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Prevalence of Learners with Specific Learning Disabilities (SLD) in Reading Comprehension at the Elementary Level

[1]Sadia Jabeen -Email- Sadia.jabeen@ed.uol.edu.pk
[2]Dr. Sehrish Khalid -Email- sehrish.khalid@ed.uol.edu.pk
[3]Syed Zaheer Abbas -Email- 70183819@student.uol.edu.pk
[4]Fatima Afzaal -Email- 70183461@student.uol.edu.pk
[1]Lecturer, Department of Education, The University of Lahore, Lahore, Pakistan.
[2]Assistant Professor, Department of Education, The University of Lahore, Lahore, Pakistan.
[3]PhD Scholar (Education), Department of Education, The University of Lahore, Lahore, Pakistan.
[4]M.Phil. Scholar (Education), Department of Education, The University of Lahore, Lahore, Pakistan.

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Corresponding Authors*:

Abstract

This study centers on identifying the frequency of learners suffering from Specific Learning Disabilities (SLD) in reading comprehension at the elementary level. Employing a descriptive survey design, the study gathered information through a multi-stage screening and diagnostic assessment of 300 students from Grades 2 to 5. Teacher and parent questionnaires were also used to supplement the data. The results showed that 16% of the students qualified for comprehension-based SLD. Besides the differences observed in grade levels and parental education, no significant differences in gender were found. The diagnostic tools used in this study were very reliable (α = .81–.89) and had strong convergent validity with teacher ratings ($r = -.68$, $p < .01$). These findings emphasize the importance of comprehension-focused screening and intervention. The children of less educated parents should be given special attention. The study suggests the use of appropriate grade comprehension tests and a multi-tiered support system as a means of early detection and instructional planning for students with SLD in reading comprehension.

Keywords: Specific Learning Disabilities, reading comprehension, prevalence, elementary education, assessment

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Introduction

Reading comprehension is when readers create meaning using various skills such as decoding, fluency, vocabulary, syntactic knowledge, and metacognitive strategies. It is crucial for students to be able to "read to learn" which is the basis of academic achievement across all subjects. Therefore, poor reading comprehension not only hampers language arts performance but also affects the overall academic success of the students and the development of their literacy skills throughout life (Kritsotakis & Morfidi, 2024; Alsraisri & Amjad, 2025).

Specific Learning Disabilities (SLD) are neurodevelopmental disorders that are the main source of the persistent difficulties in acquiring the basic academic skills of the areas of reading, writing, and mathematics in children who have average intelligence, motivation, and are properly instructed. Among these, comprehension of the written text is one of the most difficult and complex subtypes of issues, as the origin of these problems may be the deficiency in high-level language processing rather than simple decoding (Fletcher & Miciak, 2019; Almulla et al., 2025).

The prevalence of SLD in reading is estimated to vary widely from 5% to 15% depending on the criteria for diagnosis, the population studied, and the instruments for measurement. Apart from these factors, the language orthography, the quality of early instruction, and the socioeconomic status of the family can also affect the prevalence of SLD. Revealing not only the figures but also the accurate context of the prevalence is essential for the creation of a program for screening and intervention in the first stage of education (Bozatlı et al., 2024; Alahmari et al., 2025). The reading comprehension of students with SLD is heavily influenced by the limitations that these students have in vocabulary, inferencing, syntax, and working memory. They have difficulty combining ideas, making inferences, and checking their understanding while reading. Consequently, many of them do not meet school standards although they receive education in the usual way. This points out the necessity of timely recognition and adapted teaching methods (Kritsotakis & Morfidi, 2024; Bagadood et al., 2025).

One of the main points of the study is that reading comprehension depends on the interaction between word-level decoding and language understanding. The Simple View of Reading is a model that explains how lack of either component can be the cause of comprehension difficulties. So, it is very important to check both decoding and linguistic skills to pinpoint precisely the learners with SLD in reading comprehension (Fletcher & Miciak, 2019; Almulla & Amjad, 2025). Point of a study emphasized in recent research is that interventions leading to improvements in the targeted dimension of reading that causes the issue like a phonics program to deal with decoding problems or comprehension-based instruction to address language deficits are the most effective solutions. Besides, technological advancements in remedial reading practices open more opportunities for individualized learning support and make the struggle with reading easier to follow, hence, the measurable enhancement in the skill of reading comprehension is manifested in the population of primary school learners (Alqahtani, 2024). Research at the worldwide level reveals a wide range of differences in the SLD rates of occurrence with the latter serving as an indicator of variations in the diagnostic processes, different factors of educational systems, and culture. Such variation stresses the vitality of localized data for educational policy decisions and special education resource planning (Bozatlı et al., 2024).

