

Review Article

The Prevalence of Learning Disabilities among Elementary School Children in Iran from 1990 to 2025: Systematic Review and Meta-Analysis

Aynaz Holakouee¹, Alireza Aghaz^{2*}, Roya Mokhtari Fard³

1. Psychology and Education of Exceptional Children, Faculty of Psychology and Educational Sciences, Allameh Tabatabaei University, Tehran, Iran
2. Department of Speech Therapy, School of Rehabilitation Sciences, Isfahan University of Medical Sciences, Isfahan, Iran.
3. Psychology of Exceptional Children, School of Educational Sciences, Islamic Azad University of Isfahan (Khorasgan), Isfahan, Iran.

* **Corresponding Author:** Alireza Aghaz, MSc.

Department of Speech Therapy, School of Rehabilitation Sciences, Isfahan University of Medical Sciences, Isfahan, Iran.

Tel: +98 (919) 8958129

Email: a.aghaz@rehab.mui.ac.ir

Aghaz93@gmail.com

ORCID ID:

Aynaz Holakouee: 0000-0002-9074-5393

Alireza Aghaz: 0000-0002-6183-0214

Roya Mokhtari Fard: 0009-0004-4282-4283

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Running Title: Prevalence of Learning Disabilities in Iran

Abstract

Background: Learning disabilities (LDs) are among the most common developmental and educational challenges faced by school-age children worldwide. This systematic review and meta-analysis aimed to provide a pooled estimate of the prevalence of all types of learning disabilities in elementary school students in Iran.

Material and Methods: A comprehensive systematic search was performed in the international and national databases, including PubMed, Scopus, Web of Science, Google Scholar, Magiran, and SID, from 1990 to March 18, 2025. The quality of articles was evaluated by the Joanna Briggs Institute (JBI). All analyses in this study were performed using Comprehensive Meta-Analysis (CMA) software, version 3.0.

Results: A total of 32 studies, comprising 81363 students, were included. The pooled prevalence of LDs among elementary school children in Iran was 5.6% (boys 6.4% and girls 5%). The prevalence of LDs in first-, second-, third-, fourth-, fifth-, and sixth-grade students was 9.5%, 6.9%, 6.2%, 5.2%, 4.5%, and 3.1%, respectively. The pooled prevalence of dyslexia, dyscalculia, and dysgraphia was 5.4%, 4.3%, and 3.4%, respectively.

Conclusions: This systematic review and meta-analysis reveal that at least one in 20 Iranian students has a learning disability, and this rate rises to one in ten in early grades.

Keywords: Learning disabilities; Dyslexia; Dyscalculia; Dysgraphia; Prevalence; Students

Introduction

Learning disabilities (LDs) are among the most prevalent developmental and educational challenges faced by school-aged children and adolescents worldwide. According to the American Psychiatric Association, learning disorders are neurodevelopmental conditions that impede the acquisition and applying academic skills such as reading, writing, or arithmetic, despite adequate intelligence, appropriate schooling, and motivation (1, 2). These disorders are persistent, heterogeneous, and typically diagnosed during the early years of formal education. The most commonly recognized types of learning disabilities include dyslexia (reading disorder), dysgraphia (writing disorder), and dyscalculia (mathematical disorder) (3, 4). These conditions are academic and profoundly affect psychological well-being, self-esteem, and social participation (5).

The global prevalence of LDs varies significantly, ranging from 5% to 15% of the student population, depending on diagnostic criteria, age groups studied, cultural and linguistic factors, and the tools used for screening and assessment (6, 7). For instance, estimates tend to be more consistent in developed countries where standardized diagnostic protocols and inclusive education systems are well-established. However, in developing nations such as Iran, the identification and classification of learning disabilities often face considerable challenges. These include limited access to trained specialists, variability in teacher awareness, lack of culturally adapted diagnostic tools, and regional disparities in educational infrastructure (8-11).

In recent years, Iran has witnessed an increasing interest in learning disorders, both at the research and policy levels. Numerous studies have sought to explore the prevalence of learning disabilities among Iranian schoolchildren across various provinces (2, 12-14). Nevertheless, the reported findings are highly inconsistent. Some studies suggest learning disabilities prevalence of around 0.5% (15), while others report rates exceeding 20% (16) among elementary students. Also, the prevalence of various types of learning disorders has been reported to vary greatly based on gender, region, different grades, and diagnostic approach (2, 17-20). Similarly, estimates for dyslexia, dysgraphia and dyscalculia show considerable variation, with some regions reporting alarmingly high rates, raising concerns about diagnostic accuracy and underreporting in other areas (16, 20-22).

Another major issue is the lack of a unified national protocol for LD screening in Iran. Most available data are derived from cross-sectional studies with small, non-representative samples. Furthermore, many studies utilize teacher or parent reports, informal checklists, or non-standardized tests, which can introduce bias and undermine the reliability of prevalence estimates (23-26). These methodological discrepancies make it difficult to draw definitive conclusions or develop coherent national strategies for early identification and intervention.

Given the significant educational, emotional, and social consequences of untreated learning disabilities (5), an accurate estimate of their prevalence is vital for national planning, teacher training, and the development of intervention programs. A comprehensive synthesis of available

evidence can bridge the existing knowledge gap, guide resource allocation, and inform policy reforms aimed at inclusive education.

The present systematic review and meta-analysis was conducted to address these gaps by synthesizing the best available evidence on the prevalence of learning disabilities and their major subtypes—dyslexia, dysgraphia, and dyscalculia—among Iranian elementary school students. By integrating data from multiple studies across the country, this review aims to provide robust pooled estimates of prevalence and explore potential moderators such as gender and educational level. Accordingly, the research question guiding this study is: What is the pooled prevalence of learning disabilities and their major subtypes among Iranian elementary school students?

Materials and Methods

Study Design

The entire protocol for this study was designed and conducted as a systematic review and meta-analysis based on the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (27).

Search Strategy

A comprehensive literature search was performed to identify all relevant studies reporting the prevalence of learning disabilities and their subtypes in Iran. The following international and national electronic databases were systematically searched on March 18, 2025: PubMed, Scopus, Web of Science, Google Scholar, SID (Scientific Information Database), and Magiran. The search included articles published from January 1990 to March 2025.

The search terms were developed based on Medical Subject Headings (MeSH) and relevant keywords, including:

“("learning disabilities" OR "learning disability" OR "learning disorders" OR "specific learning disorders" OR "dyslexia" OR "dysgraphia" OR "dyscalculia" OR "math disorder" OR "math disability" OR "mathematical disorder" OR "mathematical disability" OR "reading disorder" OR "reading disability" OR "writing disorder" OR "writing disability") AND ("prevalence" OR "incidence" OR "frequency" OR "epidemiology" OR "epidemiologic") AND ("Iran" OR "Persian" OR "Farsi")” We used Persian equivalent terms to search the national database. In addition, the reference lists of all included studies and relevant reviews were manually screened to identify any additional eligible studies.

Eligibility Criteria

Studies were included if they met the following criteria: 1) Population: Iranian students at any educational level (elementary grades), 2) Outcomes: Reporting the prevalence of learning disabilities or their specific subtypes (dyslexia, dysgraphia, dyscalculia), 3) Language: Articles published in English or Persian, 4) Accessibility: The full-text of the article is available.

Exclusion criteria were: Reviews, case reports, editorials, or conference papers. Studies conducted outside Iran. Studies without clear diagnostic criteria or insufficient prevalence data. Gray literature (thesis, reports) was excluded. Studies that did not specify the grade of education or the gender of students were excluded.

Study Selection

All identified records were imported into EndNote X9 software, and duplicates were removed. In addition, the reference lists of all included articles were manually reviewed to identify any further

relevant studies. Two independent reviewers (A.A & A.H) screened the titles and abstracts for eligibility. Full-texts of potentially relevant articles were retrieved and assessed independently by both reviewers. Disagreements were resolved through discussion.

Data Extraction

A standardized data extraction form was developed for this study. The following information was extracted from each included study: First author's name, year of publication, study location (province/city), sample size, educational level of participants, type of learning disability assessed, diagnostic tools, reported prevalence rates. Data extraction was performed independently by two reviewers. All studies were included regardless of prevalence.

Quality Assessment

The methodological quality of the included studies was assessed using a modified version of the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Prevalence Studies (28). This checklist evaluates potential sources of bias related to sample selection, measurement of outcomes, and statistical analysis. The methodological quality of the included studies was scored in percentages based on the JBI criteria. The Joanna Briggs Institute (JBI) Critical Appraisal Checklist items are as follows:

1. Was the sample frame appropriate to address the target population?
2. Were study participants sampled in an appropriate way?
3. Was the sample size adequate?
4. Were the study subjects and the setting described in detail?
5. Was the data analysis conducted with sufficient coverage of the identified sample?
6. Were valid methods used for the identification of the condition?
7. Was the condition measured in a standard, reliable way for all participants?
8. Was there appropriate statistical analysis?
9. Was the response rate adequate, and if not, was the low response rate managed appropriately?

Data Analysis

A meta-analysis was performed using Comprehensive Meta-Analysis (CMA) software, version 3.0. The effect size in this study was calculated based on the outcome of the event and sample size. Pooled prevalence rates with 95% confidence intervals (CIs) were calculated using a random-effects model due to expected heterogeneity between studies. Statistical heterogeneity was assessed using the I^2 statistic and Cochran's Q test. Subgroup analyses were conducted based on gender, educational level (1st–6th grade), and type of learning disability to explore potential sources of heterogeneity. Publication bias was evaluated using Egger's test and funnel plot symmetry.

Results

Study Selection

A total of 5830 records were initially identified through database searching, of which 5494 were duplicates. After removing duplicates, 366 articles remained for title screening. After title screening, 158 articles remained for abstract screening. Based on inclusion and exclusion criteria, 51 full-text articles were assessed for eligibility. Finally, 32 studies were included in the systematic review and meta-analysis. The study selection process is illustrated in the PRISMA flow diagram (Figure 1).

