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Review Paper

Understanding Early and Late Identification of Dyslexia: A Narrative Review of Diagnostic Timing, Systemic Barriers, and Educational Equity

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Abstract: Dyslexia is a common neurodevelopmental disorder that profoundly affects reading, writing, and spelling, often leading to persistent academic underachievement and emotional difficulties. Early identification plays a critical role in enabling effective intervention. However, many students remain undiagnosed or are diagnosed late, limiting access to timely support. This narrative literature review (NLR) synthesises current evidence on the timing of dyslexia diagnosis, specifically examining early diagnosed, late-diagnosed and late-emerging cases. By exploring how diagnostic timing influences educational trajectories and psychosocial outcomes, the review provides a nuanced understanding of the long-term implications for learners. It further examines the genetic, environmental and systemic factors that contribute to the risk of delayed or inaccurate identification, highlighting the complex interaction between biological predispositions and external influences such as teacher preparedness, culturally relevant assessment practices and equitable access to resources. Key findings underscore the importance of integrating technology-driven tools and ongoing professional development for educators to reduce disparities in early detection and intervention. These findings also align with the United Nations Sustainable Development Goals, particularly SDG 4.1 and 4.5 which emphasize equitable access to quality education and SDG 10.2, which advocates for social inclusion regardless of disability. Ultimately, this review calls for adaptive, contextually responsive policies that address systemic barriers and promote early, accurate identification of dyslexia. Such measures are essential not only for advancing educational equity but also for fostering broader goals of social justice and inclusion in diverse educational contexts.

Keywords: Dyslexia; early screening; neurodevelopmental disorder; literacy interventions; sustainable development goal; SDG 4, SDG 10.

Introduction

Dyslexia, classified as a specific learning disorder in reading, is a complex neurodevelopmental condition that persists despite adequate intelligence and educational opportunities (Addington et al., 2019). First described by Dr Rudolf Berlin in 1887 (Wu et al., 2022) as “difficulty with words”, dyslexia encompass difficulties in word recognition, spelling and decoding that hinder academic progress (International Dyslexia Association, 2002). According to the American Psychologist Association (American Psychological Association, 2013), dyslexia refer to a specific learning disorder that affects a person’s ability to read, spell, write and interpret a spoken language as noted in Diagnostic Statistical Manual Fifth Edition (DSM-5). It is estimated that approximately 18% of special education students in Malaysia have dyslexia, making it the third most prevalent

learning disorder in the country (Ministry of Education, 2024). Globally, emerging research highlights an increasing prevalence, with significant underdiagnosis in low-resource contexts (Börnert-Ringleb et al., 2021; Bree et al., 2022; Nijakowska, 2019). This highlights the importance of integrating robust, technology-assisted screening mechanisms into educational system (Nabil et al., 2025; Yap et al., 2025).

Early identification of dyslexia has significantly improved academic and emotional outcomes by facilitating timely interventions (Lohvansuu et al., 2021). Research from various countries, including Greece (Antonios & Georgios, 2022), Italy (Bazen et al., 2020), Poland (Gindrich, 2021; Gindrich & Kazanowski, 2017, 2022) and Norway (Nergård-Nilssen & Friborg, 2021), highlights the critical role of early screening in supporting students' literacy. However, systemic barriers such as inadequate teacher training (Börnert-Ringleb et al., 2021; Kundi & Alharbi, 2022), lack of culturally sensitive tools (Lim et al., 2023; Nkomo et al., 2021) and limited access to resources disproportionately impact marginalized communities (Barth & Thomas, 2021; Zelenin, 2020), exacerbating educational inequities (Sabatini, 2022).

Interventions for learners with dyslexia align with the United Nations Sustainable Development Goals (SDGs), particularly Goal 4 on quality education and Goal 10 on reducing inequalities. Targets 4.1 and 4.5 of SDG 4 emphasize the need to ensure that all children achieve quality learning outcomes while eliminating disparities in educational access for vulnerable groups, including children with disabilities (UNESCO, 2024, 2025a). As a neurodevelopmental disorder affecting reading acquisition, dyslexia places students at risk of educational disadvantage. Addressing their needs is therefore essential to advancing equitable literacy outcomes and ensuring academic success.