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While there is a multitude of research on Specific Learning Disabilities (SLD) and reading comprehension worldwide (global), only a handful of studies have been conducted to estimate the number of students with SLD who are primarily characterized by difficulties in reading comprehension at the elementary school level. Many studies have concentrated on decoding or the combination of different literacy skills without considering comprehension as a separate factor. Moreover, the differences in diagnostic criteria and tools used for diagnosis make the prevalence rates vary significantly. Thus, it is evident that there is a necessity for new, uniform, and locally relevant research to find out how common SLD in reading comprehension is among young learners (Kritsotakis & Morfidi, 2024; Bozatlı et al., 2024).

Reading comprehension is the basis for acquiring new knowledge and skills in all subjects in the curriculum. However, most of the world's educational systems still do not have dependable statistics about the number of children suffering from SLD affecting reading comprehension. If there are no exact figures on the incidence rate of such disorders, the schools will be grappling with the design of effective interventions, resource distribution, and teacher training. The result is that a great number of students who have a concealed comprehension problem go through the education system without getting support and assistance to achieve academic success (Fletcher & Miciak, 2019; Alqahtani, 2024). The aim of the study is to find out the number of elementary school children with Specific Learning Disabilities (SLD) in reading comprehension and to discover the related linguistic and instructional factors.

1. To make an estimate of the proportion of schoolchildren at the elementary level who demonstrate SLD in reading comprehension from the perspective of the selected schools (Bozatlı et al., 2024).
2. To analyze the language and cognitive ability of children such as vocabulary, grammar, and working memory who have a reading comprehension deficit (Kritsotakis & Morfidi, 2024).
3. To investigate the connection between prevalence and quality of education, such as the utilization of a technology-based reading intervention (Alqahtani, 2024).
4. To create a plan for early detection and intervention focusing on the SLD-related reading comprehension deficit (Fletcher & Miciak, 2019).

The research exceeds the mere discovery of the problem, as it holds valuable messages for teachers, the education system leaders, and the scientific community. Finding the prevalence of SLD in reading helps to lay out a plan for screening, identifying individual needs, and different learning methods utilization. The data obtained will help ensure that the resources allocated for the support of children with SLD in elementary schools match up with the practical utilization of such resources (Bozatlı et al., 2024).

Moreover, knowledge about the cognitive and linguistic features of such students can provide a roadmap for educators to design specific evidence-based teaching methods to meet the comprehension challenge. The use of technology in intervention can make learning more efficient and comfortable for students who have SLD. The study, therefore, is an effort toward thclosing the education gap by making early detection possible and providing the appropriate support to those who have difficulty in reading comprehension (Alqahtani, 2024; Kritsotakis & Morfidi, 2024).

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Literature Review

One of the features of language arts known as reading comprehension is a complex skill that depends on the interaction of word recognition and language comprehension processes. The Simple View of Reading (Gough & Tunmer, 1986) remains a major influence on contemporary research and practice by defining comprehension as the product of decoding and linguistic comprehension; recent empirical work supports this view by showing that deficiencies in any of these components, as well as in higher-order processes such as inference generation and comprehension monitoring, may result in low reading comprehension of elementary students. Such conceptual clarity is instrumental when prevalence is approximated: studies operationalizing SLD solely through word-level measures (e.g. decoding) will fail to identify children whose primary impairment is text-level comprehension thus producing the prevalence of the disorder differently across various studies (Kritsotakis & Morfidi, 2024).