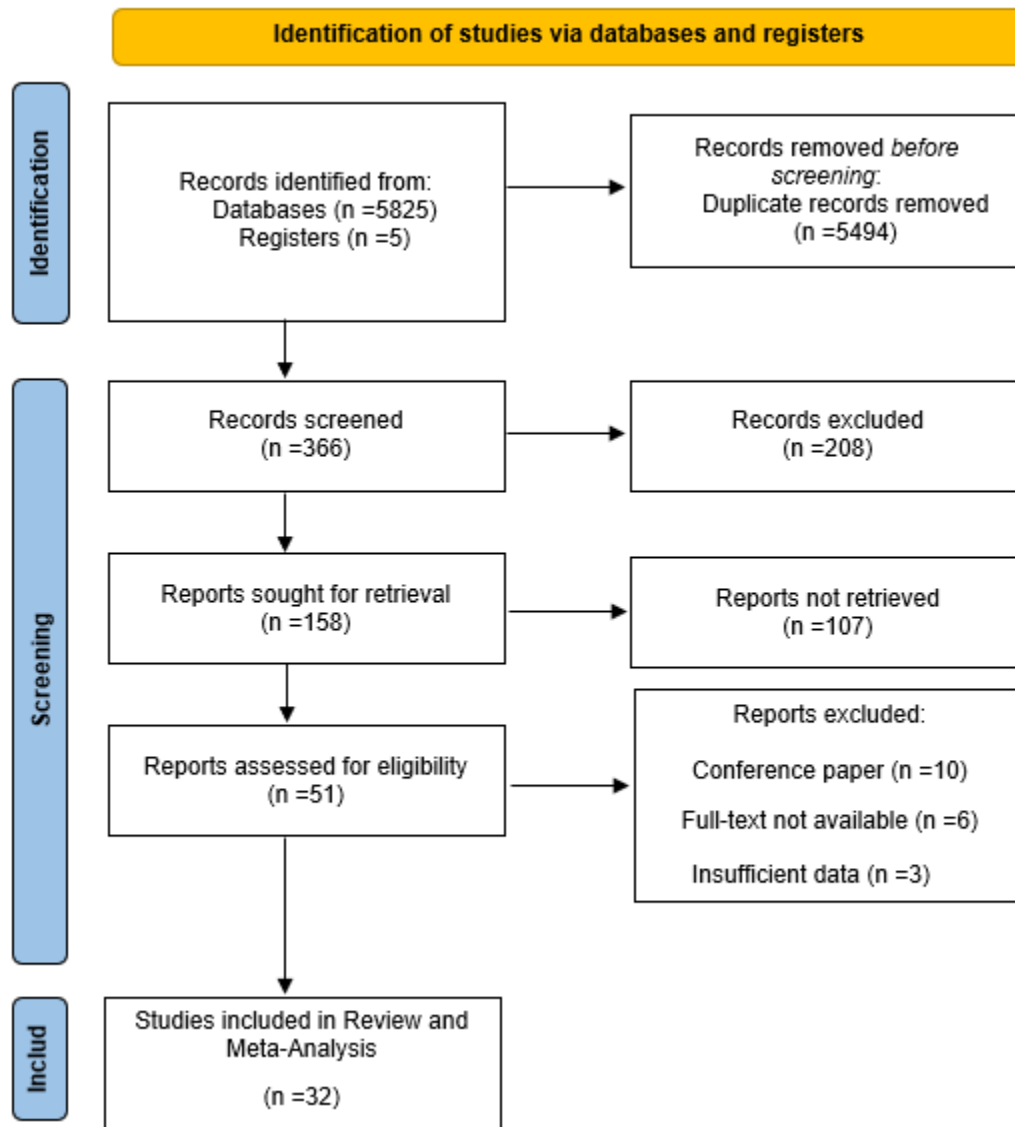


Figure 1. PRISMA Flow Diagram Illustrating the Study Selection Process for the Meta-analysis.

Methodological Quality of Included Studies

The methodological quality of the reviewed studies based on the JBI is reported in Table 1. Based on the percentage scoring in this table, the mean score of the articles reviewed in this study was 91.5% (Table 1). The design of all reviewed studies was cross-sectional.

Table 1. Methodological quality of studies based on the Joanna Briggs Institute

Study	1	2	3	4	5	6	7	8	9	Total Score (%)
Pashapour et al. (25)	+	+	+	+	+	-	-	+	+	78
Ramezani (22)	+	+	+	+	+	+	+	+	+	100
Shahbodaghi (23)	+	+	+	+	+	-	-	+	+	78
Shahniyeylaq et al. (29)	+	+	+	+	+	+	+	+	+	100
Narimani et al. (30)	+	+	+	+	+	+	+	+	+	100
RahimianBougar et al. (31)	+	+	+	+	+	+	+	+	+	100
Berahmand et al. (32)	+	+	+	+	+	+	+	+	+	100
Mohammadyfar et al. (33)	+	+	+	+	+	+	+	+	+	100
Sharifi et al. (34)	+	+	+	+	+	+	+	+	+	100
Sedaghati et al. (21)	+	+	-	+	+	+	+	+	+	88
Hosseinaee et al. (18)	+	+	+	+	+	+	+	+	+	100
Shaghaghi (35)	+	+	-	-	+	+	+	+	+	78
Pouretmad et al. (24)	+	+	+	+	+	+	+	+	+	100
Mihandoost (26)	+	+	+	+	+	+	+	+	+	100
Alipoor et al. (12)	+	+	+	-	+	+	+	+	+	88
Sharifi et al. (36)	+	+	+	+	+	+	+	+	+	100
Talepasand et al. (15)	+	+	+	+	+	+	+	+	+	100
Nojabae et al. (37)	+	+	+	+	+	-	-	+	+	78
Abtahi (16)	+	+	-	+	+	-	-	+	+	67
Khodadadi et al. (17)	+	+	+	-	+	-	+	+	+	78
Eslami et al. (20)	+	+	+	+	+	+	+	+	+	100
Ghorbanibirgani (38)	+	+	+	+	+	+	+	+	+	100
Zare Bahramabadi et al. (39)	+	+	+	+	+	+	+	+	+	100
Moinalghorabaie et al. (40)	+	+	+	+	+	+	+	+	+	100
Hakim et al. (41)	+	+	+	+	+	+	+	+	+	100
Arab Ameri et al. (13)	+	+	+	+	+	-	-	+	+	78
Yavari et al. (42)	+	+	+	+	+	-	-	+	+	78
Echreshavi et al. (14)	+	+	+	+	+	+	+	+	+	100
Tajrishi et al. (43)	+	+	-	+	+	+	+	+	+	88
Yousefi et al. (44)	+	+	+	+	+	+	+	+	+	100
Ansari et al. (45)	+	+	-	-	+	+	+	+	+	78
Gholamiyan et al. (19)	+	+	+	+	+	-	-	+	+	78
Total (%)	100	100	84.4	87.5	100	75	78	100	100	91.5

Based on the scores in this table, most of the JBI items (5 items) received full scores in all the reviewed studies. In this study, as we sought an accurate estimate of prevalence, we assigned negative scores to studies with sample sizes of fewer than 300 students in item 3 of the JBI. The lowest score of the articles reviewed in this study was related to the validity and reliability of the

instruments used in the studies. Because most Iranian studies do not comply with copyright laws, some studies had to use researcher-made instruments, which reduced the scores of these articles.

Characteristics of Included Studies

The 32 included studies were conducted across various provinces of Iran, covering both urban and rural areas. In this study, we had data from 19 provinces (61%) of Iran, which in detail are: from the provinces of Ahvaz, Qom, Chaharmahal and Bakhtiari, and Alborz, we had 3 articles each, from Tehran, Ardabil, Isfahan, Markazi, and Kerman, we had 2 articles each, and from the other provinces, we had 1 article each West Azerbaijan, Shiraz, Zanzan, Gilan, South Khorasan, Hamedan, North Khorasan, Semnan, Razavi Khorasan, Ilam.

The publication years ranged from 2000 to 2022, with sample sizes varying between 123 and 34961 participants. All studies were conducted on elementary school students. Different diagnostic tools were used, including standardized tests, teacher reports, and clinical assessments. No studies with a prevalence above 30% were identified. One study reported a prevalence of 20%, but its contribution to the pooled estimate was small because of its limited sample size. A detailed summary of study characteristics is presented in **Table 2**.

Meta-analysis results

Pooled Prevalence of Learning Disabilities

The prevalence of learning disabilities was analyzed in a total of 29 reviewed articles on 77951 elementary school students, of which 51.6% (40224 students) were male students and 48.4% (37695 students) were female students. The pooled prevalence of learning disabilities among Iranian elementary school students was estimated at 5.6% (95%CI:4.5%–7.1%) based on the random-effects model due to significant heterogeneity across studies ($I^2 = 95.8\%$, $p < 0.001$) (Figure 2). The prevalence of learning disorders in boys and girls elementary school students was 6.4% (95%CI:4.6%-8.7%) and 5% (95%CI:3.6%-6.9%), respectively, as shown in Figures 2 and Figure 6.

To calculate the prevalence of learning disorders in different grades, the results of 27 articles (71791 elementary school students) were reviewed, with the number of students the first, second, third, fourth, fifth, and sixth grades was 3412, 14588, 16665, 18036, 17471, and 731, respectively. The overall pooled prevalence of LDs among Iranian elementary school students was estimated at 9.5% in first grade, 6.9% in second grade, 6.2% in third grade, 5.2% in fourth grade, 4.5% in fifth grade, and 3.1% in sixth grade (Table 3 and Figure 7).