Target 10.2 of SDG 10 highlights the importance of promoting social inclusion for all individuals, regardless of disability status (UNESCO, 2025b). Providing effective educational support for learners with dyslexia not only improves their academic participation but also strengthens their social empowerment. Educational interventions that embrace learning diversity therefore serve a dual purpose, fulfilling pedagogical responsibilities while advancing global goals on inclusion and equality. This review emphasizes the need for systematic dyslexia screening across educational settings. Addressing gaps in early identification and intervention can improve academic outcomes and promote equity by ensuring that all students have access to quality education. Through such measures, policymakers and educators can foster inclusive learning environments where individuals with dyslexia are empowered to thrive.

Literature Review

The existing body of research on dyslexia presents a multifaceted understanding of its diagnosis and intervention strategies. Studies (Bazen et al., 2020; Bree et al., 2022; Solek et al., 2025; Torppa et al., 2015; Xiuhong, 2023) have categorized dyslexia into three distinct forms: early diagnosed, late-diagnosed, and late-emerging dyslexia. Each category illustrates critical disparities in academic outcomes, further highlighting the importance of tailored screening mechanisms.

Early diagnosed cases are generally framed within the context of timely recognition and structured intervention, whereas late-diagnosed cases highlight the complexities that arise when identification is delayed. Late-emerging dyslexia, meanwhile, underscores the challenges faced when literacy difficulties appear after initial reading acquisition, often in response to increasing academic demands. Collectively, these categories underscore the heterogeneity of dyslexia and the importance of developing screening frameworks that account for developmental timing, systemic influences and sociocultural contexts. Such an approach allows for a more nuanced understanding of dyslexia and supports the design of equitable, contextually relevant identification and intervention strategies.

Conversely, late-diagnosed dyslexia, often recognized during secondary education, presents unique challenges. These cases typically result from systemic gaps such as inadequate screening tools and insufficient training among educators (Bazen et al., 2020). The situation is further compounded by the absence of culturally appropriate assessment instruments and limited awareness of the diverse manifestations of dyslexia across linguistic contexts. As a result, students may endure years of undetected difficulties, leading to cumulative academic deficits, reduced self-esteem and heightened risk of disengagement from learning (Livingston et al., 2018; Wilmot et al., 2023). Importantly, the academic struggles faced by this group are not

solely the outcome of cognitive impairments but also reflect systemic shortcomings in recognizing and addressing early warning signs.

Late-emerging dyslexia represents another critical aspect of this condition. Unlike early-diagnosed cases, these individuals initially demonstrate average or above-average literacy skills but struggle as academic demands intensify (Sabatini, 2022; Shofiah & Putera, 2023). This phenomenon is particularly prevalent in secondary school settings, where the increased complexity of language, extended reading materials and heightened expectations for comprehension place additional strain on students. The delayed manifestation often leads to confusion among educators and parents, as these learners may have appeared proficient in earlier schooling. Consequently, late-emerging dyslexia is frequently misattributed to poor study habits, lack of effort or motivational issues rather than an underlying learning difficulty (Sitta & Kamala, 2021). The misrecognition not only delays appropriate intervention but also increases the risk of anxiety, diminished self-esteem and long-term academic underperformance.

While genetic predisposition remains a contributing factor to dyslexia, environmental and systemic factors such as teacher preparedness, resource availability and parental involvement play pivotal roles in shaping outcomes (Bree et al., 2022). These factors are critical determinants of successful intervention outcomes. Findings from (Barbiero et al., 2019; Solek et al., 2025) further reveal that undiagnosed dyslexia often correlates with higher dropout rates, emphasizing the urgent need for comprehensive screening mechanisms in educational systems. These systemic gaps highlight the necessity of culturally sensitive screening tools and teacher training programs, particularly in under-resourced regions such as Malaysia. Studies in Malaysia underscore the necessity of bilingual and context-specific screening tools to address these gaps (Ch'ng & Jong, 2024; Nabil et al., 2024).

