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Gender Disparities in the Identification of Special Educational Needs: Evidence, Diagnostic Bias, and Implications for Inclusive Education

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ABSTRACT

Boys are identified with special educational needs more often than girls across several diagnostic categories. Yet these recorded differences cannot be assumed to represent equivalent differences in underlying prevalence. This structured narrative review draws on research published between 2016 and 2026 to examine gender patterns in the identification of ADHD, autism, specific learning disorders, developmental language disorder, intellectual disability, and emotional and behavioural difficulties. It considers prevalence estimates alongside evidence from referral practices, clinical assessment, school identification, and first-person accounts of delayed diagnosis. The findings vary across conditions, but a recurring pattern is evident. Difficulties that disrupt classroom activity or produce conspicuous academic failure are more likely to prompt assessment, whereas inattention, anxiety, social withdrawal, compensatory effort, and camouflaging can remain unnoticed. This may increase the visibility of some boys while delaying recognition and support for some girls. At the same time, biological vulnerability and genuine variation in developmental outcomes cannot be excluded, particularly in specific diagnostic groups. The evidence therefore does not support a single explanation for gender disparities or the construction of uniform “male” and “female” profiles. More equitable identification requires developmental history, information from several settings, direct assessment, and attention to the effort learners expend to maintain apparently adequate performance. Educational support should ultimately be guided by functional need rather than by how closely a learner resembles a familiar diagnostic prototype

INTRODUCTION

Judgments of adults, the organization Gender differences are consistently reported in the identification of children with special educational needs (SEN). Boys are diagnosed or educationally classified more frequently in several areas, including attention-deficit/hyperactivity disorder (ADHD), autism spectrum disorder, developmental language disorder (DLD), intellectual disability, and reading difficulties (American Psychiatric Association, 2022; Arnett *et al.*, 2017; Bishop *et al.*, 2017; Loomes *et al.*, 2017; Young *et al.*, 2020). These differences are often interpreted as evidence that neurodevelopmental conditions are inherently more prevalent among boys. Recorded identification, however, is not equivalent to underlying prevalence. Diagnosis is the outcome of a pathway that begins with the recognition of a difficulty and proceeds through referral, assessment, interpretation, and the application of diagnostic or administrative criteria (Lockwood Estrin *et al.*, 2021; Mowlem *et al.*, 2019). Each stage of this pathway is susceptible to gender-related influences. A difficulty must first become sufficiently visible to a parent, teacher, or professional. It must then be interpreted as unusual, persistent, and significant enough to justify assessment. The learner must have access to appropriate services, and the presentation must correspond sufficiently closely to the behaviours represented in diagnostic criteria and assessment

instruments. Identification rates therefore reflect not only learner characteristics but also the organisation and accessibility of services, and the thresholds used by educational and clinical systems (Lockwood Estrin *et al.*, 2021; Ratto *et al.*, 2018; Young *et al.*, 2020). Schools occupy a particularly influential position in this process. Teachers observe children in settings that place sustained demands on attention, language, behavioural regulation, literacy, working memory, and peer interaction. They are consequently well placed to recognise emerging difficulties. Nevertheless, referral is more likely when a learner’s behaviour disrupts instruction or creates an immediate classroom-management problem. Hyperactivity, impulsivity, aggression, persistent interruption, and conspicuous academic failure generally attract attention more readily than quiet inattention, anxiety, perfectionistic compensation, social uncertainty, or exhaustion (Mowlem *et al.*, 2019; Young *et al.*, 2020). When such characteristics are distributed differently—or interpreted differently—across genders, referral practices can amplify disparities that may have been smaller at the level of underlying need.

LITERATURE REVIEW

Attention-Deficit/Hyperactivity Disorder

ADHD illustrates this distinction clearly. On average, girls who reach ADHD services are more likely to

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present with predominantly inattentive symptoms and co-occurring internalising difficulties, whereas boys are more frequently referred following visible hyperactivity, impulsivity, or disruptive behaviour (Mowlem *et al.*, 2019; Young *et al.*, 2020). Inattention may cause substantial impairment without disturbing classroom routines. A learner who repeatedly loses materials, misses parts of instructions, depends on adult prompting, or spends excessive time completing work may appear compliant and broadly successful. These difficulties may consequently be attributed to anxiety, immaturity, low motivation, or personality rather than prompting consideration of ADHD (Young *et al.*, 2020). This pattern should not be converted into a simple contrast between “hyperactive boys” and “inattentive girls.” Considerable heterogeneity exists within both groups, and symptom distributions overlap substantially. Many boys have predominantly inattentive presentations, while some girls display pronounced hyperactivity and impulsivity. Nevertheless, diagnostic prototypes influence recognition. When the culturally familiar image of ADHD is a highly active and disruptive boy, learners who do not resemble that image may need to display greater impairment before assessment is initiated. Population-based evidence suggests that girls can face a higher practical threshold for ADHD diagnosis and pharmacological treatment even after relevant symptoms and functional difficulties are considered (Mowlem *et al.*, 2019).

Autism Spectrum Disorder

Research on autism has raised related concerns. The male-to-female diagnostic ratio was traditionally assumed to be approximately 4:1. A systematic review and meta-analysis estimated a ratio closer to 3:1 and found narrower differences in studies that actively assessed participants rather than relying on existing clinical diagnoses (Loomes *et al.*, 2017). This finding does not establish equal autism prevalence across sexes, but it suggests that routine clinical and educational pathways fail to identify a proportion of autistic girls. Several mechanisms may contribute to this disparity. Some autistic girls may display fewer overt repetitive behaviours, have intense interests whose subject matter appears socially conventional, or demonstrate stronger surface-level social communication than expected under historically male-centred diagnostic prototypes (Hull *et al.*, 2020; Lockwood Estrin *et al.*, 2021; Ratto *et al.*, 2018). Some learn to imitate peers, rehearse conversational responses, consciously regulate eye contact, suppress visible behaviours, or monitor their social performance. These strategies are commonly described as camouflaging or masking (Hull *et al.*, 2017; Lai *et al.*, 2017).