Meta Analysis

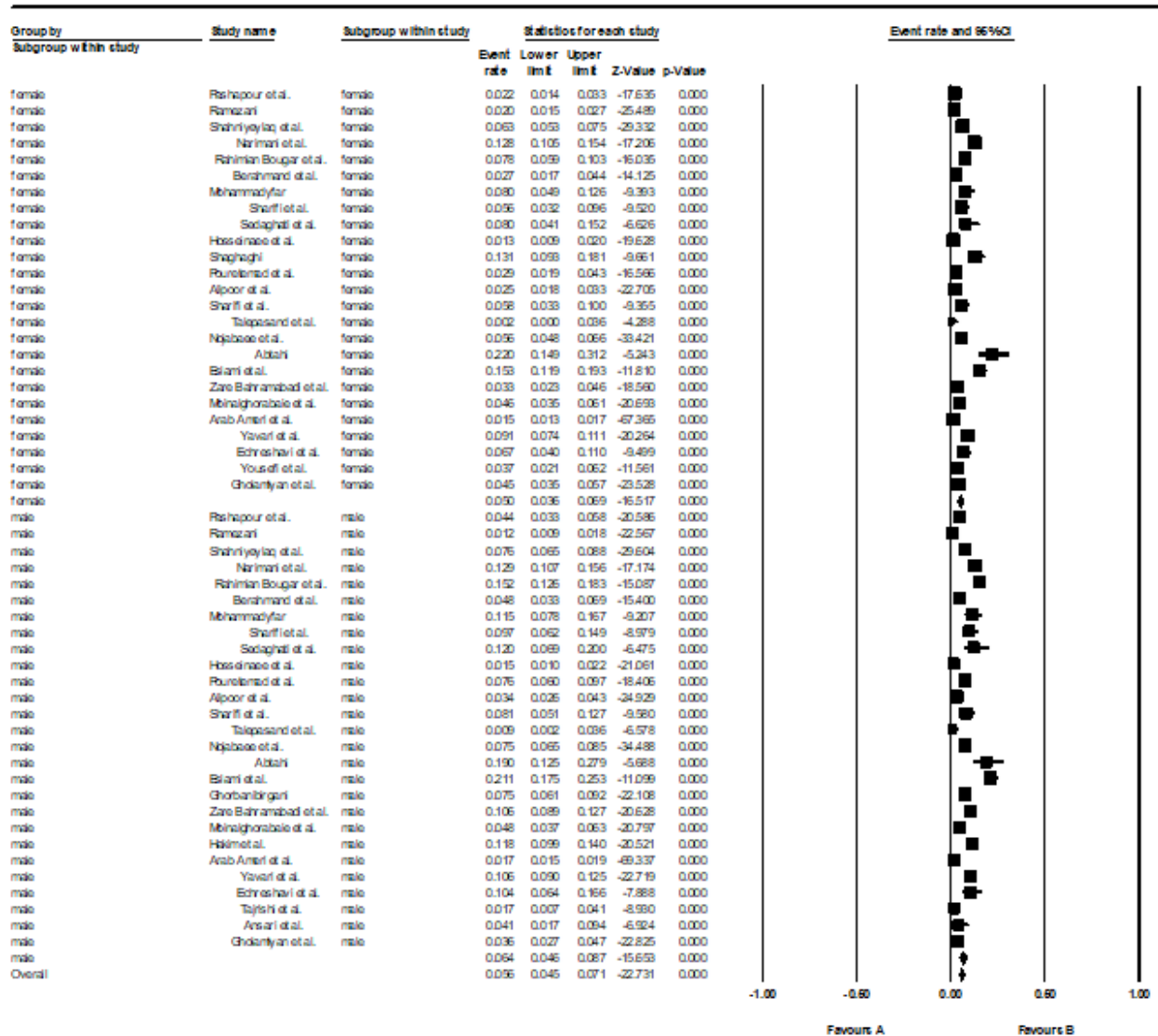


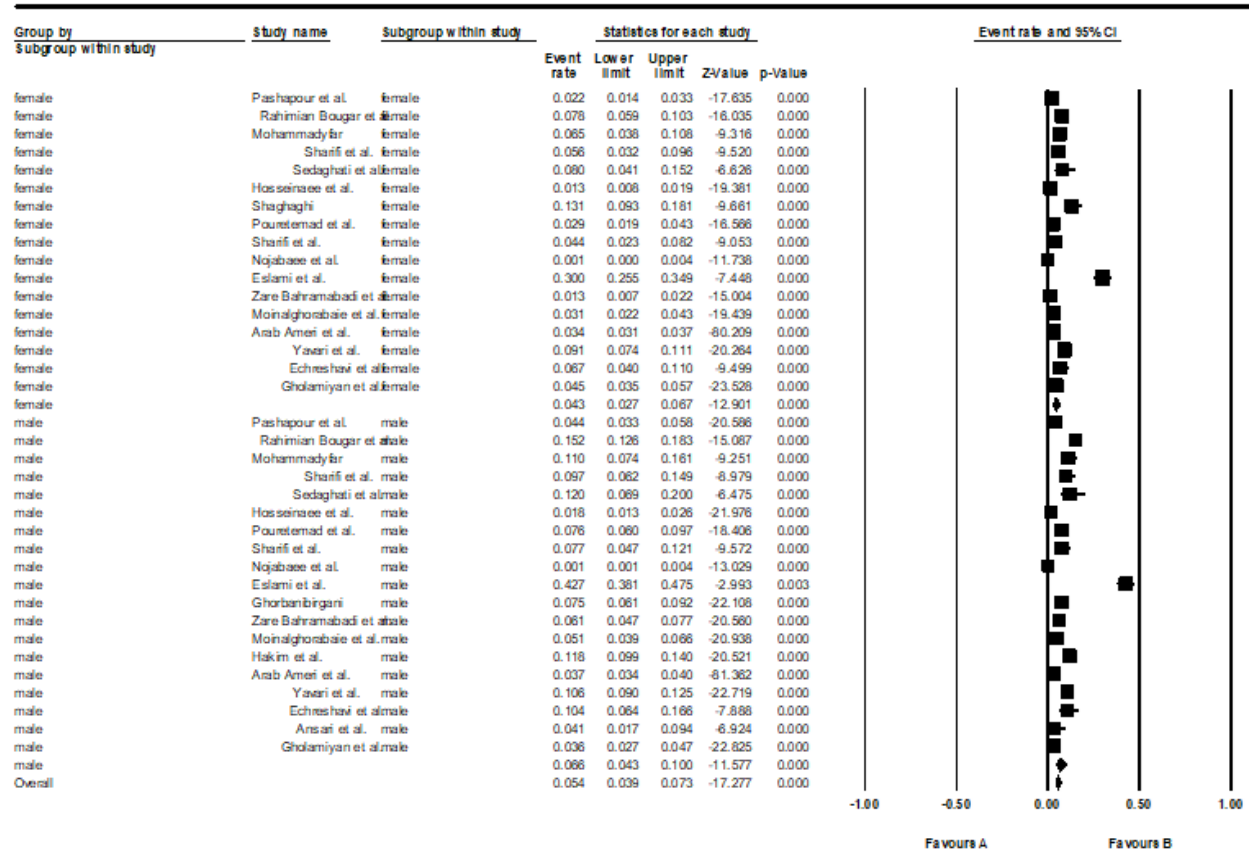
Fig. 2. The prevalence of learning disabilities in Iranian elementary students

Pooled Prevalence of Dyslexia (Reading Disorder)

The prevalence of dyslexia was analyzed in a total of 20 reviewed articles on 62445 elementary school students, of which 52% (32463 students) were male students and 48% (29949 students) were female students. The pooled prevalence of dyslexia among Iranian elementary school students was estimated at 5.4% (95% CI:3.9%–7.3%) based on the random-effects model due to significant heterogeneity across studies ($I^2 = 98.09\%$, $p < 0.001$). The prevalence of reading disorder in boys and girls elementary school students was 6.6% (95%CI:3.9%-7.3%) and 4.3% (95%CI:2.7%-6.7%), respectively, as shown in Figures 3 and Figure 6.

To calculate the prevalence of reading disorders in different grades, the results of 18 articles (61165 elementary school students) were reviewed, with the number of students in first, second, third, fourth, and fifth grades was 3412, 13198, 15551, 13746, and 13844, respectively. The pooled prevalence of dyslexia among Iranian elementary school students was estimated at 9.7% in first

grade, 7.5% in second grade, 5.7% in third grade, 4.7% in fourth grade, and 3.8% in fifth grade (Table 3 and Figure 7).



Meta Analysis

Fig. 3. The prevalence of dyslexia in Iranian elementary students

Pooled Prevalence of Dysgraphia (Writing Disorder)

The prevalence of dysgraphia was analyzed in a total of 8 reviewed articles on 51334 elementary school students, of which 50.2% (25788 students) were male students and 49.8% (25547 students) were female students. The pooled prevalence of dysgraphia among Iranian elementary school students was estimated at 3.4% (95% CI: 2.4%–4.7%) based on the random-effects model due to significant heterogeneity across studies ($I^2 = 87.4\%$, $p < 0.001$). The prevalence of writing disorder in boys and girls elementary school students was 3.7% (95%CI:2.3%- 6.1%) and 3% (95%CI:1.9%-4.8%), respectively, as shown in Figures 4 and Figure 6.

To calculate the prevalence of writing disorders in different grades, the results of 7 articles (47334 elementary school students) were reviewed, with the number of students in first, second, third, fourth, and fifth grades was 1250, 10425, 11101, 11915, and 12238, respectively. The pooled prevalence of dysgraphia among Iranian elementary school students was estimated at 2.4% in first grade, 3.3% in second grade, 3.4% in third grade, 4% in fourth grade, and 1.9% in fifth grade (Table 3 and Figure 7).