Estimates of the prevalence of SLD and related reading disorders vary widely across studies and contexts, with many meta-analyses and systematic reviews reporting pooled prevalence rates for reading disorders/dyslexia in primary school children usually in the single digits (approximately 4–8%) but with substantial differences due to definitions and methodologies. A substantial meta-analysis of developmental dyslexia, for instance, reported pooled prevalence estimates close to 7.1%, thus pointing out that the estimates depend on the definitions of the operational variables, the selection of the sample, and the diagnostic threshold used. Therefore, taking prevalence numbers at face value is only meaningful if one also knows whether the main emphasis was on decoding, comprehension, or combined reading problems (Yang et al., 2022).

Several recent epidemiological and regional studies reinforce those contextual factors language orthography (transparent vs. opaque spelling systems), socio-economic status, classroom instruction quality, and policy/identification procedures substantially shape observed prevalence rates. Cross-national comparisons therefore must be made cautiously; a prevalence estimate from an English-orthography context that relies heavily on decoding measures may not generalize to contexts where comprehension difficulties predominate or where bilingualism affects assessment performance. Authors therefore argue for locally conducted, grade-specific prevalence studies that include clear measures of comprehension as well as decoding (Aldakhil, 2024; Bozatlı et al., 2024).

A core methodological issue in prevalence research is the measurement and diagnostic algorithm used to identify SLD. Approaches include single-criterion low-achievement cutoffs, IQ–achievement discrepancy methods (now less recommended), response-to-intervention (RTI) frameworks, and hybrid models that combine test scores, cognitive indicators, and functional impairment. Studies that employ multi-gated screening followed by diagnostic assessment (combining standardized comprehension tests, oral language assessments, and teacher/parent reports) produce more conservative but clinically meaningful prevalence estimates than do one-time screening surveys. This technical heterogeneity accounts for much of the variability in published rates and complicates comparisons across studies (Fletcher & Miciak, 2019; Scaria, 2023).

Beyond prevalence numbers, research over the past five years has deepened understanding of the cognitive-linguistic profiles associated with comprehension-based SLD. Studies comparing children with comprehension impairments to typically developing peers routinely find weaknesses in receptive and expressive vocabulary,

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morpho-syntactic knowledge, figurative language comprehension, working memory, and inference generation. These patterns support a "language-based" subtype of SLD in which interventions targeting oral language, background knowledge, and strategy instruction are most beneficial for improving comprehension. As a result, prevalence research with language measures can not only figure out the rates but also classify learners by subtypes, which is a must for intervention planning (Kritsotakis & Morfidi, 2024; Lam, 2024).

Intervention studies give the practical meaning to prevalence figures: children affected numbers are essential for the systems to plan interventions that can be scaled. Meta-analyses of reading programs at the school level reveal that explicit instruction in language, training in inference, and teaching of comprehension strategies are effective in raising the performance of elementary students having comprehension difficulties; besides, technology-assisted programs are also likely to be a vehicle for scaling up the individualized practice. In case prevalence estimates reveal a significant proportion of students with comprehension-based SLD, schools ought to commit to language-driven curricula and teacher training to get ready for the large-scale implementation of effective interventions (Alqahtani, 2024; Sajjad et al., 2025).

Besides that, recent systematic reviews also point to the comorbidity pattern that the same group of children who have SLD in reading comprehension also show that the spoken language disorders, attention-deficit/hyperactivity disorder (ADHD), and socio-emotional problems are their overlapping difficulties. These comorbidities may make the identification process difficult and increase prevalence in locations that depend on referral or clinical sampling (which tend to have more complicated cases). Community-based prevalence research employing standard diagnostic criteria on unselected school samples usually leads to lower and more generalizable figures. Understanding comorbidity prevalence is thus vital for interpreting SLD rates and for designing integrated support systems (Scaria, 2023; Feng et al., 2024).

Several large-scale and regionally representative studies conducted since 2020 illustrate the impact of measurement choices. For instance, meta-analytic work and national surveillance data show that prevalence estimates are consistently higher when based on parent/teacher reports or school-record identifications than when based on standardized diagnostic assessments administered in representative samples. The implication is that prevalence for SLD in reading comprehension can be conceptualized at several levels risk, identification, and confirmed diagnosis each with distinct policy implications for screening, resourcing, and specialized services (Yang et al., 2022; Bozatlı et al., 2024). Language and orthography moderate prevalence and phenotype. Studies in transparent orthographies (e.g., many European languages) show relatively lower rates of decoding-based dyslexia but still report notable rates of comprehension problems, whereas opaque orthographies (e.g., English) show higher variance in decoding impairments. Bilingualism and second-language learning further complicate prevalence estimates without careful language history assessment, many bilingual children may be misclassified as having SLD. Therefore, prevalence studies that aim to inform practice must include careful language background measures and orthography-sensitive assessment tools (Yang et al., 2022; Aldakhil, 2024).

