the assessment and diagnosis of speech-language disorders have also been translated into Urdu language. These ensure uniformity of the procedure and help in improving the services being provided. This study may be beneficial for professionals and researchers working in clinical, academic, and research areas due to the easy access and availability of the Urdu tools in a compiled form.

Limitations: Though institutions all over the country were targeted, however, there was a lack of response from several institutions, which might have resulted in overlooking some tools.

Ethical Considerations:

Ethical issues including informed consent, plagiarism, misconduct etc. have been completely observed by the authors.

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Table 1: Convent Validity Index of Developed Questionnaire

Translated Tools				Grey Literature				Tools Developed			
Items	Expert in agreement	I-CVI	UA	Items	Expert in agreement	I-CVI	UA	Items	Expert in agreement	I-CVI	UA
Q1	9	1	1	Q1	9	1	1	Q1	9	1	1
Q2	9	1	1	Q2	9	1	1	Q2	9	1	1
Q3	9	1	1	Q3	9	1	1	Q3	9	1	1
Q4	9	1	1	Q4	9	1	1	Q4	9	1	1
Q5	9	1	1	Q5	9	1	1	Q5	9	1	1
Q6	8	0.88	0	Q6	9	1	1	Q6	8	0.88	0
Q7	9	1	1	Q7	9	1	1	Q7	9	1	1
Q8	9	1	1	Q8	9	1	1	Q8	3	0.88	0
Q9	9	1	1	Q9	9	1	1	Q9	9	1	1
Q10	9	1	1	Q10	9	1	1	Q10	9	1	1
Q11	9	1	1	Q11	9	1	1	Q11	9	1	1
Q12	9	1	1	Q12	8	0.88	0	Q12	9	1	1
Q13	9	1	1	Q13	9	1	1	Q13	8	0.88	0

Q14	9	1	1	Q14	9	1	1	Q14	9	1	1
Q15	9	1	1	Q15	9	1	1	Q15	9	1	1
Q16	9	1	1	Q16	9	1	1	S-CVI/Ave		0.98	
Q17	9	1	1	Q17	9	1	1	S-CVI/UA			0.92
Q18	9	1	1	Q18	9	1	1				
Q19	9	1	1	Q19	9	1	1				
Q20	9	1	1	Q20	9	1	1				
Q21	9	1	1	Q21	9	1	1				
Q22	9	1	1	Q22	9	1	1				

Table 2: Demographic Characteristics of Sample Popuation (n=58)

Variable	Group	Frequency	Percentages
Gender of Participants	Male	10	17
	Female	48	83
Designation of Participants	Speech Therapist	22	38
	Lecturer	7	12
	Assistant Professor	17	29
	Head of Department	2	3
	Audiologist	1	2
	Psychologist	5	9
	Neurologist	3	5
	Otolaryngologist	1	2
Qualification of Participants	Master's	20	35
	PhD	34	58
	FCPS	3	5
	Bachelor's	1	2
Area of Specialization of Participants	Clinical field	15	26
	Academic Field	7	12
	Researchers	9	15
	Both clinical and academia	27	47
Questionnaire Frequency	Developed tools	12	21
	Translated tools	11	19
	Grey literature	35	60

Table 3: Characteristics of Tools developed in Urdu

Test	**Published**	**Area**	**Targeted Population**	**Reliability/ Validity**
Test of Articulation and Phonology in Urdu(TAAPU) (10)	2020	Articulation and Phonology	4-8 years old children with Speech Sound Disorders	Test-retest correlation = 0.991, Cronbach's α=0.70
Phonetically Balanced Urdu Speech Perception test (26)	2018	Receptive Language and Hearing Screener	3- 12 years old Children	Split half reliability =0.798, test-retest reliability=0.881 Inter-scorer reliability =0.598
Action Picture Information Test (27)	2014	Expressive Language	Children with Autism language Difficulties	
Questioning Levels in Urdu for Typically Developing Children (14)	2023	Expressive And Receptive Language	Typically Developing Urdu- Speaking children (3-6 years).	I-CVI = 0.50-1.00
Screening Checklist for Children with Specific Learning Difficulties (11)	2016	Learning Disability	Typically developing children	Cronbach's α=0.83
Urdu Articulation Screening Tool (USAT)	2019	Articulation	School-going children (4-11 years)	