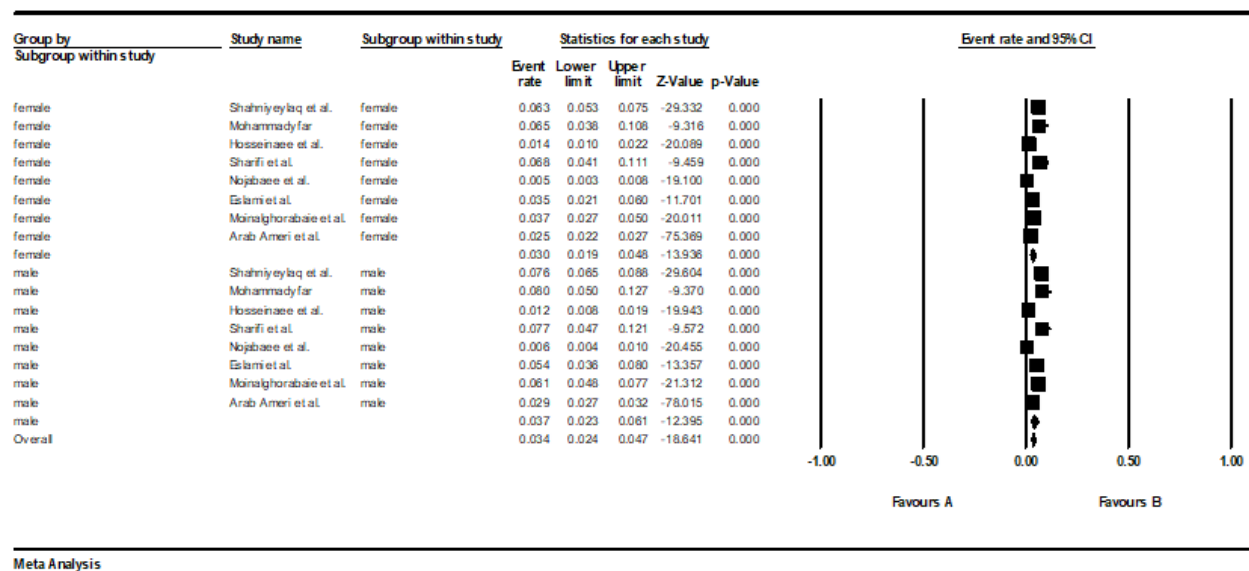


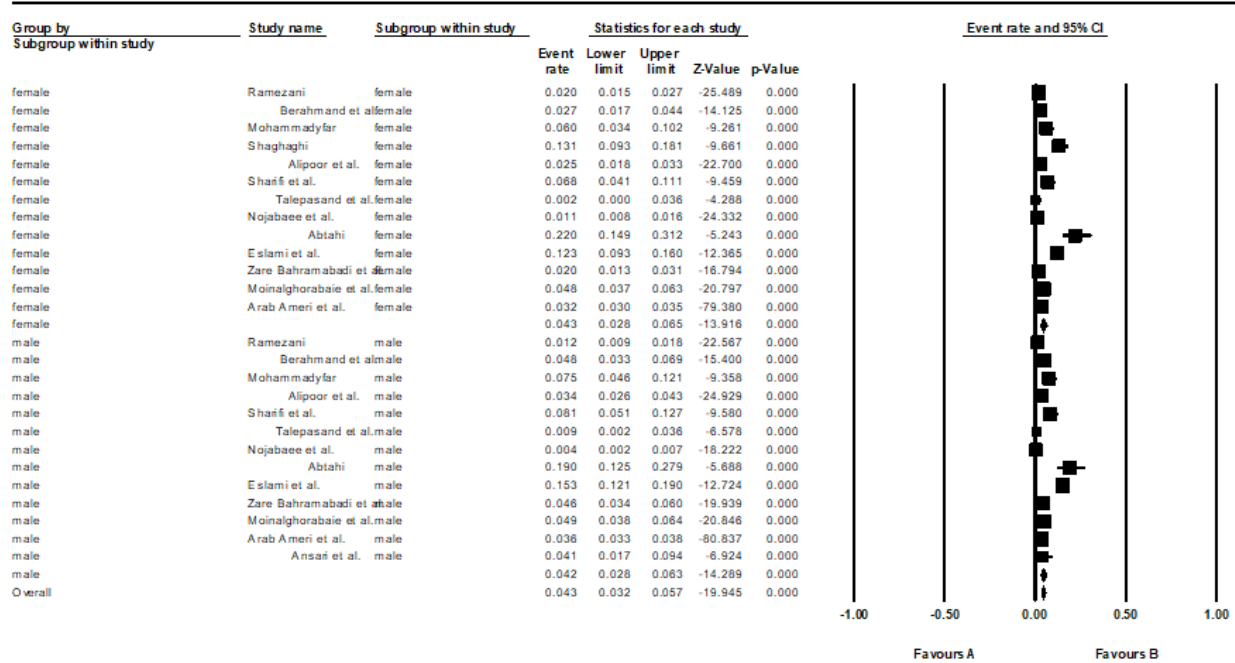
Fig. 4. The prevalence of dysgraphia in Iranian elementary students

Pooled Prevalence of Dyscalculia (Mathematics Disorder)

The prevalence of dyscalculia was analyzed in a total of 14 reviewed articles on 55768 elementary school students, of which 50.4% (27958 students) were male students and 49.6% (27810 students) were female students. The pooled prevalence of dyscalculia among Iranian elementary school students was estimated at 4.3% (95%CI:3.2%–5.7%) based on the random-effects model due to significant heterogeneity across studies ($I^2 = 95.7\%$, $p < 0.001$). The prevalence rates of mathematics in boys and girls elementary school students were 4.2% (95%CI:2.8%–6.3%) and 4.3% (95%CI:2.8%–6.5%), respectively, as shown in Figures 5 and Figure 6.

To calculate the prevalence of mathematics disorders in different grades, the results of 11 articles (51998 elementary school students) were reviewed, with the number of students in first, second, third, fourth, and fifth grades being 1250, 11815, 10479, 14191, and 13857, respectively. The pooled prevalence of dyscalculia among Iranian elementary school students was estimated at 2.5% in first grade, 4.2% in second grade, 4.9% in third grade, 3.4% in fourth grade, and 3.7% in fifth grade (Table 3 and Figure 7).

Meta Analysis



Meta Analysis

Fig. 5. The prevalence of dyscalculia in Iranian elementary students

There was considerable heterogeneity observed within each subtype analysis ($I^2 > 80\%$, $p < 0.001$). Heterogeneity across studies was quantified using Cochran's Q-test and I^2 statistics. Subgroup analyses showed different prevalence rates according to grade level and gender, suggesting that part of the observed heterogeneity is related to these factors. Although meta-regression was not performed due to limited data, potential sources of heterogeneity are discussed, including variations in diagnostic instruments, study settings, population characteristics, and regional differences.

Publication Bias

Egger's regression test was used to assess publication bias, and the results indicated significant publication bias ($p = 0.03$). However, no publication bias correction method (e.g., trim-and-fill) was applied, which may affect the interpretation of the pooled estimate.

Table 2. Characteristics of Included Studies

Study	Location & date	Grade	Sample size (n)	Sex (male)	Diagnostic method	Prevalence of Math	Prevalence of Reading	Prevalence of Writing	Prevalence of Learning
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						Disorder (%)	Disorder (%)	Disorder (%)	disorder (%)
Pashapour et al. (25)	Urmieh 2000	3 rd	2067	1061	RLDT	-	Total: 3.33 Boy: 4.43 Girl: 2.18	-	Total: 3.33 Boy: 4.43 Girl: 2.18
Ramezani (22)	Tehran 2002	4 th 5 th	4341	2162	WISC IKMT DSMIV	Total: 1.63 4 th : 1.47 5 th : 1.77 Boy: 1.24 Girl: 2.01	-	-	Total: 1.63 4 th : 1.47 5 th : 1.77 Boy: 1.24 Girl: 2.01
Shahbodaghi (23)	Tehran 2002	1 st 2 nd 3 rd 4 th 5 th	1010	Nr	Texts of educational books	-	Total: 1.58 1 st : 2.75 2 nd : 1.01 3 rd : 1.03 4 th : 0.99 5 th : 2.01	-	Total: 1.58 1 st : 2.75 2 nd : 1.01 3 rd : 1.03 4 th : 0.99 5 th : 2.01
Shahniyeylaq et al. (29)	Ahvaz 2002	3 rd 4 th	4000	2000	RPM Spelling test	-	-	Total: 6.95 Boy: 7.6 Girl: 6.3	Total: 6.95 Boy: 7.6 Girl: 6.3
Narimani et al. (30)	Ardabil 2005	3 rd 4 th 5 th	1440	720	WISC WADT MFT Researcher-made tests	-	-	-	Total: 13 3 rd : 13 4 th : 12.05 5 th : 15.15 Boy: 13 Girl: 12.8
Rahimian Bougar et al. (31)	Shahreza 2007	2 nd 3 rd 4 th 5 th	1184	598	WISC RLDT	-	Total: 11.57 2 nd : 19 3 rd : 7.66 4 th : 7.16 5 th : 7.9 Boy: 15.21 Girl: 7.84	-	Total: 11.57 2 nd : 19 3 rd : 7.66 4 th : 7.16 5 th : 7.9 Boy: 15.21 Girl: 7.84

Berahmand et al. (32)	Ardabil 2007	2 nd 3 rd 4 th 5 th	1171	581	Standardized set of math of Shalev	Total: 3.76 2 nd : 2.77 3 rd : 4.14 4 th : 3.65 5 th : 4.17 Boy: 4.82 Girl: 2.71	-	-	Total: 3.76 2 nd : 2.77 3 rd : 4.14 4 th : 3.65 5 th : 4.17 Boy: 4.82 Girl: 2.71
Mohammadyfar et al. (33)	Shiraz 2007	3 rd 4 th	401	200	MRS Mik-Bass Learning Disability Checklist Researcher-made tests	Total: 6.7 3 rd : 5.1 4 th : 8.3 Boy: 7.5 Girl: 5.5	Total: 8.7 3 rd : 7.6 4 th : 9.8 Boy: 11 Girl: 6.5	Total: 7.2 3 rd : 5.6 4 th : 8.8 Boy: 8 Girl: 6.5	Total: 9.7 3 rd : 7.6 4 th : 11.8 Boy: 11.5 Girl: 8
Sharifi et al. (34)	Shahrekord 2009	3 rd 4 th	400	185	RLDT	-	Total: 7.5 3 rd : 6.03 4 th : 8.95 Boy: 9.72 Girl: 5.58	-	Total: 7.5 3 rd : 6.03 4 th : 8.95 Boy: 9.72 Girl: 5.58
Sedaghati et al. (21)	Isfahan 2010	1 st 2 nd 3 rd 4 th 5 th	200	100	SRIT	-	Total: 10 1 st : 20 2 nd : 12.5 3 rd : 7.5 4 th : 7.5 5 th : 2.5 Boy: 12 Girl: 8	-	Total: 10 1 st : 20 2 nd : 12.5 3 rd : 7.5 4 th : 7.5 5 th : 2.5 Boy: 12 Girl: 8
Hosseinaee et al. (18)	Qom 2011	3 rd 4 th 5 th	3282	1696	RPM Learning Disabilities Symptoms Checklist	-	Total: 1.55 3 rd : 1.88 4 th : 2.2 5 th : 0.84 Boy: 1.82 Girl: 1.26	Total: 1.34 3 rd : 1.79 4 th : 1.62 5 th : 0.84 Boy: 1.23 Girl: 1.44	Total: 1.44 3 rd : 1.83 4 th : 1.91 5 th : 0.84 Boy: 1.52 Girl: 1.35
Shaghghi (35)	Khorramdarre 2011	2 nd 3 rd	229	0	CLDQ	Total: 13.1	Total: 13.1	-	Total: 13.1