Recent studies emphasize longitudinal tracking: prevalence at a single timepoint underestimates the dynamic nature of reading development. Some children with early

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decoding delays catch up with targeted instruction, while others develop later comprehension problems that first emerge as curriculum demands increase (often in upper elementary). Longitudinal prevalence/incidence helps distinguish transient reading delays from persistent SLD and informs decisions about timing and intensity of screening (e.g., universal early screening plus later grade-level checks) (Nilvius et al., 2023; Aftab et al., 2024).

Socioeconomic and instructional context matters for both prevalence and outcomes. Several recent investigations report higher rates of identified reading difficulties in socioeconomically disadvantaged schools, potentially reflecting differential access to early literacy experiences and lower instructional quality. Conversely, increased policy attention (e.g., dyslexia legislation, mandated screening) can raise identification rates through greater detection rather than true increases in incidence. Distinguishing detection effects from true prevalence change is crucial for policymakers interpreting temporal trends (Simmons, 2024; Yang et al., 2022). Methodological best practice recommendations arising from the recent literature converge on several points relevant to prevalence studies of comprehension-based SLD: (1) use multi-stage sampling and multi-method assessment (standardized tests + language measures + teacher ratings), (2) report grade-specific prevalence and separate decoding vs. comprehension impairments, (3) include language background and orthography in analyses, and (4) present estimates as ranges (risk vs. confirmed diagnosis) with transparent diagnostic algorithms. Studies that adopt these recommendations produce prevalence estimates that are more informative for policy and practice (Fletcher & Miciak, 2019; Yang et al., 2022; Bozatlı et al., 2024).

Finally, knowledge gaps persist despite increasing research activity. There are comparatively few large, population-representative studies that specifically estimate the prevalence of SLD defined primarily by reading comprehension impairment (as opposed to decoding or mixed problems), especially in low- and middle-income countries. Moreover, more work is needed to link prevalence to intervention readiness estimating not only how many children meet diagnostic criteria but also how many would benefit from intervention types, and what system investments are required to deliver them on a scale. Addressing these gaps will require coordinated epidemiological and implementation research (Kritsotakis & Morfidi, 2024; Bozatlı et al., 2024).

The body of evidence from 2020–2024 confirms that reading comprehension difficulties are a common and heterogeneous component of SLD in elementary populations, but precise prevalence estimates vary, measurement, language, and context. For a study aiming to estimate prevalence of SLD in reading comprehension at the elementary level, best practice is to use a multi-stage design with standardized comprehension measures, oral language batteries, and classroom/teacher data to produce grade-specific, context-sensitive prevalence estimates and to classify students by deficit profile (decoding-based, comprehension-based, mixed). The literature supports emphasizing language-focused assessment and reporting both risk and confirmed prevalence to guide screening and resource allocation (Yang et al., 2022; Kritsotakis & Morfidi, 2024; Bozatlı et al., 2024).

Research Methodology

Research Design

The study employed a cross-sectional, school-based epidemiological design to determine the prevalence of Specific Learning Disabilities (SLD) associated with reading

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comprehension among elementary learners. The design included three stages: (1) universal screening of a representative sample of students, (2) diagnostic assessment of students who screened positive and a random subsample of those who screened negative, and (3) estimation of prevalence and analysis of related factors. A cross-sectional approach was appropriate because the main objective was to estimate point prevalence and describe associated demographic and academic variables within a defined period.

Population of the Study

The target population consisted of the total number of children attending an elementary school in the district of the study, these were kids enrolled in grades 1 to 5 during the academic year when the research was conducted. The population was extended to male and female students of co-ed public and private schools. This population was singled out as the most suitable one because it was the first level of literacy acquisition that is the common source of reading comprehension problems.

Sample and Sampling of the Study

Sampling Frame and Strategy

A multistage, stratified cluster sampling method was used to achieve cross-representation of different school sectors and socioeconomic backgrounds.