Camouflaging may reduce the observable visibility of autistic characteristics without removing the underlying difficulties. A student may participate adequately in a structured lesson while experiencing substantial uncertainty, cognitive effort, or exhaustion. Difficulties may become more apparent during unstructured peer interaction or after the student returns home. First-

person accounts from late-diagnosed autistic women describe both the sustained effort involved in appearing socially competent and the personal consequences of remaining unsupported (Bargiela *et al.*, 2016). Systematic evidence also supports the relevance of camouflaging to female autism presentations, although definitions, measures, and samples vary considerably across studies (Tubío-Fungueiriño *et al.*, 2021; Wood-Downie *et al.*, 2021). Camouflaging is neither universal among autistic girls nor exclusive to girls and women. Autistic boys, men, and gender-diverse people may also conceal or compensate for autistic characteristics (Hull *et al.*, 2017; Lai *et al.*, 2017). Moreover, much of the relevant literature concerns verbally fluent adolescents or adults without intellectual disability. The concept of a “female autism phenotype” can increase professional sensitivity to under-recognised presentations, but it can also become another restrictive stereotype if treated as a universal profile (Hull *et al.*, 2020; Tubío-Fungueiriño *et al.*, 2021). Gender-responsive assessment must therefore expand sensitivity to variation without assuming that all girls or all boys present in the same way.

Specific Learning Disorders

Gender is also relevant to the identification of specific learning disorders. Boys have often been reported as more likely to experience or be identified with reading disability, but the size of the difference depends partly on the definition of dyslexia and the method used to select participants. Greater variability in boys’ reading-related abilities may contribute to their overrepresentation at the lower end of the achievement distribution, while referral practices and co-occurring externalising behaviour may further increase their diagnostic visibility (Arnett *et al.*, 2017). Dyslexia remains heterogeneous, and its identification is sensitive to the measure employed, the severity threshold, language and orthography, instructional opportunity, and the method used to distinguish persistent disorder from broader low attainment (Snowling *et al.*, 2020).

Developmental Language Disorder

Similar caution is required for DLD. Clinical samples have historically contained more boys, but referral-based ratios do not necessarily represent population prevalence. Language difficulties may be overlooked when they do not produce disruptive behaviour or conspicuous speech problems. Children with difficulties in comprehension, narrative organisation, vocabulary learning, or pragmatic language may appear inattentive, shy, or generally low-achieving without their underlying language needs being recognised (Bishop *et al.*, 2017). Gender disparities in DLD identification may therefore emerge through an interaction between developmental variation and the educational visibility of particular language profiles.

Intellectual Disability

Intellectual disability presents a partly different set of issues. Identification is based on limitations in both

intellectual functioning and adaptive behaviour rather than on a single academic or behavioural feature (American Psychiatric Association, 2022; World Health Organization, 2022). Even so, recorded prevalence varies according to severity, age, socioeconomic conditions, access to assessment, and the administrative systems used to determine eligibility. Gender differences may also vary between mild intellectual disability, which is especially sensitive to educational and socioeconomic context, and more severe forms associated with identifiable developmental or genetic conditions (McKenzie *et al.*, 2016).

Emotional and Behavioural Difficulties

Emotional and behavioural difficulties create additional conceptual challenges because educational classifications do not correspond uniformly to a single clinical diagnosis. Depending on the educational system, the category may include disruptive behaviour, anxiety, depression, social withdrawal, trauma-related responses, or difficulties arising from adverse environments. Boys' greater visibility through externalising behaviour may increase behavioural referrals, whereas girls' internalised distress may be less likely to generate immediate classroom concern. This does not imply that boys are naturally externalising and girls naturally internalising. Behaviour is shaped by temperament, development, socialisation, relationships, environmental demands, and adult interpretation. Gender may influence both how distress is expressed and how similar behaviour is judged.

Identification Pathways and Research Gap

The distinction between referral samples and population-based samples is therefore central to the study of gender disparities. Clinically diagnosed groups are valuable for examining symptom profiles and experiences of assessment, but they cannot independently establish population prevalence. By definition, they contain individuals who have already crossed thresholds of recognition, referral, and diagnostic access. If these thresholds operate differently across genders, comparisons within diagnosed samples may systematically underrepresent the characteristics of people who remain outside services (Loomes *et al.*, 2017; Mowlem *et al.*, 2019; Ratto *et al.*, 2018). The consequences of unequal identification can operate in both directions. Under-identification may delay explanation, intervention, educational adjustment, and self-understanding. Learners may be blamed for difficulties interpreted as laziness, carelessness, immaturity, or unwillingness to cooperate (Bargiela *et al.*, 2016; Young *et al.*, 2020). Conversely, over-identification or inappropriate classification may expose students to stigma, reduced expectations, unnecessary separation, or interventions that fail to address the actual source of difficulty. Equity should not therefore be defined as equal diagnostic rates. The more defensible aim is accurate and timely recognition of meaningful

need, followed by support that enables participation without reducing the learner to a diagnostic category. Terminology requires particular care. Many studies use sex and gender interchangeably and classify participants through a binary female–male variable without specifying whether this represents sex assigned at birth, legal sex, parent-reported gender, or gender identity. Sex may be relevant to genetic, hormonal, and neurodevelopmental processes, whereas gender encompasses identities, social roles, behavioural expectations, and institutional responses. These influences are analytically distinct but interact throughout development. The present review retains the terminology used by original studies when reporting their findings and uses gender disparities more broadly to describe patterns produced through the interaction of learner characteristics, social expectations, and identification systems.