This narrative literature review (NLR) will explore the barriers to early dyslexia screening and their implications for late-emerging dyslexia, late identification, late diagnosis, misdiagnosis and underdiagnosis. The NLR method was chosen as it allows for a comprehensive synthesis of existing research, providing theoretical insights into the challenges associated with dyslexia screening (Coast et al., 2025; Green et al., 2006; Gregory & Denniss, 2018).

Methodology

This study employed a narrative review methodology to synthesize and critically appraise existing literature relevant to the research focus. Narrative reviews offer critical overviews of existing literature without employing systematic protocols for literature identification and appraisal, making them suitable for broad or evolving research domains (Green et al., 2006; Greenhalgh et al., 2018; Gregory & Denniss, 2018). The process comprised five key steps, which can be shown in Figure 1.

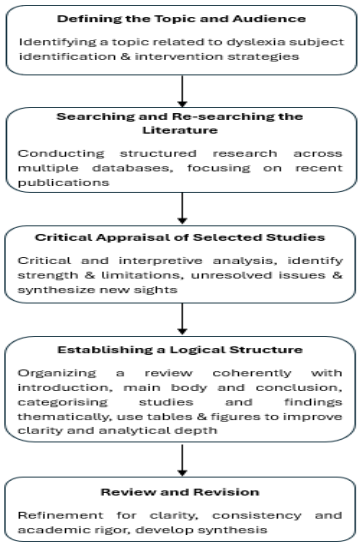

Figure 1. Flow chart illustrating the five steps methodology of narrative review
Source: Gregory & Denniss (2018)

1. Defining the Topic and Audience

The review began by identifying a focused topic relevant to current educational or clinical discourse, focusing on dyslexia identification and intervention strategies. The selection process involved systematic searches of academic databases to identify studies published within the last two decades, prioritizing studies from 2005 to 2025. Articles were included based on their relevance to early and late dyslexia diagnosis, the efficacy of screening tools, and the outcomes of various intervention strategies. These subcategories of dyslexia represent a critical spectrum with distinct educational implications yet are often underrepresented in cohesive syntheses. A clear understanding of the intended audience guided the scope and emphasis, ensuring the selection of a topic that balances relevance and depth with a manageable body of literature. This focus allows for a nuanced exploration of diagnostic timing and its impact on intervention, educational outcomes and psychosocial development. Priority was given to studies in multilingual and culturally diverse settings, conducted in countries with well-established dyslexia research, including Italy, Finland and Malaysia, to provide a holistic understanding of dyslexia.

2. Searching and Re-Searching Literature

For this narrative review, two prominent academic databases, Web of Science and SCOPUS were systematically searched to identify relevant literature. The analysis focused on key themes such as the timing of dyslexia diagnosis, the impact of early and delayed interventions on academic and psychosocial outcomes and the development of culturally relevant screening tools. Boolean operators (AND, OR, NOT) were applied to refine keyword combinations and optimise search precision. Initial searches in WoS using the query string TS = (screen AND dyslexia AND (late*identif* OR late*emerg OR under*diagnos* OR misdiagnos*))* retrieved six articles in any language up to January 2025. Concurrently, SCOPUS was searched using TITLE-ABS-KEY (screen AND dyslexia AND (late*identif* OR late*emerg OR underdiagnos* OR misdiagnos*)) *, restricted to English-language research articles published between 2005 and 2025.

To enhance methodological transparency, this narrative review adopted a structured article selection process inspired by systematic review practices. The process comprised four stages: identification of relevant literature, preliminary screening based on titles and abstracts, assessment of full-text eligibility and final inclusion for synthesis. While not bound by systematic protocols, this adapted approach provides clarity and replicability in how studies were selected and evaluated (Green et al., 2006; Gregory & Denniss, 2018).

To ensure both recency and scholarly relevance, priority was given to literature published within the past 20 years, yielding eight articles while retaining seminal works irrespective of date. The selection process involved iterative adjustment of the review focus to maintain originality and avoid redundancy with existing literature. A structured screening sequence was applied to determine article eligibility, with exclusion criteria comprising non-English publications, conference proceedings, book chapters and articles under review. Of the initial pool, 140 articles were excluded based on these criteria, resulting in 16 studies included for final synthesis. Figure 2 shows the flow of the selection process in this narrative review.

