RESEARCH PAPER

Assessment and Diagnostic Classification of Expressive Language Delay in Atypical Children (5–7 Years) Using an Urdu Expressive Language Elicitation Scale

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ABSTRACT
Background: This study employed a culturally responsive Urdu Expressive Language Elicitation Scale (ELES) to investigate expressive language domains in children aged 5–7 years old having Urdu as their native language. Objective: To assess and investigate expressive language delays in atypical Urdu-speaking children aged 5–7 years with a validated and reliable scale. Methods: ELES, a psychometrically validated scale, was administered as per age, following the Basel and Celling criteria. Raw scores were converted to standardized metrics, including z-scores, confidence intervals, percentile ranks, age equivalents, and percentages. These metrics were used to investigate delays in expressive language as typical, mild, moderate, or severe delays. Data were analyzed across five age ranges: 5.0–5.5, 5.5–6.0, 6.0–6.6, 7.0, and 7.0–7.12 years to identify the reliable chronological age gap that leads to ultimate developmental delays. Results: after the administration expressive language elicitation scale, psychometrically scoring was done Conclusion: ELES, expressive language elicitation scale is culturally rich and psychometrically a validated and reliable scale, which is designed to investigate delays according to chronological age, as each age has its specific elicitation so it is more convenient for professionals as they pick elicitation according to child chronological age, they don't need to administer whole scale on one child. This is the uniqueness of scale that makes it more convenient for professionals and enables intervention in the developmental sequence.

Keywords: Expressive language, native language Urdu, atypical children, psychometric scoring, age-appropriateness, diagnostic classification
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INTRODUCTION

Expressive language plays a vital role in a child's verbal communication, which is essential in day-to-day life to express expressions. Expression display Childs's cognitive age that correlate his academic achievement. Delays in expressive language leads child towards academic and psychosocial difficulties. Limited skills not only limited social circle but leads him towards isolation. The development of expressive language consist of multiple complex steps like morphology, syntax and semantics. Normal development start with child first cry, then phonics to sound, then towards words formation, to sentence making with age appropriate vocabulary. With age, vocabulary becomes increasingly polished and develops into an integrated expressive language. According to a Scopus review, 11–18% of toddlers communicate outside the normal developmental time frame, without a known biological reason. Some children close this gap by age 5, but not all children meet their typical developmental milestones. Formal and informal assessment criteria indicate diagnoses of developmental delay for these children. Assessment in the early stages, such as at age 2, is crucial, as timely intervention can improve language outcomes and reduce long-term sequelae. Delayed language disorder has many risks later in a child's life that effect his day to day conversation and also cause problems in school enrollment. Early intervention can save children as well as parents. In some cases, positive family history also plays a crucial role in delayed language development. Research also indicates some more factors like low financial status, illiteracy, working mothers, and a single child; all these factors work combine to develop an atypical child if not handled positively and productively. (Sansavini et al. 2021) Professionals, specifically speech therapist play an important role first in screening, then later on in formal and informal assessments. Timely screening has a positive impact that brings marvelous change in an atypical child's life. Things move from delayed developmental milestones towards normal developmental milestones. A study conducted in Australia with a sample of 335 children to 12 years old age range by using a standardized assessment tool, SLPs reported the measures they used, the domains

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assessed, the purposes of use, and the reasons for selection. Results indicated that while many standardized measures are available, only a few are used regularly, often for domains or purposes beyond their original design. SLPs prioritized psychometric properties when selecting diagnostic measures but relied on familiarity, availability, or ease of administration for other assessments. Findings highlight a need for greater alignment with evidence-based practice in selecting standardized measures to ensure accurate assessment and intervention planning. Implications for clinical practice and strategies to support SLP decision-making are discussed. However, many standardized tools have been developed primarily within Western contexts and monolingual populations, which can limit their cultural and linguistic applicability in non-Western settings. This highlights the need for culturally and linguistically appropriate assessment tools tailored to specific populations to avoid misclassification due to cultural or linguistic bias. (Denman et al. 2023)

Recent research emphasizes the clinical importance of identifying developmental language disorders (DLD) and other expressive language delays through standardized testing, noting that persistent delays are heterogeneous and detectable across diverse populations when appropriate norms are applied. In line with these perspectives, the present study applies a previously validated Urdu Expressive Language Elicitation Scale (ELES) to an atypical sample of children aged 5–7 years to examine expressive language performance, derive standardized scores, and diagnose expressive language delays using comprehensive standardization metrics, including z-scores, percentile ranks, confidence intervals, and age-equivalent scores. Fifteen children were evaluated for this screening. The main focus was to determine screen time and at what age the screen was introduced to children. And most importantly, the availability of a screen consistently to a child without supervision. The results shows shocking figure of 67% children provide screen without any limitations that directly causes delayed language development. (Bao, Komesidou, and Hogan 2024)