1. Stage 1 — School Selection: Schools were grouped by type (public/private), location (urban/rural), and socioeconomic status. A random draw of schools was made proportionate to the size of each stratum.
2. Stage 2 — Grade Selection: In every selected school, one or more grades from 1 to 5 were randomly picked.
3. Stage 3 — Student Selection: In each selected grade, all students were given the opportunity to be screened. If the number of students in the class was too large, a random sampling within classes was done.

Such a scheme guaranteed representativeness and reduced the possibility of sampling bias while still being practicable for field administration.

Sample Size Determination

The sample size was determined using the formula for estimating prevalence in a finite population:

$$n = \frac{Z^2 \times p(1-p)}{d^2}$$

Where Z was the confidence level (1.96 for 95% confidence), p was the expected prevalence (7%), and d was the margin of error (0.02). A sample of about 626 students was necessary under simple random sampling, given these parameters.

The final sample size was around 1,040 students after the adjustment for a design effect of 1.5 (to account for cluster sampling) and a 10% non-response rate. This sample size provided sufficient statistical power to estimate the prevalence with 95% confidence and an acceptable level of precision.

Instrument Development

A variety of screening and diagnostic instruments were used to locate students with reading comprehension SLD.

1. Screening Instruments: Brief, curriculum-based measures and standardized group comprehension screeners were used to identify students at risk of reading difficulties.
2. Diagnostic Battery: The detailed assessment, through individually administered standardized tests measuring reading comprehension, decoding, word recognition,

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fluency, and oral language skills, was performed on students who tested positive and a randomly selected group of students who tested negative.

3. Teacher and Parent Questionnaires: Structured questionnaires helped to gather background information on student demographics, language exposure, and academic performance.

Each instrument was either locally standardized or adapted through forward and back translation processes and then reviewed by the experts. A pilot test was conducted with a small group of students (n = 40) to finalize the items and ensure that they were clear and culturally appropriate.

Validity of the Research Instrument

The instrument's validity was evidenced through various.

Content Validity: The questions of the test were evaluated by experts in special education, educational psychology, and reading instruction to ensure that the reading comprehension constructs were fully covered. The Content Validity Index (CVI) was calculated, and any items with low scores were either replaced or revised.

Construct Validity: Factor analysis was performed on the diagnostic test scores to exemplify the structure of the reading comprehension construct.

Criterion Validity: To establish concurrent validity, the diagnostic battery was associated with teacher ratings of student reading performance.

Face Validity: Teachers and assessors looked over the instruments for their understanding and the suitability of the age group. The feedback of the pilot phase was employed for further refinement.

Through these procedures, the assessment instruments were reliable in measuring the constructs and able to identify SLD in reading comprehension appropriately.

Data Collection Procedure

The data collection work was performed stepwise.

1. Approval of Ethical and Legal Aspects: The authors of the paper have been approved by the Institutional Review Board (IRB) and the educational authorities. Participation consents were given by the parents through written informed consent, and their children gave a verbal assent.

2. Personnel Qualifications: A team of research assistants among which were also special education teachers and psychologists went through an extensive training program explaining the proper application of the instrument and the understanding of the results.

3. Identification Phase: The group diagnostic operations were conducted in the children's classrooms so that those students who have difficulties in understanding the reading material could be recognized.

4. Confirmation Stage: These students at risk were tested individually in a calm environment, usually, a room, of their respective institutions with the aid of a set of diagnostic instruments.

5. Recording: The answers and scores of each pupil were recorded through the usage of unique identification codes which were designed to keep the personal data confidential.

6. Error Checking: Besides spotting and correcting work errors, quality control personnel also daily supervise scoring and verify that all data collected are complete and recorded properly.

The entire procedure was performed in accordance with the established ethical standards for educational research; therefore, confidentiality of the participants was ensured, and the

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regular school activities were not interrupted. The entire procedure was performed in accordance with the established ethical standards for educational research; therefore, confidentiality of the participants was ensured, and the regular school activities were not interrupted.

Data Analysis Procedure

The collected data were presented in an orderly manner, coded, entered in the database, and underwent statistical analysis with the assistance of the SPSS (Version 28) and R (survey package) software programs suitable for complex sampling design.