This terminology does not resolve the limited representation of transgender, non-binary, and gender-diverse learners. Most available evidence relies on binary comparisons and cannot be generalised confidently beyond those categories. Acknowledging this evidential absence is preferable to incorporating gender-diverse learners into conclusions derived almost entirely from cisgender samples. Current diagnostic systems recognise that neurodevelopmental conditions vary in presentation and functional effects (American Psychiatric Association, 2022; World Health Organization, 2022). Diagnostic flexibility alone, however, cannot eliminate disparities, because criteria continue to be interpreted through information supplied by parents, teachers, learners, and clinicians and within services of unequal availability. Identification is consequently better understood as an ecological and institutional process than as a single objective event.

Against this background, the present structured narrative review examines evidence published between 2016 and 2026 concerning gender disparities in the identification of ADHD, autism, specific learning disorders, DLD, intellectual disability, and emotional and behavioural difficulties. It addresses four questions:

What gender disparities have been reported in prevalence, referral, assessment, and formal identification?

Which developmental, behavioural, measurement-related, and institutional mechanisms may account for these disparities?

How do the relevant patterns differ across categories of special educational needs?

What changes could support more equitable identification and inclusive educational provision?

The review does not seek to define universal male and female profiles, which would merely replace one set of diagnostic stereotypes with another. Its purpose is to clarify how heterogeneous learner characteristics interact with gendered expectations and institutional procedures, influencing who becomes visible, who receives support, and whose needs remain unrecognised.

MATERIALS AND METHODS

Design and Scope

A structured narrative review was conducted because the evidence spans epidemiological, clinical, psychometric, qualitative, and educational studies that use non-equivalent definitions and outcomes. The review followed guidance for transparent narrative synthesis and the SANRA quality criteria (Baethge *et al.*, 2019; Snyder, 2019).

Search Strategy

PubMed, Scopus, Web of Science, PsycINFO, and ERIC were searched for English-language research published from January 2016 to September 2026. Search strings combined sex- and gender-related terms with identification terms (e.g., diagnosis, referral, assessment, prevalence, and underdiagnosis) and the focal categories: ADHD, autism, dyslexia or specific learning disorder, developmental language disorder, intellectual disability, and emotional or behavioural difficulties. Database searches were supplemented by reference-list screening and forward citation searching.

Eligibility and Narrative Synthesis

Peer-reviewed empirical studies, systematic reviews, meta-analyses, and substantial theoretical reviews were eligible when they examined gender-related differences in prevalence, referral, assessment, diagnosis, or access to educational support in childhood or adolescence; retrospective adult evidence concerning childhood identification was also eligible. Studies focused only on biological differences were excluded unless they addressed identification or educational implications. Evidence was synthesised by diagnostic category across four dimensions: prevalence and identification ratios, presentation, referral or measurement processes, and implications for inclusive assessment. Greater weight was given to systematic reviews, population-based studies, and active case-finding, while clinically referred samples were interpreted cautiously. The terminology of sex and gender follows the original studies; the evidence base remains predominantly binary.

RESULTS AND DISCUSSION

Cross-Cutting Mechanisms of Gender Disparity

Diagnostic Visibility

Externalizing behavior Across diagnostic categories, identification is influenced by how visible a learner's difficulties are to adults. Hyperactivity, pronounced academic failure, and obvious communication difficulties are more likely to prompt referral than internal distress, compensatory effort, or difficulties that emerge mainly in complex social situations (Lockwood Estrin *et al.*, 2021; Mowlem *et al.*, 2019; Young *et al.*, 2020).

This mechanism may increase the identification of boys whose difficulties are expressed through hyperactivity or disruptive behaviour. It may simultaneously delay recognition among girls who remain compliant while experiencing inattention, anxiety, social uncertainty, or

exhaustion. However, the pattern is not universal: boys can also have overlooked internalising presentations, while girls may display highly visible externalising difficulties.

Gendered Prototypes

Assessment is influenced by historically established prototypes of neurodevelopmental conditions. ADHD is often associated with the visibly hyperactive boy, while autism has traditionally been represented through male-dominated clinical samples. Learners whose characteristics do not resemble these prototypes may require more severe impairment before being referred or diagnosed (Hull *et al.*, 2020; Ratto *et al.*, 2018; Young *et al.*, 2020).

Diagnostic prototypes can affect the interpretation of similar behaviours. Quiet inattention may be attributed to low confidence or anxiety, while socially conventional restricted interests may not be recognised as clinically relevant. Bias can therefore occur without deliberate discrimination, through routine decisions based on incomplete expectations.

Referral and Informant Effects

Parents, teachers, clinicians, and learners may report different aspects of functioning because they observe behaviour under different demands. Teachers may identify difficulties with attention, academic progress, and behavioural regulation, while families may observe emotional exhaustion, homework conflict, or distress following sustained compensation at school (Young *et al.*, 2020).

Disagreement between informants should not automatically be treated as unreliable reporting. It may reflect genuine contextual variation. Equitable assessment requires consideration of when difficulties occur, how much support is needed to maintain performance, and whether apparently adequate functioning is achieved at an excessive personal cost.

Diagnostic Overshadowing

Gender disparities may also arise when one set of difficulties conceals another. Girls with unrecognised ADHD or autism may initially be assessed for anxiety, depression, eating difficulties, or social withdrawal (Bargiela *et al.*, 2016; Lockwood Estrin *et al.*, 2021; Young *et al.*, 2020). Boys referred because of disruptive behaviour may receive behavioural labels without adequate assessment of language, literacy, emotional, or environmental difficulties.