In another study, autistic children age range 4 to 6 years old were studied, and standardized assessment tools were applied to check developmental delays. The examination concluded and started from the phonology stage and goes till pragmatics. Functional language was totally missing; only rhymes were there. Receptive language was present but not fully developed, and expressively language was totally skipped. Early communication skills and nonverbal cognition predict later language outcomes, with receptive language more affected than expressive. Results inform assessment practices and underscore the need for age-appropriate, domain-specific tools for early identification and intervention in ASD.(Mériaux et al. 2025).

Materials and Methods:

The finalized Urdu Expressive Language Elicitation Scale was administered to atypical children aged 5–7 years using a standardized administration protocol incorporating basal and ceiling rules. Testing was conducted individually in a controlled environment to ensure consistency across administrations. The basal rule was defined as the point at which the child was pre-assumed to have mastered in all preceding items. A basal level was established once the child responded correctly to three consecutive items, after which all prior items were scored as correct. The ceiling rule was applied to identify the point at which the child could no longer demonstrate adequate performance. Test administration was discontinued when the child responded incorrectly to six consecutive items, and this item level was considered the ceiling. Scoring was distributed with 0.4 points for each activity elicited by the child and no score if no activity was elicited. In this way individually raw scores were calculated, followed by Basel and ceiling rules.

Scoring and Standardization Procedures

Raw scores individually cannot interpret a child expressive language delay, to know accurate and authentic level of child's expressive language need to convert that raw score into standardized scoring. Raw scores were analyzed using standardized statistical methods, including the calculation of z-scores, percentile ranks, and confidence intervals, with scores interpreted relative to age-specific maximum values. (Muthusamy et al. 2022)

All scores were evaluated within age groups, with each age band having a maximum raw score of 20. Standard scores were derived by comparing individual raw scores to the mean and standard deviation of the corresponding age group. These standardized measures were used to classify the severity of expressive language delay and to assist in clinical diagnostic decision-making.

RESULTS:

Table 1. Demographic Characteristics of the Study Sample (N = 465)

Group	Characteristic	Value
Atypical developing children	Sample size	465
	Age range	5–7 years
	Gender	male and female
	Setting	Hospitals, clinical settings, special education centers

Table 1 shows the sample characteristics of the study participants. The study consists of 465 atypical children of both gender male and female. The age range was selected from 5 years to till the end of 7 years. The sample was collected from different hospitals, clinics, rehabilitation centers, and inclusive centers. Expressive language elicitation scale was administered psychometrically. Z-scores were calculated, achieved from the raw score. Standardized scoring is maintained for psychometric evaluation by using a formula

$$z = \frac{\text{Raw Score} - \text{Mean}}{\text{SD}}$$

Severity levels for developmental delays was classified as
Typical (Z ≥ –1.0),
Mild (–1.0 > Z ≥ –1.5)
Moderate (–1.5 > Z ≥ –2.0)
Severe (Z ≤ –2.0)

Gap between Chronological age and age equivalent describes the developmental delays.as much as gap is increased, severity level will also increase. This classifications were **aligned with normal developmental milestones makes a cutoff criteria for atypical children.** (Kas, Jakab, and Lőrik 2022)

Table 2. Classification of Severity Levels for Children Aged 5–5.5 Years (N = 93)

Severity Level	**Z Score Range**	**AE Gap (yrs) / Interpretation**	**n**
Typical	Z ≥ –1.0 & AE ≤ 1.5	Within expected range	55
Mild	–1.0 > Z ≥ –1.5 & AE ≈ 1–2	Slightly delayed	12
Moderate	–1.5 > Z ≥ –2.0 & AE ≈ 2–3	Noticeable delay	13
Severe	Z ≤ –2.0 & AE ≥ 3	Significant delay	13
Total	—	—	93

The classification of severity cut-off among children aged 5–5.5 years revealed that the majority (59.1%) fell within the typical developmental range (Z ≥ –1.0, AE gap ≤ 1.5 years). A mild delay was seen in 12.9% of children, while 14.0% demonstrated moderate delay, and another 14.0% exhibited severe delay. Overall, approximately 28% of the children showed moderate to severe developmental concerns based on standardized Z-score and age-equivalent. Severity levels were determined primarily by standardized Z-scores, with Age-Equivalent gaps used as supportive clinical validation. Higher negative Z-scores correspond to greater developmental delay, providing an objective and standardized measure consistent with neurodevelopmental assessment standards.(Diagnostic and statistical manual of mental disorders: DSM-5, 2013)