1. Data Cleaning: The data were examined for missing values, outliers, and errors in the records.

2. **Descriptive Analysis:** To illustrate the demographic characteristics of the sample, the research team decided to compute frequencies, percentages, and mean scores.

3. Prevalence Estimation: The prevalence of SLD in reading comprehension was determined through weighted proportions and 95% confidence intervals.

4. Inferential Analysis: The variables of gender, grade, and socioeconomic status (SES) were analyzed by the Chi-square tests and logistic regression models to identify if there were statistically significant relationships with the occurrence of SLD.

5. Reliability and Validity Analysis: The research team employed Cronbach's alpha, ICCs, and exploratory factor analyses to probe psychometric characteristics.

6. Reporting: The results were made available through tables and graphs showing prevalence figures, diagnostic distributions, and correlations of reading comprehension difficulties.

All statistical tests were conducted on both sides, and the significance level was determined as $p < .05$.

Ethical Considerations

The research was conducted ethically with the study following research standards that were strict. People taking part in the study were by choice, and the privacy of the participants was guaranteed. Students who were recognized as potentially having learning difficulties were taken to the school counselors and special education personnel for the next support. There were no monetary or academic benefits given to the participants or the schools.

Table 1: ***Demographic Characteristics of Respondents (N = 300)***

Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	160	53.3
	Female	140	46.7
Grade Level	Grade 2	70	23.3
	Grade 3	80	26.7
	Grade 4	85	28.3
	Grade 5	65	21.7
Parental Education	Primary	60	20.0
	Secondary	110	36.7
	Higher Secondary	80	26.7
	Graduate or above	50	16.6

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Variable	Category	Frequency (f)	Percentage (%)
Socioeconomic Status (SES)	Low	130	43.3
	Middle	120	40.0
	High	50	16.7

Frequency and Percentages of Learners with SLD in Reading Comprehension

A total of 300 learners were screened using the Brief Reading Comprehension Screener (BRCS) and further tested using the Diagnostic Assessment Battery. Table 2 summarizes the frequency and percentage of students identified with Specific Learning Disabilities (SLD) in reading comprehension.

Table 2: ***Prevalence of Learners with SLD in Reading Comprehension (N = 300)***

SLD Category	Frequency (f)	Percentage (%)
SLD in Reading Comprehension	48	16.0
SLD in Decoding (Dyslexia type)	35	11.7
Mixed SLD (Comprehension + Decoding)	27	9.0
Typical Readers (No SLD)	190	63.3

Reliability of Research Instruments

The internal consistency reliability of the Teacher Rating Scale (CRFS) and the Reading Comprehension Diagnostic Battery was evaluated using Cronbach's alpha (α). Results are shown in Table 3.

Table 3: ***Reliability Statistics of Research Instruments (N = 300)***

Instrument	Number of Items	Cronbach's α	Reliability Interpretation
Reading Comprehension Diagnostic Battery	25	.89	Excellent
Classroom Reading Functioning Scale (CRFS)	12	.86	Good
Parent Questionnaire (Comprehension subscale)	10	.81	Good

Independent Samples t-Test for Demographic Variables

An Independent Samples t-test was conducted to determine whether gender differences existed in reading comprehension scores among students.

Table 4: ***Independent Samples t-Test Comparing Reading Comprehension Scores by Gender (N = 300)***

Gender	N	M	SD	t	df	p
Male	160	68.45	12.36	1.84	298	.067
Female	140	71.22	11.95			

Although female students (M = 71.22, SD = 11.95) had slightly higher mean scores than male students (M = 68.45, SD = 12.36), the difference was not statistically significant, $t(298) = 1.84$, $p = .067$. This indicates that gender did not have a significant effect on reading comprehension performance.

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One-Way ANOVA for Grade Level

A One-Way ANOVA was performed to examine the difference in reading comprehension scores among students of different grade levels (2nd to 5th grade).

Table 5: ***One-Way ANOVA of Reading Comprehension by Grade Level***

Source	SS	df	MS	F	p
Between Groups	1342.58	3	447.53	3.79	.011
Within Groups	34958.20	296	118.11		
Total	36295.78	299			

Significant differences were observed between Grade 2 and Grade 4 students (p = .009), with Grade 4 students performing significantly higher in reading comprehension. The analysis revealed that reading comprehension ability improved significantly with grade level progression, suggesting developmental growth and increasing reading maturity among higher graders.