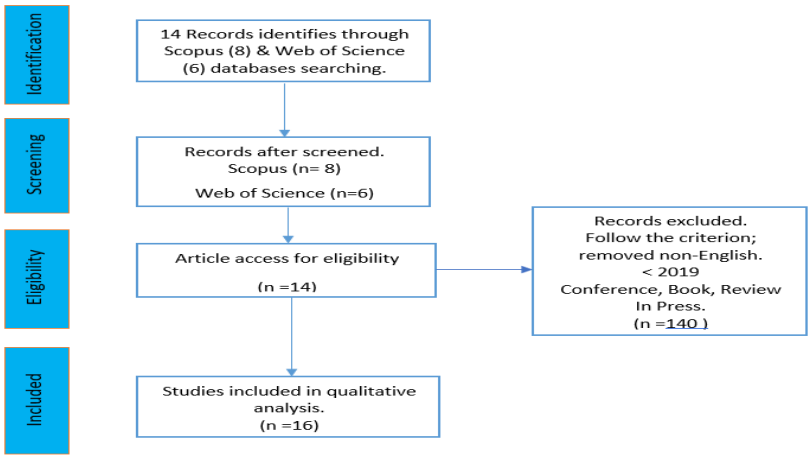

Figure 2. The flow of the selection process in this narrative review
Source: Green et al. (2006); Gregory & Denniss (2018)

3.Critical Appraisal of Selected Studies

The selected literature underwent critical and interpretive analysis to uncover methodological strengths, limitations and persisting knowledge gaps in the field of dyslexia screening and identification. In conducting this appraisal, the review adopted methodological quality indicators grounded in educational research and informed by recent scholarship on critical appraisal tools for qualitative reviews. As highlighted by (Saaiq & Ashraf, 2024), many existing tools such as PRISMA, AMSTAR-II, CASP and JBI offer only partial coverage of key domains, particularly in ensuring rigor, credibility, and transferability. Their proposed 39-item framework, which integrates both qualitative assessment and a quantitative scoring mechanism, underscores the importance of a comprehensive and structured appraisal approach. Informed by these insights, this review applied appraisal criteria that addressed research design, interpretive rigor, transparency and cultural contextualisation. To further contextualise these findings, the review examined global screening practices, identifying both innovations and deficiencies within existing frameworks. Notably, the integration of emerging technologies, such as AI-based screening tools, was analysed to assess their effectiveness in improving early identification (Alkhurayyif & Sait, 2024; Lyytinen & Louleli, 2023). This synthesis also explored the extent to which these international practices align with Sustainable Development Goals 4 and 10, thereby offering evidence-based strategies for promoting equitable, inclusive and contextually responsive approaches to dyslexia management.

4. Establishing a Logical Structure

This review followed a thematic framework that allowed for a coherent presentation of ideas across its introduction, core sections and conclusion. The structure was shaped by recurring patterns in literature, particularly those that illuminated the complexities surrounding the delayed identification of dyslexia. These included emerging themes such as diagnostic latency, misclassification and contextual factors influencing under recognition in diverse educational settings. Each theme was critically examined to highlight not only the academic implications but also the psychosocial and policy-related consequences for learners. To enhance clarity and analytical depth, findings were synthesised through visual aids, including summary tables and illustrative figures. These tools mapped methodological trends, key challenges, and evidence-based strategic responses in dyslexia screening practices, allowing for cross-comparison across studies. By structuring the review in this way, the discussion moves beyond descriptive reporting to provide an integrative analysis that underscores systemic barriers while offering practical insights for improving early identification and intervention.

5.Review and Revision

As the final stage of the review process, the manuscript underwent multiple rounds of critical refinement to ensure clarity, internal consistency and academic rigor. Constructive feedback from peers was incorporated to strengthen conceptual alignment and eliminate interpretative ambiguities, particularly in relation to the nuanced discussion of late-diagnosed, late-emerging and underdiagnosed dyslexia. The abstract was developed after the full synthesis was completed, capturing the review's central arguments and its contribution to advancing discourse on timely and equitable dyslexia screening practices. This approach balanced methodological discipline with analytical flexibility, allowing the review to uphold academic integrity while effectively capturing the nuanced interpretations inherent in narrative-based evidence synthesis.