Alternative diagnoses are not necessarily incorrect. Anxiety and depression may coexist with neurodevelopmental conditions and require direct support. The concern is that an immediate or highly visible presentation can prevent a more complete developmental formulation.

Access to Support

Unequal identification affects access to accommodations, specialised teaching, clinical intervention, and explanatory

frameworks. Delayed identification can leave learners without support and encourage interpretations based on laziness, poor motivation, or deliberate misconduct. Inappropriate identification can also expose students to stigma, reduced expectations, and interventions that do not address their actual needs.

Inclusive education should therefore not make formal diagnosis the sole gateway to support. Adjustments can be offered according to demonstrated functional need while assessment is pending. The purpose of gender-responsive practice is not to produce equal diagnostic rates, but to ensure that comparable needs receive comparable attention and support.

Gender Disparities in ADHD Identification

Recent surveillance data provide an important context for interpreting the diagnostic gap. In the United States, the latest National Survey of Children's Health estimate indicates that 7 million children aged 3–17 years, or 11.7%, had a current ADHD diagnosis in 2024. This represents a modest increase from the 11.4% ever-diagnosed estimate reported for 2022, although the measures are not strictly identical. The longer series nevertheless indicates continued growth in parent-reported diagnosis and substantial variation between states, with current-diagnosis estimates ranging from 6% to 15% (Centers for Disease Control and Prevention [CDC], 2026b). These are diagnosed-prevalence figures rather than direct measures of underlying disorder prevalence; changing awareness, access, and assessment practices can therefore affect the trend.

The most recent sex-disaggregated CDC figures, based on 2022–2023 data, show that 13% of boys and 7% of girls had ever received an ADHD diagnosis, a ratio of approximately 1.9:1 (CDC, 2026b). The gap is smaller than ratios often reported in specialist clinics but remains substantial. It should be interpreted alongside evidence that girls may require more severe or complex presentations to reach diagnosis, particularly when inattentive and internalising symptoms are less visible (Mowlem *et al.*, 2019; Young *et al.*, 2020).

ADHD is diagnosed more frequently in boys during childhood, but clinical ratios should not be interpreted as direct estimates of prevalence. Boys are more likely to be referred when hyperactivity, impulsivity, or disruptive behaviour interferes with classroom routines. Girls, by contrast, more often reach services with inattentive symptoms, organisational difficulties, emotional dysregulation, or internalising problems that attract less immediate attention (Mowlem *et al.*, 2019; Young *et al.*, 2020).

Symptom Presentation and Visibility

Inattention can produce substantial educational impairment without creating a classroom management problem. A student may forget instructions, lose materials, begin tasks slowly, or depend extensively on adult prompting while remaining quiet and compliant. These

difficulties may be interpreted as limited motivation, anxiety, immaturity, or poor study habits rather than possible ADHD (Young *et al.*, 2020).

Some girls maintain acceptable performance through extensive preparation, perfectionism, parental assistance, or imitation of organised peers. Such compensation can conceal impairment until secondary education increases demands for independent planning, time management, and movement between different teachers and subjects. Later identification may therefore reflect increased environmental demands rather than the late emergence of ADHD.

These findings describe average tendencies and should not be treated as gender-specific rules. Many boys have predominantly inattentive presentations, and girls can display pronounced hyperactivity. Replacing the stereotype of the “hyperactive boy” with that of the “quiet inattentive girl” would overlook the heterogeneity of ADHD.

Referral and Diagnostic Thresholds

Evidence indicates that girls may require a greater burden of symptoms or co-occurring difficulties before receiving an ADHD diagnosis or pharmacological treatment. Mowlem *et al.* (2019) found sex-related differences in the extent to which symptoms predicted clinical recognition. This suggests that the effective threshold for referral and diagnosis may not operate identically across genders.

The issue is not limited to formal diagnostic criteria. Before an assessment occurs, parents and teachers must decide that a child's difficulties exceed ordinary variation. Highly visible behaviour may accelerate this decision, whereas less disruptive difficulties can remain manageable from an adult perspective despite imposing a considerable burden on the learner.

Internalising Difficulties and Diagnostic Substitution

Girls with ADHD may initially be referred because of anxiety, depression, low self-esteem, academic stress, or social difficulties. These conditions can coexist with ADHD and should not be dismissed as secondary. Nevertheless, assessment may remain incomplete if emotional symptoms are considered without examining the developmental history of attention, impulsivity, organisation, and executive functioning (Young *et al.*, 2020).

Diagnostic substitution can consequently delay appropriate support. Repeated academic inconsistency, forgetting, criticism, and dependence on compensatory strategies may contribute to emotional distress. Treating anxiety or depression without recognising persistent attentional difficulties may address only part of the learner's experience.

The opposite error is also possible. Not every girl experiencing anxiety, disorganisation, or concentration problems has ADHD. Sleep difficulties, trauma, depression, learning disorders, language problems, and environmental stress can produce similar functional

effects. Gender-responsive practice requires broader assessment rather than a presumption of hidden ADHD.

Assessment and Informant Differences

ADHD assessment commonly integrates parent and teacher ratings, clinical interviews, developmental history, and evidence of impairment across settings. Rating scales are useful but may privilege directly observable behaviours. Items concerning interruption, excessive movement, and difficulty remaining seated may be easier for adults to identify than internal distraction, mental restlessness, or the effort required to sustain attention.

Differences between school and home reports should be examined contextually. A highly structured classroom may reduce visible difficulty, while homework exposes problems with initiation and organisation. Alternatively, symptoms may become more evident at school because of sustained attentional demands. Multiple informants are therefore essential, but no single report should automatically be regarded as definitive (American Psychiatric Association, 2022; World Health Organization, 2022).