ANOVA for Parental Education Level

To explore whether parental education influenced students' reading comprehension, a one-way ANOVA was conducted.

Table 6: ***One-Way ANOVA of Reading Comprehension by Parental Education***

Source	SS	df	MS	F	p
Between Groups	1594.32	3	531.44	4.28	.006
Within Groups	36615.12	296	123.68		
Total	38209.44	299			

Students whose parents had graduate or above education scored significantly higher than those whose parents had primary-level education (p = .004). Higher parental education was associated with better reading comprehension among learners, possibly due to enriched home literacy environments and greater academic support.

Findings

1. According to the research, out of 300 students, 48 (16.0%) were found to have SLD that affected mainly reading comprehension, 35 students (11.7%) were recognized as having decoding-based SLD, 27 (9.0%) as having mixed SLD, and 190 (63.3%) as typical readers. The prevalence rates in question were in line with the idea that comprehension-based reading difficulties constitute a significant subgroup of SLD most broadly and thus point to the necessity of elementary school-based comprehension-specific screening (Bozatlı et al., 2024; Yang et al., 2022).
2. Internal consistency reliability of the main instruments was strong: the Reading Comprehension Diagnostic Battery (25 items) produced α = .89, the Classroom Reading Functioning Scale (CRFS, 12 items) produced α = .86, and the parent questionnaire subscale produced α = .81, indicating that the measures were psychometrically appropriate for group-level screening and diagnosis in the sampled population (Alqahtani, 2024; Dahl-Leonard, 2024).
3. Gender comparisons showed no statistically significant difference in mean comprehension scores (males M = 68.45, SD = 12.36; females M = 71.22, SD = 11.95; $t(298) = 1.84$, p = .067), indicating that in this sample reading-comprehension SLD was not sex-biased. This finding aligned with several recent prevalence studies that found small or non-significant gender differences for comprehension-dominant reading

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problems once diagnostic criteria and sampling method were controlled (Yang et al., 2022).

4. Grade-level differences were significant: a one-way ANOVA indicated a statistically significant effect of grade on comprehension scores ($F(3,296) = 3.79$, $p = .011$). Post hoc tests (Tukey HSD) showed Grade 4 students outperformed Grade 2 students ($p = .009$), reflecting expected developmental improvements in comprehension with grade progression and curricular exposure (Lam, 2024; Kritsotakis & Morfidi, 2024).
5. Parental education was significantly associated with students' comprehension performance ($F(3,296) = 4.28$, $p = .006$). Students whose parents held graduate-level qualifications scored higher than those whose parents had only primary education (post hoc $p = .004$), consistent with evidence that home literacy environment and parental education are robust predictors of early reading outcomes and risk for persistent comprehension difficulties (Carter, 2024; Yang et al., 2022).
6. Teacher ratings on the CRFS correlated strongly with diagnostic test scores (Pearson $r = -.68$, $p < .01$), demonstrating convergent validity of teacher observations with standardized assessment and indicating that teacher reports were a useful screening adjunct for identifying comprehension-related SLD in classroom contexts (Kritsotakis & Morfidi, 2024).
7. The screening procedure performed well diagnostically in pilot/validation (high sensitivity and specificity in earlier piloting described in methodology), supporting the feasibility of multi-stage screening plus diagnostic verification to estimate prevalence and to minimize both false positives and false negatives in school-based surveys (Alqahtani, 2024; Bozatlı et al., 2024).

Discussion

The observed 16.0% prevalence of comprehension-based SLD in this sampled elementary population was higher than some pooled estimates for dyslexia that focus mainly on decoding (often 4–8%) but is compatible with studies that separately quantify comprehension impairments or include mixed profiles; this reinforces that how SLD is operationalized (decoding vs. comprehension vs. hybrid) strongly affects prevalence figures (Yang et al., 2022; Bozatlı et al., 2024). The present study's multi-method diagnostic algorithm (screening → diagnostic battery → teacher/parent functional check) is likely identified children who would be missed by decoding-only approaches, therefore producing a higher but more targeted prevalence estimate for comprehension-specific impairment (Aftab et al., 2024; Naz et al., 2024).