Pouretemad et al. (24)	Qom 2011	1 st 2 nd 3 rd 4 th 5 th	1562	773	Analysis of Persian Reading Ability	-	Total: 5.24 1 st : 3.69 2 nd : 3.32 3 rd : 7.11 4 th : 6.06 5 th : 5.64 Boy: 7.63 Girl: 2.91	-	Total: 5.24 1 st : 3.69 2 nd : 3.32 3 rd : 7.11 4 th : 6.06 5 th : 5.64 Boy: 7.63 Girl: 2.91
Mihandoost (26)	Ilam 2011	3 rd 4 th 5 th	600	300	Researcher-made tests MFT WISC WADT	-	-	-	Total: 11.4 3 rd : 10.6 4 th : 11.5 5 th : 12.1 Boy: 4.82 Girl: 2.71
Alipoor et al. (12)	Qom 2011	3 rd 4 th 5 th	3282	1696	MLDDT RPM	Total: 2.93 Boy: 3.35 Girl: 2.49	-	-	Total: 2.93 Boy: 3.35 Girl: 2.49
Sharifi et al. (36)	ChaharMahal Bakhtiari 2012	1 st 2 nd	415	209	MLDDT Phonological awareness test; Spelling test	Total: 7.46 1 st : 6.9 2 nd : 7.5 Boy: 8.13 Girl: 6.79	Total: 6.02 1 st : 5.42 2 nd : 7.55 Boy: 8.13 Girl: 3.88	Total: 7.22 1 st : 6.89 2 nd : 7.55 Boy: 7.65 Girl: 6.79	Total: 6.9 1 st : 6.39 2 nd : 7.53 Boy: 7.97 Girl: 5.82
Talepasand et al. (15)	Karaj 2012	3 rd 4 th 5 th	432	216	RPM MFT WADT MRS IKMT	Total: 0.46 3 rd : 0 4 th : 0 5 th : 0.92 Boy: 0.92 Girl: 0	-	-	Total: 0.46 3 rd : 0 4 th : 0 5 th : 0.92 Boy: 0.92 Girl: 0
Nojabae et al. (37)	Rasht 2012	1 st 2 nd 3 rd 4 th 5 th	5362	2717	checklist of children characteristics with dyslexia IKMT WISC	Total: 0.76 1 st : 0.1 2 nd : 1.16 3 rd : 1.32 4 th : 0.44	Total: 0.13 1 st : 0.61 2 nd : 0 3 rd : 0.08 4 th : 0	Total: 0.54 1 st : 1.32 2 nd : 0.29 3 rd : 0.44 4 th : 0.17	Total: 6.56 1 st : 6.93 2 nd : 5.91 3 rd : 5.74 4 th : 6.08

						5 th : 0.72 Boy: 0.4 Girl: 1.13	5 th : 0 Boy: 0.14 Girl: 0.11	5 th : 0.54 Boy: 0.58 Girl: 0.49	5 th : 8.18 Boy: 7.47 Girl: 5.63
Abtahi (16)	Qayen 2012	2 nd	200	100	Researcher-made math test	Total: 20.56 Boy: 19.34 Girl: 21.78	-	-	Total: 20.56 Boy: 19.34 Girl: 21.78
Khodadadi et al. (17)	Arak 2013	2 nd 4 th	1802	NR	RPM IKMT DSMIV	Total: 1.27 2 nd : 0.87 4 th : 1.68	-	-	Total: 1.27 2 nd : 0.87 4 th : 1.68
Eslami et al. (20)	Kerman 2014	1 st 2 nd 3 rd 4 th 5 th	793	426	Reading, dictate and mathematics tests The teachers' survey of learning disability WISC	Total: 13.8 1 st : 7.5 2 nd : 31.8 3 rd : 26.8 4 th : 30 5 th : 50 Boy: 15.25 Girl: 12.3	Total: 36.9 1 st : 91 2 nd : 76.5 3 rd : 73.2 4 th : 71.7 5 th : 60.9 Boy: 42.7 Girl: 30	Total: 4.5 1 st : 0 2 nd : 3 3 rd : 15.9 4 th : 21.7 5 th : 13 Boy: 5.4 Girl: 3.55	Total: 18.4 1 st : 32.83 2 nd : 37.1 3 rd : 38.63 4 th : 41.13 5 th : 41.3 Boy: 21.11 Girl: 15.28
Ghorbanibirgani (38)	Ahvaz 2014	1 st 2 nd 3 rd 4 th 5 th 6 th	1116	1116	SRIT	-	Total: 7.52 Boy: 7.52 1 st : 9.89 2 nd : 20.48 3 rd : 7.52 4 th : 4.16 5 th : 3.09 6 th : 2.04	-	Total: 7.52 Boy: 7.52 1 st : 9.89 2 nd : 20.48 3 rd : 7.52 4 th : 4.16 5 th : 3.09 6 th : 2.04
Zare Bahramabadi et al. (39)	Hamedan 2014	1 st 2 nd 3 rd 4 th 5 th 6 th	1938	988	RLDT The Conners Parent Scale Clock Drawing Test IKMT	Total: 3.3 Boy: 4.55 Girl: 2 1 st : 0.45 2 nd : 0.61 3 rd : 0.41	Total: 3.72 Boy: 6.07 Girl: 1.26 1 st : 0.65 2 nd : 0.51	-	Total: 3.5 Boy: 5.42 Girl: 1.59 1 st : 0.55 2 nd : 0.56 3 rd : 0.4 4 th : 0.55 5 th : 0.6

						4 th : 0.5 5 th : 0.55 6 th : 0.71	3 rd : 0.4 4 th : 0.61 5 th : 0.66 6 th : 0.82		6 th : 0.76
Moinalghorab aie et al. (40)	North Khorasan 2015	2 nd 3 rd 4 th 5 th	2120	1060	MLDDT RPM Reading and Writing Disorder Diagnostic Test Researcher- made tests	Total: 6.09 2 nd : 1.13 3 rd : 9.8 4 th : 4.71 5 th : 3.77 Boy: 0.37 Girl: 1.88	Total: 3.39 2 nd : 6.22 3 rd : 3.58 4 th : 4.33 5 th : 2.26 Boy: 7.92 Girl: 4.52	Total: 4.71 2 nd : 5.47 3 rd : 5.84 4 th : 6.79 5 th : 1.5 Boy: 5.66 Girl: 5.28	Total: 4.73 2 nd : 4.27 3 rd : 6.4 4 th : 5.27 5 th : 2.51 Boy: 4.65 Girl: 3.89
Hakim et al. (41)	Ahvaz 2015	1 st 2 nd 3 rd 4 th 5 th	1000	1000	SRIT WRS Reading comprehension	-	Total: 11.8 Boy: 11.8 1 st : 17.5 2 nd : 29 3 rd : 7 4 th : 3.5 5 th : 2	-	Total: 11.8 Boy: 11.8 1 st : 17.5 2 nd : 29 3 rd : 7 4 th : 3.5 5 th : 2
Arab Ameri et al. (13)	Semnan 2015	2 nd 3 rd 4 th 5 th	3496 1	1748 0	WISC primary and secondary diagnostic questionnaire IKMT	Total: 1.55 Boy: 1.79 Girl: 1.6 2 nd : 3.38 3 rd : 3.52 4 th : 3.58 5 th : 3.09	Total: 1.69 Boy: 1.85 Girl: 1.7 2 nd : 3.48 3 rd : 3.7 4 th : 0.37 5 th : 3.23	Total: 2.75 Boy: 2.92 Girl: 2.45 2 nd : 2.49 3 rd : 2.73 4 th : 3.16 5 th : 2.93	Total: 1.18 Boy: 1.7 Girl: 1.51 2 nd : 3.11 3 rd : 3.31 4 th : 2.37 5 th : 3.08
Yavari et al. (42)	Arak 2019	1 st 2 nd 3 rd 4 th 5 th 6 th	2135	1198	SRIT	-	Total: 9.93 Boy: 10.6 Girl: 9.07 1 st : 8.63 2 nd : 4.05 3 rd : 13.22 4 th : 20.32 5 th : 8.23	-	Total: 9.93 Boy: 10.6 Girl: 9.07 1 st : 8.63 2 nd : 4.05 3 rd : 13.22 4 th : 20.32 5 th : 8.23 6 th : 3.94