Table 3. Classification of Severity Levels for Children Aged 5.5 to 6 Years (N = 93)

Severity Level	**Z Score Range**	**AE Gap (yrs)**	**n**
Typical	Z ≥ –1.0 & AE ≤ 1.5	Within expected range	63
Mild	–1.0 > Z ≥ –1.5 & AE ≈ 1–2	Slightly delayed	12
Moderate	–1.5 > Z ≥ –2.0 & AE ≈ 2–3	Noticeable delay	10
Severe	Z ≤ –2.0 & AE ≥ 3	Significant delay	8
Total	—	—	93

Table 4. Classification of Severity Levels for Children Aged 6 to 6.6 Years (N = 93)

Severity Level	**Z Score Range**	**AE Gap (yrs)**	**n**
Typical	Z ≥ –1.0 & AE ≤ 1.5	Within expected range	53
Mild	–1.0 > Z ≥ –1.5 & AE ≈ 1–2	Slightly delayed	13
Moderate	–1.5 > Z ≥ –2.0 & AE ≈ 2–3	Noticeable delay	14
Severe	Z ≤ –2.0 & AE ≥ 3	Significant delay	13
Total	—	—	93

Table 5. Classification of Severity Levels for Children Aged 6.6 to 7 Years (N = 93)

Severity Level	**Z Score Range**	**AE Gap (yrs)**	**n**
Typical	Z ≥ –1.0 & AE ≤ 1.5	Within expected range	50
Mild	–1.0 > Z ≥ –1.5 & AE ≈ 1–2	Slightly delayed	14
Moderate	–1.5 > Z ≥ –2.0 & AE ≈ 2–3	Noticeable delay	16
Severe	Z ≤ –2.0 & AE ≥ 3	Significant delay	13
Total	—	—	93

Table 6 Classification of Severity Levels for Children Aged 7 to 7 Years 12 months (N = 93)

Severity Level	Z Score Range	AE Gap (yrs)	n
Typical	$Z \geq -1.0$ & $AE \leq 1.5$	Within expected range	32
Mild	$-1.0 > Z \geq -1.5$ & $AE \approx 1–2$	Slightly delayed	15
Moderate	$-1.5 > Z \geq -2.0$ & $AE \approx 2–3$	Noticeable delay	21
Severe	$Z \leq -2.0$ & $AE \geq 3$	Significant delay	25
Total	—	—	93

DISCUSSION:

In this study, expressive language skills are investigated by using a valid scale named ELES, the expressive language elicitation scale. Developmental delays were classified on the basis of standardized z scores. Results indicate a large number of children scored within the normal developmental range, which is $Z \geq -1.0$ & $AE \leq 1.5$. Perceptible candidates scored within mild to severe ranges. These results focus on the importance of early diagnosis and early intervention. Levels of severity were classified by using Z-score cutoffs (Typical: ≥ -1.0; Mild: -1.0 to -1.5; Moderate: -1.5 to -2.0; Severe: ≤ -2.0). The number of children classified as having mild to severe delay in this study is consistent with expressive language difficulties. The proportion of moderate and severe classification emphasizes the need for structured screening and monitoring during early school years. Expressive language difficulties in the early stages are strongly linked to academic and social integration. Such candidate's faces different literacy challenges later in their school life. Screening is compulsory if the child scores below -1.5 or -2 in the Z score. Early identification leads to productive intervention. (Snowling and Hulme 2012)

Administration of Z-scores is essential to know a child's deviation from normal developmental milestones. It helps in early screening for parents and professionals of expressive language delays. So it is strongly recommended to do as early as possible to meet the normal developmental time frame for expressive language. (Bishop et al. 2017)

Formal screening tools are crucial in the process of early screening as they give age-appropriate cut-off criteria for a child to meet his delayed developmental milestones. Children must be assessed according to their chronological age level so that they respond well and are assessed without biasness, so age appropriate standardized assessment tools are crucial in the field of rehabilitation. Availability of such tools and usability must be correlated. The importance of Consistency in diagnosis is compulsory as per APA (American Psychiatric Association, 2013). So Z-scores must be interpreted on highest priority with reference to developmental delays. The main strength of this study is the use of psychometric classification that empowers its objectivity. However, reliance solely on quantitative scores may not capture pragmatic or contextual language difficulties. Future research should incorporate longitudinal follow-up to examine developmental trajectories across age bands..

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