The learner's account becomes increasingly important during adolescence. Students may describe distraction, racing thoughts, emotional overload, compensatory effort, or exhaustion that is not visible to adults. Self-report should not replace developmental and contextual evidence, but it can reveal the difference between appearing attentive and sustaining attention effectively.

Educational Consequences

Delayed ADHD identification can affect academic progress, relationships, and self-concept. Students whose difficulties remain unexplained may be described as careless, inconsistent, or insufficiently motivated. Retrospective accounts from women diagnosed in adulthood frequently describe longstanding struggles that were not recognised because their behaviour did not resemble conventional ADHD expectations (Holthe & Langvik, 2017).

Identification does not, by itself, guarantee inclusion. A diagnosis can facilitate accommodations and treatment, but it can also lower expectations if used as a complete explanation of the learner. Assessment should lead to practical support, including clear instructions, organisational scaffolding, reduced working-memory demands, predictable routines, and assistance with planning.

Schools should not postpone these adjustments until formal diagnosis. Support can be provided according to functional need while assessment is pending. This approach reduces the consequences of delayed identification without encouraging indiscriminate diagnosis.

Interim Synthesis

The higher childhood identification rate among boys probably reflects both developmental variation and

ascertainment processes. Externalising symptoms make some boys more visible, while inattentive and internalising presentations can delay recognition among girls. Referral expectations, informant judgements, and diagnostic prototypes influence which learners enter assessment pathways (Mowlem *et al.*, 2019; Young *et al.*, 2020).

The evidence does not support separate diagnostic criteria for boys and girls. It supports a more context-sensitive application of existing criteria, informed by developmental history, multiple perspectives, functional impairment, and the cost of maintaining outwardly adequate performance.

Gender Disparities in Autism Identification

The latest Autism and Developmental Disabilities Monitoring Network report estimated autism prevalence at 32.2 per 1,000, or one in 31, among 8-year-old children across 16 United States surveillance sites in 2022. Using comparable surveillance cycles, this was higher than one in 36 in 2020, one in 44 in 2018, and one in 150 in 2000 (Shaw *et al.*, 2025). The increase concerns identified prevalence and should not be interpreted automatically as an equivalent rise in underlying incidence. Broader criteria, greater awareness, earlier assessment, improved identification among previously underserved groups, and differences in local records and services all contribute to recorded prevalence.

Marked sex differences remain. In 2022, identified prevalence was 49.2 per 1,000 boys and 14.3 per 1,000 girls, meaning that autism was recorded 3.4 times as frequently among boys (Shaw *et al.*, 2025). This ratio is narrower than the historically cited 4:1 ratio and is broadly consistent with meta-analytic evidence that active case-finding identifies proportionally more girls than reliance on existing clinical records (Loomes *et al.*, 2017). The changing ratio therefore supports analysis of both developmental variation and differential diagnostic visibility.

Autism has traditionally been diagnosed more frequently in boys than in girls. However, the size of this difference depends partly on how cases are identified. Loomes *et al.* (2017) estimated a male-to-female ratio closer to 3:1 rather than the frequently cited 4:1 and found that the ratio narrowed in studies using active case-finding procedures. This suggests that routine clinical and educational pathways may fail to recognise some autistic girls.

Differences in Diagnostic Presentation

Autistic girls may be less likely to resemble historically established diagnostic prototypes. Some demonstrate stronger surface-level social communication, greater apparent interest in friendships, or fewer conspicuous repetitive behaviours. Their restricted interests may involve socially conventional subjects, although the intensity and rigidity of these interests can remain clinically significant (Hull *et al.*, 2020; Lockwood Estrin *et al.*, 2021; Ratto *et al.*, 2018).

An expressed desire for friendship should not be interpreted as evidence against autism. Some autistic girls actively seek relationships but experience difficulty understanding implicit rules, managing conflict, recognising manipulation, or maintaining reciprocity. These difficulties may become more visible during adolescence, when peer relationships become increasingly complex.

Clinical samples may also provide a distorted picture. If girls require more pronounced characteristics or additional difficulties before referral, diagnosed girls may appear more severely affected than the broader population of autistic girls. This selection process can reinforce the assumption that autism in females is recognisable only when impairment is substantial (Ratto *et al.*, 2018).

Camouflaging and Masking

Camouflaging refers to efforts to conceal autistic characteristics or compensate for social difficulties. Strategies can include imitating peers, rehearsing conversations, consciously maintaining eye contact, suppressing repetitive behaviours, and monitoring other people's reactions (Hull *et al.*, 2017; Lai *et al.*, 2017).

These strategies may reduce the visibility of autism during lessons or brief diagnostic observations. They do not necessarily reduce the effort involved in social participation. Qualitative research has connected sustained camouflaging with exhaustion, anxiety, reduced authenticity, and delayed access to support (Bargiela *et al.*, 2016; Cage & Troxell-Whitman, 2019).

Camouflaging is neither universal among autistic girls nor exclusive to females. Evidence has also been obtained from autistic boys, men, and gender-diverse individuals. Moreover, much of the literature involves verbally fluent adolescents and adults without intellectual disability. Conclusions should therefore be applied cautiously (Tubío-Funqueiriño *et al.*, 2021; Wood-Downie *et al.*, 2021).

Diagnostic Overshadowing

Girls with unrecognised autism may initially receive support for anxiety, depression, eating difficulties, social withdrawal, or school refusal. These conditions may be genuine co-occurring difficulties, but they can also draw attention away from longstanding social-communication, sensory, and behavioural characteristics (Bargiela *et al.*, 2016; Lockwood Estrin *et al.*, 2021).