(28)				
Urdu Receptive Language Scale (URLS)(13)	2021	Receptive	0-6 years old Urdu speaking children	CVI=1, Cronbach's α=0.948
Assessing Phonological Awareness Skills in Urdu-English Bilingual Children (15)	2021	Language, comprehension test of phonological processing	Typically-developing and hearing simultaneous bilinguals and/or multilinguals aged ≤ 12 years.	Construct Validity 0.40-0.89, average internal reliability of >0.80 for sub-tests and >0.85 for the main tests, with an average alpha of 0.77.
Assessment of Dyslexia in the Urdu Language (12)	2017	Dyslexia, ADHD	Children aged 7-11 years attending grades 3-7	Reliability coefficients = >0.80, except for Vocabulary α < .70 and y ≤ 0.60
Urdu Communicative Development Inventory (CDI) (17)	2015	Expressive language, Receptive Language and Pre-Language skills	Typically developing children aged 12 to 30 months.	
Bilingual Aphasia Test in Urdu (29)	2021	Aphasia		-
Autism Spectrum Disorder Scale (16)	2022	Autism	Individuals with autism spectrum disorder (ASD)	Convergent validity with the Childhood Autism Rating Scale showed r=0.81, p=.00 Test-retest reliability r =.950

Table 4: Characteristics of Tools Translated to Urdu

Test	**Published**	**Area**	**Targeted Population**	**Reliability/ Validity**
Autism Spectrum Screening Questionnaire in Urdu for Autistic Children (18)	2024	Autism	Age 6 to 17	Cronbach's α=0.584, Intra- class correlation r=0.345
Urdu Translation of Slosson Intelligence Test SIT-4(Vocabulary) Sub-test for Adults (19)	2023	Cognition	Typical students, Age 19 to 37 years	Cronbach's α=.91 to .92.
Autism Screening Questionnaire (30)	2022	Autism	Autistic population	Cronbach's α=.901 Confirmatory fit index =0.785, Adequacy sample = 0.802
Urdu version of the World Health Organization's quality of life questionnaire (31)	2017	Psychological & Physical domain	Typical	-
Addenbrooke's cognitive examination version 3 (ACE-3) (32)	2019	Cognition	A- Typical	-
Developmental Coordination Disorder Questionnaire-07 in Urdu language (DCDQ-UR) (20)	2022	Coordination	Children at risk of DCD	Cronbach's α=0.92 (0.89- 0.84)
Multilingual Assessment instrument for narratives (MAIN) in Urdu (23)	2020	Language (Receptive, Expressive, Pre-language skills)	Children acquiring Urdu as a first, heritage, second, or additional language	
Voice- Handicap index- 10 in Urdu (33)	2018	Voice		Test reliability (r= 0.984; p<.001), Cronbach's α= 0.96.
Expressive language screening assessment of early sentence production for children with a Pakistani heritage background speaking Mirpuri, Punjab, or Urdu as a home language in England (24)	2019	Expressive, DLD (Developmental Language Disorder)	Children suspected of having DLD will have atypical language development; Between 3-4 years (two-word utterances), Between 4 and 5 (three-word utterances)	
Mini-Mental State Examination (MMSE) in Urdu (21)	2015	Cognition, Orientation, Dementia; memory	Patients with dementia	Cronbach's α= 0.74.
Montreal Cognitive Assessment (22)	2022	Language (receptive, Expressive), memory , Orientation and Visuospatial skills	Dementia, Minor cognitive impairment	Criterion-related validity