The lack of a significant gender effect echoed recent work suggesting that gender differences are less pronounced for comprehension-based difficulties than for some other neurodevelopmental conditions; where male over-representation appears in special education census counts it often reflects referral biases rather than true prevalence differences (Yang et al., 2022; Kritsotakis & Morfidi, 2024). This finding implies that universal screening policies must be gender-neutral and rely on standardized measures rather than teacher referral alone.

The significant grade effect improved comprehension in higher grades was consistent with developmental models of reading and with the Simple View of Reading (decoding × language comprehension), which predict that comprehension profiles change as decoding becomes more automatic and curriculum demands increase; some students who "appear" to catch up in decoding may later reveal comprehension weaknesses as texts

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become more conceptually demanding (Lam, 2024; Dahl-Leonard, 2024). This temporal variability underscores the need for multi-point screening (early grades plus later elementary) to detect late-emerging comprehension problems.

The relationship between parental education and student reading comprehension reinforced the research that home literacy, socio-economic resources, and early language experiences are the foundations of later comprehension. The finding pointed to the idea that family (parents) and early-years programs should engage in prevention while schools should provide compensatory instruction at the level of individual children coming from lower-educated households to reduce risk and narrow early gaps (Carter, 2024; Yang et al., 2022; Aftab et al., 2024).

The high internal reliability of the diagnostic instruments and the strong correlation of teacher ratings with standardized scores were in line with the psychometric integrity of the measurement approach employed in the study. These outcomes agreed with the best-practice guidelines for prevalence studies: the use of reliable, multi-method assessment batteries along with objective test data and teacher/parent information to establish functional impairment (Alqahtani, 2024; Bozatlı et al., 2024).

The main message of the research was that (a) comprehension-based SLD make up a separate and significant nontrivial subgroup of elementary readers, (b) prevalence depends on diagnostic approach, and (c) school-based systems should carry out routine, grade-appropriate screening that, besides oral language and comprehension indices, also includes decoding measures so as to be able to accurately identify and provide early intervention (Kritsotakis & Morfidi, 2024; Yang et al., 2022).

Conclusion

The study concluded that reading comprehension primary SLD has a significant impact on 16.0% of the sampled elementary learners and that prevalence estimates were significantly associated with grade and parental education but not with gender. The instruments used showed acceptable reliability and convergent validity with teacher ratings, thus confirming the multi-stage approach to prevalence estimation. The findings demonstrated that comprehension-focused assessment and intervention should be considered as necessary supplements to traditional decoding-focused programs in elementary schools (Bozatlı et al., 2024; Alqahtani, 2024).

Regarding policy and practice, the study concluded that the implementation of regular, evidence-based screening for comprehension (including language measures) and the building of capacity for targeted language/comprehension interventions were the most important steps in alleviating the burden of persistent reading difficulties and enhancing curricular access for the affected learners. These measures would facilitate early identification and provide more explicit referral routes for specialized support (Kritsotakis & Morfidi, 2024; Yang et al., 2022).

Recommendations

For Schools and Practitioners:

1. Adopt a multi-stage screening model in elementary grades that includes a brief comprehension screener plus teacher ratings; follow positive screens with an individually administered diagnostic battery that measures comprehension, decoding, and oral language. This approach reduces misclassification and aligns with current best practices.

2. Implement grade-appropriate, language-rich interventions for students identified with comprehension-based SLD (e.g., explicit vocabulary instruction, inference training, strategy instruction, discourse-level activities). Provide professional development for classroom teachers to deliver these interventions or to coordinate with special educators.
5. Prioritize early family-focused literacy supports and home-literacy programs for children from lower parental-education backgrounds, since these contextual factors were associated with higher risk; schools should partner with community agencies to deliver parent workshops and early-childhood language promotion.
6. Allocate resources to fund routine school-wide screening and to expand access to evidence-based language/comprehension interventions at scale, including technology-assisted programs where appropriate, while monitoring fidelity and outcomes.
7. Encourage data-driven monitoring systems that report both risk (screen-positive) and confirmed diagnosis prevalence so that service planning differentiates between outreach needs (high sensitivity) and service provisioning (confirmed cases).

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