							6 th : 3.94		
Echreshavi et al. (14)	Ahvaz 2020	2 nd	387	144	RPM NAMA test	-	Total: 7.49 Boy: 10.41 Girl: 6.73	-	Total: 7.49 Boy: 10.41 Girl: 6.73
Tajrishi et al.(43)	Karaj 2020	4 th 5 th 6 th	286	286	Goldstein Non-Verbal Learning Disabilities Scale WISC	-	-	-	Total: 1.8 Boy: 1.8 4 th : 2.6 5 th : 0 6 th : 2.4
Yousefi et al. (44)	Karaj 2020	4 th 5 th 6 th	354	0	Goldstein Non-Verbal Learning Disabilities Scale WISC	-	-	-	Total: 3.67 Girl: 3.67 4 th : 4.38 5 th : 4.2 6 th : 2.47
Ansari et al. (45)	Shahrekord 2021	-	123	123	CLDQ	Total: 3.97	Total: 3.95	-	Total: 3.96 Boy: 3.96
Gholamiyan et al. (19)	Mashhad 2022	1 st 2 nd 3 rd	2770	1389	SRIT	-	Total: 4.04 Boy: 3.6 Girl: 4.5 1 st : 8.55 2 nd : 2.31 3 rd : 3.55	-	Total: 4.04 Boy: 3.6 Girl: 4.5 1 st : 8.55 2 nd : 2.31 3 rd : 3.55

SRIT=Screening Reading Inventory Test, WISC=Wechsler Intelligence Scale for Children, IKMT=Iran Key-math test, RPM=Raven Progressive Matrices, WADT=Wepman Auditory discrimination test, CLDQ=Colorado Learning Disability Questioner, MLDDT=Mathematics Learning Disorder Diagnostic Tests, RLDT= Reading level Diagnostic test, WRS=Word Reading Score, MFT=Marian Frastick Test, MRS=Michael Rutter scales. Full dataset for this table is available at Mendeley Data (DOI: 10.17632/y5ymwhxfth.1)

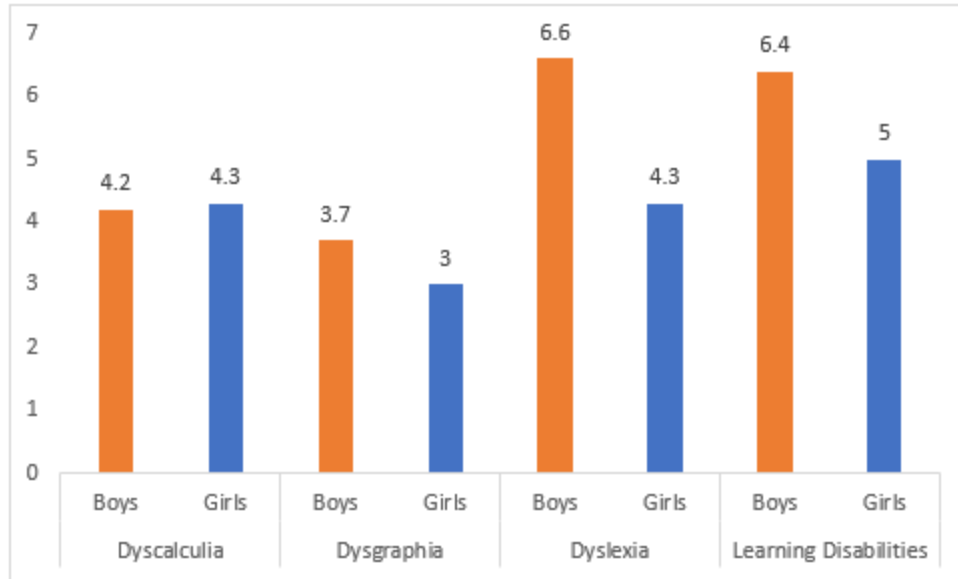


Fig. 6. Comparison of the overall prevalence of learning disabilities in girls and boys

Table 3. Prevalence of different types of learning disorders and subgroup analysis

Variable			Number of Studies	Prevalence (95% CI), %	<i>I</i> ²	P-value	
						Q-test	Subgroup Difference
Dyscalculia	Gender	Boys	13	4.2% (2.8%, 6.3%)	95.79	285.22	0.001
		Girls	13	4.3% (2.8%, 6.5%)	95.9	295.07	
	Grade	1	3	2.5% (0.5%, 12.4%)	88.93	81.0	0.001
		2	8	4.2% (1.7%, 10.2%)	97.8	331.3	
		3	7	4.9% (2.4%, 9.8%)	95.85	144.8	
		4	9	3.4% (1.9%, 6%)	94.60	148.3	
		5	7	3.7% (1.7%, 7.9%)	96.46	169.6	
Dysgraphia	Gender	Boys	8	3.7% (2.3%, 6.1%)	95.73	231.5	0.001
		Girls	8	3% (1.9%, 4.8%)	96.9	164.2	
	Grade	1	3	2.4% (0.6%, 9.8%)	89.9	19.86	0.001
		2	5	3.3% (1.9%, 5.8%)	87.7	132.77	
		3	6	3.4% (1.8%, 6.4%)	93.7	180.09	
		4	6	4% (2%, 8%)	95.2	105.7	
		5	5	1.9% (0.8%, 4.5%)	92.08	150.5	
Dyslexia	Gender	Boys	19	6.6% (3.9%, 7.3%)	97.49	639.5	0.001
		Girls	17	4.3% (2.7%, 6.7%)	98.38	1116.20	
	Grade	1	10	9.7% (5%, 18.2%)	95.42	196.53	0.001
		2	14	7.5% (3.6%, 14.9%)	98.31	772.07	
		3	16	5.7% (3.5%, 9%)	96.19	394.23	

		4	14	4.7% (2%, 10.9%)	97.86	608.3	
		5	12	3.8% (2%, 7.2%)	95.18	228.4	
Learning Disabilities	Gender	Boys	27	6.4% (4.6%, 8.7%)	97.79	805.4	0.001
		Girls	25	5% (3.6%, 6.9%)	97.02	1179.2	
	Grade	1	10	9.5% (6.5%, 13.7%)	89.5	86.37	0.001
		2	17	6.9% (4%, 11.5%)	97.6	677.9	
		3	20	6.2% (4.4%, 8.7%)	94.5	348.1	
		4	22	5.2% (3.4%, 8%)	96.2	561.7	
		5	19	4.5% (2.9%, 6.8%)	95.4	392.8	
		6	4	3.1% (2.1%, 4.7%)	94.6	368.6	

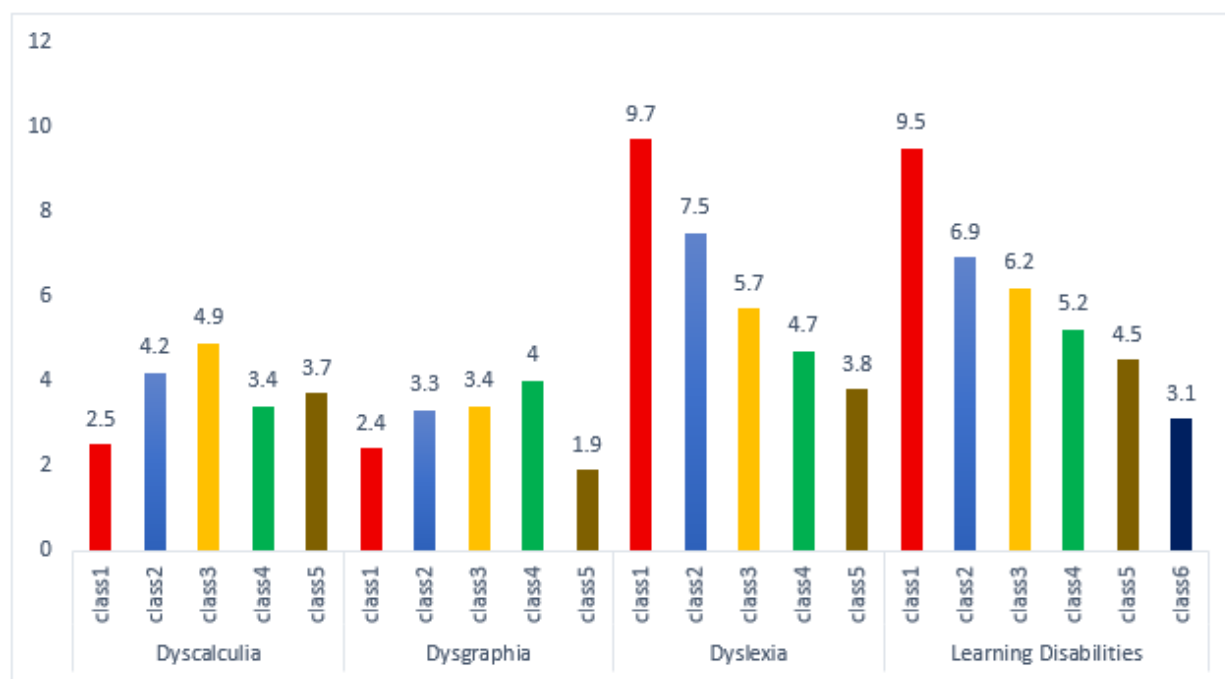


Fig. 7. Comparison of the overall prevalence of Learning disabilities by grade

Discussion

The present systematic review and meta-analysis estimated the overall and subtype-specific prevalence of learning disabilities (LDs) among Iranian elementary school students from 1990 to July 2025. Based on pooled data from 32 eligible studies, the overall prevalence of LDs in Iran was 5.6%, which is comparable to Turkey (5.7%) (46), lower than India (10.7%) and Brazil (7.6%), and higher than Spain (3.2%) (47, 48). These variations likely reflect differences in methodological approaches, diagnostic criteria, socio-demographic factors, and educational systems across countries.

Subtype-specific analyses showed that dyslexia (5.4%) aligns with findings from China (5.4%) (49) and a prior Iranian study (5.7%) (8), but is lower than India (6.2%) (47), China (7.1%) (50), Brazil (7.5%) (51), and Arab countries (11%) (52), and higher than France (3.5%) (53) and China (3.9%) (54). Dyscalculia (4.3%) was broadly consistent with India (4.9%) (47), higher than Malaysia (3.4%) (55), and lower than the UK (5.7%) (56) and China (8.9%) (57). Dysgraphia

(3.4%) was lower than India (6.3%) (47), Iraq (27%) (58), Brazil (22%) (59), and Pakistan (48%) (60). These discrepancies are likely driven by differences in diagnostic criteria, methodological approaches, and study populations. The limited number of studies in Iran and the use of non-standardized tools may also contribute to lower prevalence estimates. For instance, in France, using DSM-5 versus ICD-11 criteria in the same population yielded prevalence rates of 6.6% and 3.5%, respectively (53).