The Findings

The findings reveal critical gaps and opportunities in dyslexia identification and intervention strategies. First, the categorization of dyslexia into early diagnosed, late-diagnosed and late-emerging forms underscores the variability in its manifestation and the challenges of addressing these differences systematically. Programs in Italy and Finland demonstrate that structured support during primary education can mitigate long-term deficits (Barbiero et al., 2019; Lyytinen & Louleli, 2023; Torppa et al., 2015). These interventions, often tailored to the child's developmental stage, ensure that foundational skills in reading and writing are established,

mitigating long-term educational deficits. However, systemic barriers continue to hinder early identification in under-resourced contexts, emphasizing the need for culturally relevant and scalable solutions.

The findings also highlight the persistent issue of late-diagnosed dyslexia, which often results in severe academic challenges due to delayed interventions. This is particularly concerning in secondary education, where the academic curriculum intensifies, exacerbating the struggles of undiagnosed students (Bazen et al., 2020; Solek et al., 2025). These delays often stem from systemic barriers such as inadequate teacher training and the absence of robust screening tools for older students. Additionally, late-emerging dyslexia, where symptoms appear only as academic demands increase, further complicates timely identification and support, emphasizing the need for continuous monitoring throughout a student's educational journey. Integrating adaptive screening tools such as AI-driven applications can enhance early detection among older students, particularly in multilingual environments (Lyytinen & Louleli, 2023). Research suggests that continuous monitoring of literacy progress throughout schooling is essential to identify and support late-emerging cases effectively (Solek et al., 2025). For instance, longitudinal studies in multilingual contexts reveal that late-emerging cases often correlate with a lack of culturally sensitive interventions (Bagget et al., 2023).

The interplay of genetic and environmental factors is another critical aspect identified in the findings. While genetic predisposition is a well-documented risk factor, environmental influences such as the quality of instruction, teacher preparedness and parental involvement play a pivotal role in mitigating or exacerbating dyslexia-related challenges (Bree & Verhagen, 2022). For example, studies from Italy reveal that systemic underdiagnosis often correlates with socio-economic disparities, reflecting broader inequities in educational access and support (Barbiero et al., 2019). Another finding from Malaysia indicates that professional development programs for educators significantly enhance their ability to identify and support students with dyslexia (Ch'ng & Jong, 2024). This aligns with SDG 10, which emphasizes the importance of reducing inequalities to ensure equitable opportunities for all learners.

The findings also emphasize the importance of culturally relevant screening tools and interventions. The absence of proper screening instruments may lead to inaccurate dyslexic data. (Barbiero et al., 2019) proved that cases of dyslexia in Italy were higher than previously estimated. This indicates that accurate, valid, and reliable diagnostic criteria and methods are needed to identify children with dyslexia. Without proper screening instruments, an increase in dyslexic students will occur, which can have an impact on self-efficacy and self-esteem (Brunswick & Bargary, 2022). Current tools have proven effective in primary education but often fail to address the unique challenges faced by secondary school students in diverse cultural contexts. This gap highlights the necessity of developing adaptable screening mechanisms that consider linguistic and cultural variations, particularly in countries like Malaysia, where bilingual or multilingual education systems are prevalent.

These findings strongly support the objectives of the United Nations Sustainable Development Goals, particularly SDG 4.1 (UNESCO, 2024) and 4.5 (UNESCO, 2025a), which advocate for inclusive and equitable quality education for all learners, including those with dyslexia. Simultaneously, they align with SDG 10.2 (UNESCO, 2025b), which emphasizes the importance of promoting social inclusion irrespective of disability. By strategically aligning dyslexia-focused interventions with these global targets, educational systems can reduce systemic disparities, foster learning equity and empower individuals with dyslexia to achieve their full academic and personal potential within a socially just framework.