Anxiety creates a particularly complex differential diagnosis. Social avoidance may reflect fear of evaluation, difficulty interpreting social interaction, sensory overload, previous peer rejection, or several mechanisms operating together. Accurate assessment therefore requires developmental history rather than reliance on the learner's current presentation alone.

Diagnostic overshadowing can also occur after autism has been identified. Emotional distress, ADHD, language difficulties, or learning disorders may subsequently be attributed to autism without separate assessment.

Recognition of one condition should not end the diagnostic process when significant additional needs remain.

Assessment Instruments and Informants

Standardised instruments provide structure but may be less sensitive to presentations that differ from those represented in their development samples. Fluent speech, eye contact, humour, or apparently successful conversation can be given disproportionate weight, particularly during short clinical encounters (Lockwood Estrin *et al.*, 2021; Ratto *et al.*, 2018).

Assessment should combine direct observation with developmental history, reports across settings, sensory experiences, peer functioning, restricted interests, and evidence about the effort required to participate. Parents may observe exhaustion or emotional release after school, while teachers see successful behavioural control. This discrepancy can provide clinically useful information rather than evidence that one informant is mistaken.

The learner's perspective is also important. Older children and adolescents may describe conscious imitation, uncertainty about social rules, sensory overload, or the need to recover after interaction. These experiences may remain inaccessible if assessment focuses only on externally observable behaviour.

Implications for Inclusive Education

Teachers should be familiar with varied autism presentations but should not be expected to diagnose students. Referral decisions should consider persistent friendship difficulties, sensory distress, inflexibility, exhaustion, and dependence on rehearsed social strategies, even when basic classroom interaction appears adequate. Support should not require continual demonstration of visible distress. Predictable routines, explicit communication, sensory adjustments, access to quiet spaces, structured support for peer interaction, and protection from bullying can be provided according to need while assessment is underway.

The concept of a female autism phenotype can help challenge male-centred assumptions, but it should not become a new diagnostic checklist. Not all autistic girls camouflage or have conventional interests, and many autistic boys also present in less visible ways. More equitable identification requires sensitivity to individual variation within genders rather than rigid comparisons between them (Hull *et al.*, 2020; Tubío-Funqueiriño *et al.*, 2021).

Interim Synthesis

The male predominance in autism diagnosis probably reflects a combination of developmental differences and unequal identification. Active case-finding produces narrower gender ratios than reliance on existing clinical records, indicating that ascertainment practices contribute to the disparity (Loomes *et al.*, 2017).

Camouflaging, socially conventional interests, diagnostic

overshadowing, and reliance on male-centred prototypes may delay recognition among some girls. The evidence nevertheless remains methodologically uneven. The most defensible response is not a separate definition of autism for girls, but a broader assessment process that considers developmental history, context, internal experience, and the cost of outward adaptation.

Gender Disparities in Specific Learning Disorders

No single international surveillance system provides a directly comparable annual prevalence estimate for specific learning disorders. Administrative education data nevertheless show their scale. In the United States, 15% of public-school students aged 3–21 received services under the Individuals with Disabilities Education Act in 2022–2023, compared with 13% in 2012–2013; specific learning disability was the largest eligibility category, accounting for 32% of students receiving such services (National Center for Education Statistics [NCES], 2024). These figures describe special-education eligibility and service receipt, not the population prevalence of dyslexia, dysgraphia, or dyscalculia. They are shaped by national definitions, assessment thresholds, school resources, and access to evaluation.

Sex differences are most consistently reported for reading disorder, although their magnitude depends on ascertainment. Population-based assessments generally yield a smaller male excess than referred samples, while boys are more heavily represented at the lowest end of reading performance (Arnett *et al.*, 2017). The recent increase in overall special-education participation cannot therefore be read as evidence that the underlying prevalence of learning disorders has risen by the same amount. It may also reflect improved detection, changing eligibility practice, and greater access to services (NCES, 2024).

Specific learning disorders involve persistent difficulties in acquiring academic skills in reading, written expression, or mathematics despite appropriate educational opportunities. Their identification depends on the academic domain assessed, the diagnostic threshold, the quality of instruction, and the procedures used to distinguish persistent learning disorder from broader low attainment (American Psychiatric Association, 2022; Snowling *et al.*, 2020).

Reading Difficulties and Dyslexia

Boys are frequently identified with dyslexia more often than girls, although the size of the difference varies across studies. Referral-based samples generally produce larger male-to-female ratios than population studies using standardised assessments. This indicates that school referral practices may amplify underlying differences (Arnett *et al.*, 2017).

Several explanations have been proposed. Boys may show greater variability in reading-related abilities and consequently be overrepresented at the lowest end of the distribution. Processing speed may account for part

of this difference, although it does not fully explain disparities in identification (Arnett *et al.*, 2017). Co-occurring ADHD or disruptive behaviour can also make boys' academic difficulties more visible and increase the likelihood of referral.

Girls with reading difficulties may remain unidentified when they are compliant, develop compensatory strategies, or experience difficulties mainly in reading fluency and comprehension rather than highly visible decoding errors. Strong vocabulary and contextual guessing may temporarily conceal weaknesses in word-level reading. Recognition may occur later, when texts become longer and academic demands increase (Snowling *et al.*, 2020).

Written Expression

Gender differences in written expression are less clearly established than those reported for reading. Writing is a multidimensional activity requiring transcription, spelling, vocabulary, syntax, text organisation, working memory, and executive control. A learner may experience a specific weakness in one component while performing adequately in others.

Girls often achieve higher average writing scores in school, but group averages should not be used to evaluate individual need. The expectation that girls are naturally stronger writers may make persistent spelling, transcription, or organisational difficulties appear unexpected and therefore attributable to effort or anxiety. Conversely, low writing performance among boys may be normalised, delaying investigation of a specific disorder. Identification should be based on the learner's response to instruction and detailed analysis of writing processes rather than gendered expectations. Assessment should distinguish difficulties in handwriting, spelling, sentence production, planning, and revision, since these components require different forms of support.