This meta-analysis also revealed a higher prevalence of LDs among boys compared to girls, consistent with international studies (47, 49, 52, 55, 57). Gender differences may result from biological factors—such as increased male susceptibility to adverse prenatal and perinatal influences—and from sociocultural and educational factors, including classroom behaviors, referral patterns, and cultural expectations (46, 47, 61, 62). Early-life risk factors, including preterm birth, cesarean delivery, low birth weight, delayed developmental milestones, and comorbid conditions (e.g., autism, ADHD, cerebral palsy, epilepsy), were more frequently reported in boys (47, 48, 61-65).

A unique aspect of this study is the analysis of LD prevalence across grades 1 to 6. Dyslexia prevalence was consistently higher than other LD subtypes, likely reflecting the availability of validated diagnostic tools and the limited number of studies on math and writing disorders in Iran (20, 33). Moreover, both overall LD prevalence and dyslexia prevalence declined with advancing grade level, consistent with findings from China (57) and previous Iranian studies (8).

These findings highlight the need for strengthened educational and screening infrastructure in Iran, particularly when compared to other Middle Eastern or developing countries. Standardized national screening programs and diagnostic protocols are essential for early identification. Teacher training and public awareness campaigns are critical to reduce stigma and ensure timely referral of at-risk students. Special attention should be given to rural and underserved areas, where students may face higher risks of undetected LDs.

Strengths and Limitations

Strengths of this study include the comprehensive search strategy covering English and Persian literature, the grade-specific estimation of all LD types, and the use of rigorous meta-analytic techniques. However, several limitations must be acknowledged. High heterogeneity ($I^2 \approx 95\%$) likely reflects differences in diagnostic tools, study populations, and provincial representation. Study quality scores were not incorporated into weighting, and some studies used non-standardized instruments. Publication bias was detected (Egger's test, $p = 0.03$) and may have slightly inflated pooled estimates. Finally, Iran's multilingual and culturally diverse population means that regional differences may be masked, and cross-sectional, school-based samples may not capture out-of-school children or those in alternative education settings.

Future Research

Future studies should use standardized and validated diagnostic tools, representative sampling, and clear reporting of participant characteristics. Stratified analyses by province, language, gender, and socioeconomic status are recommended to improve accuracy. Advanced statistical techniques, such as meta-regression, may help to explore sources of heterogeneity, while prospective longitudinal designs could clarify developmental trajectories and causal mechanisms underlying LDs.

Conclusion

This systematic review and meta-analysis provide the most comprehensive estimates of LD prevalence among Iranian elementary students to date. Our results showed that at least one in 20 Iranian students has a learning disability, and this rate rises to one in ten in early grades. The relatively high prevalence underscores a significant public health and educational concern. There is an urgent need for national policies to standardize screening, enhance diagnostic services, and implement early intervention programs, particularly in rural and resource-limited areas. High-quality, large-scale studies using standardized diagnostic tools are warranted to better understand the epidemiology of LDs in Iran.

Statements and Declarations

Data Availability Statement

The dataset extracted and analyzed during this systematic review and meta-analysis has been uploaded as supplementary data to Mendeley Data and is available at doi: 10.17632/y5ymwhxfth.1.

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Authors contributions:

A.A. designed the initial study and supervised the implementation of the research. A.H. wrote the original manuscript, and R.M.F. performed the statistical analyses. All authors contributed to the writing and final editing of the manuscript.

Conflict of interest

None of the authors declared any conflicts of interest.

References

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders: DSM-5: American Psychiatric Association; 2013.
2. Ismail RM, Mohamed HT, Soltan BG. Prevalence of learning Disabilities Among a Sample of Primary School Students. The Scientific Journal of Al-Azhar Medical Faculty, Girls. 2019;3(1):125-30. https://doi.org/10.4103/sjamf.sjamf_65_18
3. Lerner JW, Johns BH. Learning Disabilities and Related Mild Disabilities: Characteristics, Teaching Strategies, and New Directions. Houghton Mifflin Harcourt Publishing Company, Boston, New York. 2012.
4. Lyon GR, Shaywitz SE, Shaywitz BA. A Definition of Dyslexia. Annals of Dyslexia. 2003;53:1-14.
5. Kavale KA, Forness SR. Social Skill Deficits and Learning Disabilities: A Meta-Analysis. Journal of Learning Disabilities. 1996;29(3):226-37. <https://doi.org/10.1177/002221949602900301>

6. Polanczyk GV, Salum GA, Sugaya LS, Caye A, Rohde LA. Annual Research Review: A Meta-Analysis of The Worldwide Prevalence of Mental Disorders in Children and Adolescents. *Journal of Child Psychology and Psychiatry*. 2015;56(3):345-65. <https://doi.org/10.1111/jcpp.12381>
7. Peterson RL, Pennington BF. Developmental Dyslexia. *The Lancet*. 2012;379(9830):1997-2007.
8. Sakhai F, Mazaheri S, Golmohammadi G, Asadollahpour F. Prevalence of Developmental Dyslexia Among Primary School Children in Iran: A Systematic Review and Meta-Analysis. *Iranian Journal of Psychiatry*. 2025;20(2):223. <https://doi.org/10.18502/ijps.v20i2.18204>
9. Paul SM. Outcomes of Students With Disabilities in A Developing Country: Tobago. *International Journal of Special Education*. 2011;26(3):194-211.
10. Vincent L, Chiwandire D. Funding and Inclusion in Higher Education Institutions For Students with Disabilities. *African Journal of Disability*. 2019;8(1):1-12. <https://doi/abs/10.4102/ajod.v8i0.336>
11. Robson C, Evans P. *Educating Children with Disabilities in Developing Countries: The Role of Data Sets*. OECD, Huddersfield, UK; 2003.
12. Alipoor A, Shaghaghi F, Ahmadi Azghandi A, Noferesti A, Hosseini A. Prevalence of Mathematics Learning Disorder in Elementary Schools. *Developmental Psychology*. 2012;8:343-353.
13. Ameri MA, Hamzeian A, Alirad S. The Investigate of Prevalence of Learning Disabilities in Students in Grades of Two to Five Elementary Schools and The Awareness Level of Teachers in Semnan Province. *Proceedings of the International Conference on Management and Humanities*. 2015;29.
14. Echreshavi M, Khalatbari J, Hosseinpour R. Investigating the Prevalence Of Dyslexia And Its Characteristics in Elementary School Students. *Middle Eastern Journal of Disability Studies*. 2020;10:238-245.
15. Talepasand S, Hanifi Vahed M. Prevalence of Mathematic Disability in Primary Schools. *Iranian Rehabilitation Journal*. 2012;10(2):28-34.
16. Abtahi M. The Prevalence Of Learning Disorders And Its Relationship With Math Anxiety in First Grade Students in Primary Schools in Qain City (New Math Textbook Based on The National Curriculum). *National Primary Education Conference*. 2012.
17. khodadadi J, Moosavi Pour S. Prevalence of Dyscalculia Between Second and Fourth Grades in Arak and Reduction Ways. *Journal of Learning Disabilities*. 2013;2(4):28-44.
18. Hosseinaee A, Aghajani A, Nofresti A. Prevalence Oof Reading And Writing Disabilities Among Primary School Students. *Developmental Psychology: Journal of Iranian Psychologists*. 2011;7(28):353-63.
19. Gholamiyan Arefi M, Safaeyan S, Ghaemi H, Balouchian G, Dabirian M, Rezaei M, et al. Speech and Reading Disorders Screening, and Problems in Structure and Function of Articulation Organs in Children in Mashhad City, Iran. *Iranian Rehabilitation Journal*. 2022;20(3):415-24.
20. Eslami M, Akbar Haghdooost A, Afsaneh N, Shahrababaki Hamideh R. Prevalence of Learning Disability In Primary School Students In Kerman City. *European Online Journal of Natural and Social Sciences*. 2014;3(3): 534-40.
21. Sedaghati L, Foroughi R, Shafiei B, Maracy MR. Prevalence of Dyslexia in First to Fifth Grade Elementary Students Isfahan, Iran. *Audiology*. 2010;19(1):94-101.