Discussion

This review highlights the multifaceted nature of dyslexia identification, emphasizing how the timing and context of diagnosis shape learners' educational and psychosocial trajectories. The synthesis of existing studies demonstrates that while early diagnosis facilitates timely intervention and improved outcomes, delayed or late-emerging cases often encounter systemic and contextual barriers that intensify their struggles. These findings point to the need for a critical examination of diagnostic practices through multiple lenses, including educational policy, teacher preparedness, sociocultural contexts, and technological innovation. To provide a comprehensive understanding, the discussion is organized around four interrelated themes: the value of early

diagnosis, systemic barriers in late-diagnosed dyslexia, the complexities of late-emerging dyslexia and the cultural and technological dimensions of screening.

1. The Value of Early Diagnosis

The findings reinforce the critical role of early diagnosis in mitigating the long-term academic and psychosocial consequences of dyslexia. Evidence from Italy and Finland demonstrates that early, targeted interventions, particularly those that are phonics-based and embedded within a tiered system of support, significantly improve literacy outcomes and reduce later achievement gaps (Barbiero et al., 2019; Lyytinen & Louleli, 2023; Torppa et al., 2022). In the Malaysian context, the Tubana Kit study further validates this, showing that play-based, curriculum-aligned interventions enhanced articulation, vocabulary and classroom behaviour among students with special needs (Nazir et al., 2024). These findings highlight that early detection must extend beyond cognitive screening to include culturally relevant and engaging pedagogies that sustain learners' motivation and confidence while reducing stress.

2. Systemic Barriers in Late-Diagnosed Dyslexia

Late-diagnosed dyslexia continue to pose significant challenges, particularly within secondary education. Students identified only during adolescence often face declining motivation, reduced self-worth and cumulative academic difficulties as curricular demands intensify (Bazen et al., 2020; Solek et al., 2025). These outcomes reflect not only the cognitive aspects of dyslexia but also systemic shortcomings such as insufficient teacher training, inadequate policy implementation and the absence of culturally responsive screening instruments. Evidence from South Africa reinforces this perspective, as teachers reported that while mobile technologies like iPads foster inclusion and confidence, their potential was often limited by misalignment with curricula, unstable infrastructure and lack of professional readiness (Blamire & Omidire, 2020). Such findings echo Morton and Frith's causal model, which emphasizes how biological predispositions and environmental conditions interact to shape dyslexia outcomes.

3. The Complexities of Late-Emerging Dyslexia

The phenomenon of late-emerging dyslexia further complicates the identification process. Learners in this category initially perform within expected literacy benchmarks but later struggle under the weight of increasingly complex academic demands (Sabatini, 2022; Xiuhong, 2023). These difficulties are often misattributed to a lack of effort or motivation, leading to delayed or inadequate intervention. The inadequacy of one-off screening is made evident here, underscoring the need for longitudinal monitoring across educational transitions. Integrating adaptive screening tools such as AI-driven applications can enhance early detection among older students, particularly in multilingual environments (Lyytinen & Louleli, 2023).

4. Cultural and Technological Dimensions in Dyslexia Screening

Cultural validity and technological innovation have become essential dimensions in achieving equitable dyslexia screening. Research in Italy demonstrates that inappropriate diagnostic measures initially underestimated prevalence rates, which increased substantially when linguistically adapted tools were introduced (Barbiero et al., 2019). This indicates that accurate, valid and reliable diagnostic criteria and methods are needed to identify children with dyslexia. Without proper screening instruments, an increase in dyslexic students will occur, which can have an impact on self-efficacy and self-esteem (Brunswick & Bargary, 2022). Current tools have proven effective in primary education but often fail to address the unique challenges faced by secondary school students in diverse cultural contexts. This gap highlights the necessity of developing adaptable screening mechanisms that consider linguistic and cultural variations, particularly in countries like Malaysia, where bilingual or multilingual education systems are prevalent.