Mathematics Difficulties

Evidence concerning gender differences in mathematical learning disorders is inconsistent. Boys and girls can experience comparable levels of persistent mathematical difficulty, although referral patterns may vary according to cultural expectations, mathematics anxiety, classroom participation, and broader achievement differences.

Gender stereotypes may influence both self-perception and adult interpretation. Mathematics difficulty in girls may be viewed as consistent with traditional stereotypes, reducing the likelihood that persistent problems are recognised as a specific educational need. At the same time, boys' low performance may attract concern when it conflicts with expectations of male mathematical competence.

Research involving children with specific learning disorders has generally identified limited differences in overall cognitive profiles. Giofrè *et al.* (2022), using a large clinical sample, found small gender-related differences in working memory and processing speed rather than sharply distinct male and female profiles. This supports

the use of individual assessment rather than gender-based assumptions about cognitive strengths and weaknesses.

Referral and Diagnostic Criteria

Gender disparities depend partly on how specific learning disorders are defined. Strict low-achievement thresholds, discrepancy criteria, response-to-intervention procedures, and clinical judgement do not necessarily identify the same learners. Ratios may also change according to whether reading accuracy, fluency, spelling, written expression, or mathematics is assessed (Snowling *et al.*, 2020).

School referral adds another layer of selection. Students whose learning difficulties coexist with behaviour problems are more likely to be noticed, whereas quiet students may continue to receive general remedial support without formal assessment. Gender differences in co-occurring ADHD may therefore indirectly influence identification of learning disorders (Arnett *et al.*, 2017; Mowlem *et al.*, 2019).

Assessment should not depend exclusively on a single test score. Relevant evidence includes developmental and educational history, quality of instruction, persistence of difficulty, classroom performance, standardised measures, and response to targeted teaching. Cultural and linguistic background must also be considered to avoid treating limited educational opportunity or second-language development as an intrinsic learning disorder.

Implications for Inclusive Education

Universal screening can reduce dependence on teacher referral and may identify learners whose difficulties are less disruptive or less consistent with gendered expectations. Screening should be followed by targeted assessment and evidence-based instruction rather than immediate diagnostic labelling.

Teachers should also examine unexpected discrepancies between oral participation and written performance, between apparent comprehension and reading accuracy, or between effort and academic output. These patterns may indicate a hidden learning difficulty regardless of gender.

Support should be linked to the learner's academic profile. Structured literacy instruction, explicit spelling teaching, writing scaffolds, strategy instruction, and systematic mathematics intervention can begin before formal diagnosis. This reduces the risk that students must first experience prolonged failure before receiving assistance.

Interim Synthesis

The greater identification of boys with specific learning disorders, particularly dyslexia, appears to reflect both distributional differences and referral processes. Boys may be more frequently represented at the lower end of reading performance, but behavioural visibility and co-occurring difficulties can further increase their likelihood of assessment (Arnett *et al.*, 2017).

The evidence does not support distinct male and female learning-disorder profiles. Within-group variation is

much greater than average differences between genders. Equitable identification therefore requires universal screening, careful analysis of academic skills, and reduced reliance on behaviour-driven referral.

Gender Disparities in Developmental Language Disorder

Developmental language disorder is not monitored through a current global annual surveillance system comparable to those used for autism or ADHD. The strongest population estimate used internationally remains the United Kingdom school-entry study by Norbury *et al.* (2016), which identified language disorder of unknown origin in 7.58% of children and language disorder associated with a known biomedical condition in a further 2.34%. Taken together, almost one in ten children met criteria for a language disorder. The absence of repeated population studies using the same definition means that a reliable recent increase or decrease in DLD prevalence cannot currently be claimed.

Crucially, gender was not a significant predictor of DLD risk in that population study, despite the much larger proportion of boys commonly observed in specialist language services (Norbury *et al.*, 2016). This contrast between relatively balanced population prevalence and male-dominated clinical caseloads suggests that referral, behavioural visibility, and co-occurring difficulties influence who reaches assessment. Current prevalence evidence therefore strengthens, rather than weakens, the distinction between the occurrence of DLD and its clinical identification.

Developmental language disorder (DLD) involves persistent difficulties in understanding or using spoken language that affect everyday communication or educational progress and are not explained by a known biomedical condition. The CATALISE consensus helped establish the term DLD and clarified that low non-verbal ability should not automatically exclude children from this diagnosis (Bishop *et al.*, 2017).

Prevalence and Clinical Identification

Boys are often substantially overrepresented in clinical language-service samples. Population-based research, however, generally produces a smaller gender difference than referral-based data. In a large epidemiological study, Norbury *et al.* (2016) estimated that language disorder affected approximately 7.6% of children at school entry. The findings did not support the large male predominance commonly observed in specialist services.

This discrepancy suggests that boys may be referred more readily rather than language difficulties being exclusively or overwhelmingly male. Boys with DLD may attract attention when language problems coexist with disruptive behaviour, limited classroom participation, or obvious expressive difficulties. Girls with comparable underlying needs may be less visible when they remain compliant or rely on imitation and contextual cues.

The Hidden Character of Language Difficulties

DLD is frequently described as a relatively hidden condition because many affected children speak fluently enough to conceal substantial weaknesses in vocabulary, grammar, comprehension, narrative organisation, or verbal memory. Adults may interpret these difficulties as inattention, shyness, immaturity, low ability, or unwillingness to follow instructions (McGregor, 2020). Receptive-language difficulties can be especially difficult to recognise. A student may follow familiar classroom routines without fully understanding verbal explanations. Girls who monitor peers and reproduce expected actions may appear to comprehend more than they do. This can delay assessment until curriculum language becomes more abstract and independent learning is required. Conversely, children with conspicuous speech or expressive-language problems are more likely to be referred early. Gender disparities may therefore depend partly on which aspects of language are visible rather than on the overall severity of the disorder.