22. Ramezani M. A Study on the Prevalence of Dyscalculia in Fourth and Fifth Grade Students of Tehran. *Journal of Exceptional Children*. 2002;2(3):287-306.
23. Shah-Bodaghi M-R. Investigation of Prevalence of Speech and Language Disorders Among Of Elementary School Girls Students. *Archives of Rehabilitation*. 2003;3(4):20-6.
24. Pouretamad HR, Khatibi A, Zarei M, Stein J. Manifestations of Developmental Dyslexia in Monolingual Persian Speaking Students. *Archives of Iranian Medicine*. 2011;14(4): 259-265.
25. Pashapour N, Yavarian R. Study of Dyslexia Incidence in Urmia Elementary Schools. *Research in Medicine*. 2000;24(1):3-6.
26. Mihandoost Z. The Survey of Correlate Causes of Learning Disabilities Prevalence Among Elementary Students. *Asian Social Science*. 2011;7(7):12-8.
27. Moher D, Liberati A, Tetzlaff J, Altman DG. Preferred Reporting Items For Systematic Reviews And Meta-Analyses: The PRISMA Statement. *BMJ*. 2009; 339-347. <https://doi.org/10.1136/bmj.b2535>
28. Munn Z, Moola S, Lisy K, Riitano D, Tufanaru C. Methodological Guidance for Systematic Reviews of Observational Epidemiological Studies Reporting Prevalence and Cumulative Incidence Data. *JBIC Evidence Implementation*. 2015;13(3):147-53.
29. Shehni Yailagh M, Karami J, Shokrkon H, Mehrabizadeh Honarmand M. Prevalence of Dysgraphia and the Effects of Multi-Sense Therapy on Reduction of Writing Difficulties of Primary School Students in Ahvaz. *Journal of Educational Sciences*. 2004;10(3):129-44.
30. Narimani M, Rajabi S. A Study of The Prevalence And Causes of Learning Disorders Among Elementary Students of Ardebil Province. *Journal of Exceptional Children*. 2005;5(3):323-48.
31. Rahimian BE, Sadeghi A. Prevalence of Reading Disorder in Primary School Students. 2007; 12:396-402.
32. Barahmand U, Narimani M, Amani M. The Prevalence of Arithmetic Disorder among Elementary School Children in Ardebil. *Journal of Exceptional Children*. 2007;6(4):917-30.
33. Mohammadyfar M, Besharat MA, Ghasemi M, Najaphy M. The Study of The Prevalence Rate And Diversity of Specific Learning Disabilities in Students of Primary School of Shiraz City. *Educational Psychology*. 2007;3(9):22-46.
34. Sharifi AA, Davari R. Prevalence of Reading Disorder a Among Primary School Students in Shahrekord. *Journal of Exceptional Children*. 2009;8(4):413-8.
35. Sheghaghi M. The Prevalence of Learning Disorders Among Second and Third Grade Elementary School Students in Khoramdareh City. *National Conference on Elementary Education*. 2015.
36. Sharifi A, Davari R. Prevalence of Learning Disabilities in First and Second Grade Students of Elementary School in Chaharmahal va Bakhtiari Province. *Journal of Learning Disabilities*. 2012;1(2):63-76.
37. Nojabae S, Amoopour M, Azarnoosh K. Evaluation of Prevalence and Diversity of Learning Disorders Among Elementary School Students in Rasht City. *Arabian Journal of Business and Management Review (Kuwait Chapter)*. 2012;1(5):1-13.
38. Ghorbanibirgani A. An Epidemiologic Study of Dyslexia Among Male Students in Primary Schools in Ahvaz-Iran 2013-14. *Journal of Pediatric Nursing*. 2014;1(1):27-35.
39. Zare Bahramabadi M, Ganji K. The Study of Prevalence of Attention Deficit/Hyperactivity Disorder (ADHD) and It's Comorbidity with Learning Disorder (LD) in Primary School's Students. *Journal of Learning Disabilities*. 2014;3(4):25-43.

40. Moinalghorabaie F, Islam M, Fadaee M. Prevalence of Learning Disabilities Among Primary School Students in North Khorasan Province. *Journal of Learning Disabilities*. 2015;5(1):101-24.
41. Hakim A, Ghorbanibirgani A. Prevalence of Dyslexia Among Male Students in Primary Schools And Its Relationship with Obesity And Being Overweight in Ahvaz, Iran. *International Journal Of Community Based Nursing And Midwifery*. 2015;3(2):116.
42. Yavari A, Valizadeh A, Maroufizadeh S, Panahian M. The Prevalence of Dyslexia Among School Age Persian Speaking Students in Arak, Iran. *Function and Disability Journal*. 2019; 2:13. <https://doi.org/10.34171/fdj.2.13>
43. Pourmohamadrezatajrishi M, Yousefi M, Hemmati S, Bakhshi E. Prevalence of Non-Verbal Learning Disorder in Male Students in Karaj City. *Journal of Clinical Psychology*. 2020;11(4):77-87.
44. Yousefi M, BAKHSHI E. The Prevalence of Nonverbal Learning Disorder in Female Students. *Developmental Psychology*. 2021; 69:23-36.
45. Ansari S, Nikkhah M, Ahmadi P, Salehi A. Comparison of the Prevalence And Types of Learning Disorders Among Monolingual And Bilingual Students in Chaharmahal and Bakhtiari Province. *New Advances in Educational Psychology and Education*. 2021;4(37):85-96.
46. Bozatlı L, Aykutlu HC, Sivrikaya Giray A, Ataş T, Özkan Ç, Güneydaş Yıldırım B, et al. Children at Risk of Specific Learning Disorder: A Study on Prevalence and Risk Factors. *Children*. 2024;11(7):759. <https://doi.org/10.3390/children11070759>
47. Joseph JK, Devu BK. Prevalence and Pattern of Learning Disability in India: A Systematic Review And Meta-Analysis. *Indian Journal of Psychiatric Nursing*. 2022;19(2):152-62. https://doi.org/10.4103/iopn.iopn_7_22
48. Mariño MC, Ageitos AG, Alvarez JA, del Rio Garma M, Cendón CG, Castaño AG, et al. Prevalence of Neurodevelopmental, Behavioural And Learning Disorders In Paediatric Primary Care. *Anales de Pediatría (English Edition)*. 2018;89(3):153-61. <https://doi.org/10.1016/j.anpede.2017.10.005>
49. Lin Y, Zhang X, Huang Q, Lv L, Huang A, Li A, et al. The Prevalence of Dyslexia in Primary School Children and Their Chinese Literacy Assessment in Shantou, China. *International Journal of Environmental Research and Public Health*. 2020;17(19):7140. <https://doi.org/10.3390/ijerph17197140>
50. Yang L, Li C, Li X, Zhai M, An Q, Zhang Y, et al. Prevalence of Developmental Dyslexia in Primary School Children: A Systematic Review and Meta-Analysis. *Brain Sciences*. 2022;12(2):240. <https://doi.org/10.3390/brainsci12020240>
51. Fortes IS, Paula CS, Oliveira MC, Bordin IA, de Jesus Mari J, Rohde LA. A Cross-Sectional Study to Assess The Prevalence of DSM-5 Specific Learning Disorders in Representative School Samples From The Second to Sixth Grade in Brazil. *European Child & Adolescent Psychiatry*. 2016;25:195-207. <https://doi.org/10.1007/s00787-015-0708-2>
52. Aldakhil AF. Prevalence of Developmental Dyslexia Among Primary School Children in Arab Countries: A Systematic Review and Meta-Analysis. *Research in Developmental Disabilities*. 2024;152:104812. <https://doi.org/10.1016/j.ridd.2024.104812>
53. Di Folco C, Guez A, Peyre H, Ramus F. Epidemiology of Reading Disability: A Comparison of DSM-5 and ICD-11 Criteria. *Scientific Studies of Reading*. 2022;26(4):337-55. <https://doi.org/10.1080/10888438.2021.1998067>

54. Sun Z, Zou L, Zhang J, Mo S, Shao S, Zhong R, et al. Prevalence and Associated Risk Factors of Dyslexic Children in a Middle-Sized City of China: A Cross-Sectional Study. *Plos One*. 2013;8(2):e56688. <https://doi.org/10.1371/journal.pone.0056688>
55. Keong WK, Pang V, Eng CK, Keong TC, editors. Prevalence Rate of Dyscalculia According to Gender and School Location in Sabah, Malaysia. 7th International Conference on University Learning and Teaching (InCULT 2014) Proceedings: Educate to Innovate; 2016: Springer.
56. Morsanyi K, van Bers BM, McCormack T, McGourty J. The Prevalence of Specific Learning Disorder in Mathematics and Comorbidity with Other Developmental Disorders in Primary School-Age Children. *British Journal of Psychology*. 2018;109(4):917-40. <https://doi.org/10.1111/bjop.12322>
57. Wang Y, Long J, Wang P. The Prevalence of Mathematical Difficulties among Primary School Children in Mainland China: A Systematic Review and Meta-Analysis. *Frontiers in Public Health*. 2024;11:1250337. <https://doi.org/10.3389/fpubh.2023.1250337>
58. Abed S, Abbas D, Dawood I. Lifetime Prevalence of Dysgraphia and Associated Family Environment Characteristics in Primary Schools. *International Journal of Public Health Science*. 2023;12(3):1243-8. <https://doi.org/10.11591/ijphs.v12i3.22526>
59. Martins MRI, Bastos JA, Cecato AT, Araujo MdLS, Magro RR, Alaminos V. Screening for Motor Dysgraphia in Public Schools. *Jornal de Pediatria*. 2013;89:70-4. <https://doi.org/10.1016/j.jped.2013.02.011>
60. Ashraf F, Najam N. An Epidemiological Study of Prevalence and Comorbidity of Non-Clinical Dyslexia, Dysgraphia and Dyscalculia Symptoms in Public and Private Schools of Pakistan. *Pakistan Journal of Medical Sciences*. 2020;36(7):1659. <https://doi.org/10.12669/pjms.36.7.2486>
61. Kern J, Geier D, Homme K, King P, Bjørklund G, Chirumbolo S, et al. Developmental Neurotoxicants and The Vulnerable Male Brain: A Systematic Review of Suspected Neurotoxicants That Disproportionally Affect Males. *Acta Neurobiologiae Experimentalis*. 2017;77(4):269-96.
62. Bandla S, Mandadi GD, Bhogaraju A. Specific Learning Disabilities and Psychiatric Comorbidities in School Children in South India. *Indian Journal of Psychological Medicine*. 2017;39(1):76-82. <https://doi.org/10.4103/0253-7176.198950>
63. Aghaz A. What Do You Know About Autism? [Internet]. *Teb Nab*; 2024 Feb 3 [cited 2025 Oct 18]. Available from: <https://tebnab.ir/1402/11/14/%D8%A7%D8%B2-%D8%A7%D8%AA%DB%8C%D8%B3%D9%85-%DA%86%D9%87-%D9%85%DB%8C-%D8%AF%D8%A7%D9%86%DB%8C%D8%AF%D8%9F/>
64. Hemmati E, Taaki F, Aghaz A, Mokhtari Fard R, Darabi A, Safary M, et al. The Relationship between Motor Skills and Language Performance in Mentally Retarded Children. *Journal of Pediatric Perspectives*. 2023;11(8):18112-18122. <https://doi.org/10.22038/ijp.2023.70906.5211>
65. Bastami L, Jahantabi-Nejad S, Ghasemzadeh R, Akbari M, Dastoorpour M. Investigating the Predictive Factors of Life Balance in Mothers of Children with Cerebral Palsy. *Journal of Modern Rehabilitation*. 2024; 18(1):76-83. <https://doi.org/10.18502/jmr.v18i1.14732>