5. Teacher Professional Development and Systemic Readiness

The role of teachers as frontline diagnosticians emerges as a decisive factor in the success of dyslexia interventions. Research indicates that systematic professional development enhances teachers' competence

and confidence in identifying early signs of dyslexia, even in complex and resource-limited contexts (Ch'ng & Jong, 2024). This finding underscores the necessity of a teacher-centric approach in reforming dyslexia identification practices. In line with (Masdoki et al., 2021), the competencies demanded by Teaching 4.0 such as digital literacy, differentiated instruction and adaptability are highly relevant to equipping teachers for this role. Without adequately trained educators, however, even the most innovative screening tools risk failing to produce meaningful impact (Fletcher et al., 2021). This convergence suggests that advancing dyslexia screening and intervention must be accompanied by comprehensive frameworks of teacher competency that align with the transformative agenda of Education 4.0, ensuring both technological proficiency and inclusive pedagogical practice.

Taken together, these findings highlight that dyslexia identification and intervention require a multidimensional approach that is both developmentally sensitive and contextually responsive. Early diagnosis, supported by culturally aligned tools such as the Tubana Kit and sustained monitoring through technological innovations like mobile applications, demonstrate the potential to mitigate long-term academic and psychosocial disadvantages. Yet, the persistence of late-diagnosed and late-emerging cases underscores the urgent need for systemic readiness, particularly through teacher professional development and policy alignment. By embedding such strategies within the broader agenda of the United Nations Sustainable Development Goals, specifically SDG 4 on equitable quality education and SDG 10 on reducing inequalities, educational systems can move beyond access alone to ensure meaningful participation and inclusion for students with dyslexia. Ultimately, these efforts not only close achievement gaps but also advance a vision of education that embraces neurodiversity as a cornerstone of equity and social justice.

6. Limitations

This narrative review is subject to several limitations. First, the selection of studies was not based on a systematic protocol, which may have introduced selection bias. Second, the interpretation of findings relied heavily on the authors' synthesis, which, although grounded in literature, is inherently subjective. Third, most of the reviewed studies were conducted in Western and Southeast Asian contexts, which may limit the transferability of conclusions to other educational systems or cultural settings. Lastly, due to the narrative nature of the review, the absence of meta-analytic or quantitative synthesis restricts the ability to determine effect sizes or strength of associations across studies.

Future research could address these limitations in several ways. To reduce the risk of selection bias, systematic review methodologies with predefined inclusion and exclusion criteria should be adopted, supported by transparent reporting standards such as PRISMA. To enhance the objectivity of interpretations, future reviews could incorporate multiple independent reviewers, employ inter-rater reliability measures, or use consensus-based coding approaches. Expanding the geographical scope of studies is also essential, particularly in underrepresented multilingual and resource-limited contexts, to ensure greater cultural relevance and generalizability of findings. Furthermore, conducting meta-analyses or mixed-method systematic reviews would provide a more robust evaluation of effect sizes and the strength of associations, complementing qualitative synthesis with quantitative evidence. Finally, longitudinal and cross-cultural comparative studies could help capture the developmental trajectories of dyslexia across diverse educational systems, offering richer insights into the timing, systemic barriers and contextual influences that shape identification and intervention practices.

Conclusion

This review underscores the complex nature of dyslexia and emphasizes the critical need for both early identification and continuous intervention. By categorizing dyslexia into early diagnosed, late-diagnosed and late-emerging forms, the findings illuminate key gaps in current educational practices. Early screening and intervention have significantly improved academic and psychosocial outcomes, aligning with SDG 4's goal of ensuring inclusive and equitable quality education. However, the persistent challenges associated with late diagnosis and systemic barriers underscore the need for more comprehensive approaches.

The limitation of this review is its reliance on studies primarily conducted in high-resource contexts, such as Italy and Finland, which may not fully capture the challenges faced in under-resourced regions. Additionally, existing screening tools often fail to address the unique needs of older students and those in multilingual settings. Future research should prioritize the development of adaptive screening mechanisms tailored to diverse cultural and linguistic contexts. Longitudinal studies exploring the impact of sustained interventions across educational stages would also provide deeper insights into effective dyslexia management.

In conclusion, closing the gaps in dyslexia screening and intervention demands collaboration among educators, policymakers and researchers. Strengthening inclusive practices and ensuring equitable access can empower individuals with dyslexia to achieve their full potential while advancing the goals of SDG 4 and SDG 10 toward a more just and inclusive society.

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Conflicts of Interest: The authors declare that there is no presence of any conflict of interest.

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