Overlap with Other Diagnostic Categories

Language difficulties can resemble or coexist with ADHD, autism, specific learning disorders, and emotional or behavioural problems. A child who fails to follow instructions may be considered inattentive, while difficulty participating in conversation can be interpreted as social withdrawal or autism-related behaviour. Persistent literacy problems may also draw attention away from an underlying oral-language weakness (Bishop *et al.*, 2017; McGregor, 2020). Gendered expectations may influence which explanation is selected. Language-related frustration in boys may be expressed through disruptive behaviour and result in behavioural referral. Similar difficulties among girls may be associated with quiet withdrawal, dependence on peers, or anxiety. Neither presentation identifies the underlying mechanism without direct language assessment.

Assessment Implications

DLD assessment should examine both expressive and receptive language across vocabulary, grammar, narrative, and functional communication. Teacher and parent reports are valuable, but informal impressions of fluent speech are insufficient. A learner can appear verbally competent in everyday conversation while struggling with complex instructions and academic language. Universal language screening during the early school years could reduce reliance on behaviour-driven referral. Assessment should also consider linguistic and cultural background. Children learning the language of instruction must not be diagnosed solely because their performance differs from that of monolingual peers.

Implications for Inclusive Education

Support should begin when persistent language needs affect classroom participation, even if formal diagnosis has not been completed. Helpful practices include shorter

and more explicit instructions, visual support, checks of comprehension, systematic vocabulary teaching, opportunities to rehearse responses, and structured assistance with narrative and academic language. Teachers should also recognise that behaviour may communicate language overload. Repeated failure to begin work, apparent inattention, or withdrawal during verbal activities may indicate that the learner has not fully understood the task.

Interim Synthesis

The strong male predominance found in clinical DLD samples is not consistently reproduced in population-based research. Referral practices, the visibility of expressive difficulties, and the behavioural consequences of language problems may contribute to boys' greater representation in services (Norbury *et al.*, 2016). Equitable identification requires reduced reliance on observable speech and classroom disruption. Direct assessment of comprehension and academic language is particularly important for learners whose difficulties remain concealed by fluent conversation, compliance, or dependence on contextual support.

Gender Disparities in Intellectual Disability Identification

Estimates of intellectual disability vary with age, case definition, severity threshold, and data source. Recent United States National Health Interview Survey data indicated that diagnosed intellectual disability among children aged 3–17 years fluctuated from 1.70% in 2019 to 2.20% in 2020 and 1.65% in 2021; the year-to-year differences were not statistically significant, so they should not be interpreted as a clear trend (Zablotsky *et al.*, 2023). Across 2019–2021, 1.94% of children had reportedly received the diagnosis. These estimates are higher than some administrative counts because parent-reported national surveys and education systems do not capture identical populations.

The same national data showed a clear sex difference: diagnosed intellectual disability was reported for 2.31% of boys and 1.37% of girls, corresponding to a male-to-female ratio of approximately 1.7:1 (Zablotsky *et al.*, 2023). This pattern is consistent with the broader literature, but its size varies according to severity and aetiology. Sex-linked biological risks may contribute, while identification of mild intellectual disability is also affected by educational opportunity, socioeconomic conditions, adaptive expectations, and access to comprehensive assessment (McKenzie *et al.*, 2016).

Intellectual disability is defined by significant limitations in intellectual functioning and adaptive behaviour that emerge during the developmental period. Identification should consider conceptual, social, and practical functioning rather than relying on an intelligence score alone (American Psychiatric Association, 2022; World Health Organization, 2022).

Prevalence and Gender Differences

Males are generally identified with intellectual disability more frequently than females, although the size of the difference varies according to severity, age, study design, and national context. Reviews have also found substantial variation in reported prevalence because studies use different diagnostic thresholds, sampling methods, and administrative definitions (McKenzie *et al.*, 2016).

Biological factors may contribute to male predominance in some groups. Certain genetic and neurodevelopmental conditions associated with intellectual disability affect males more frequently or are expressed differently according to sex. However, biological vulnerability cannot fully explain gender disparities in mild intellectual disability, where identification is particularly sensitive to educational opportunity, poverty, language background, and access to assessment.

Mild and More Severe Intellectual Disability

Gender patterns should be interpreted separately across levels of support need. Children with substantial developmental and adaptive difficulties are likely to be identified early because their needs are visible across settings. In these cases, gender may exert less influence on whether assessment occurs, although it may still affect expectations and access to services.

Mild intellectual disability is more difficult to distinguish from low academic attainment, language disorder, specific learning difficulties, or the effects of educational disadvantage. Identification may occur only after sustained school failure. Consequently, recorded rates can be affected by school resources, diagnostic practices, and the criteria used to determine eligibility for support (McKenzie *et al.*, 2016).

Diagnostic Overshadowing

Intellectual disability can conceal co-occurring conditions. Communication difficulties, emotional distress, ADHD, autism, or trauma-related responses may be attributed to the intellectual disability without separate assessment. This can result in support that addresses general cognitive needs while overlooking specific barriers.

Gender expectations may influence this process. Behavioural difficulties among boys may receive immediate attention, whereas distress among girls may be interpreted as passivity, dependence, or a natural consequence of disability. Conversely, disruptive behaviour can overshadow learning and communication needs in boys.

Assessment should therefore examine changes in behaviour, mental health, communication, and adaptive functioning rather than assuming that all difficulties arise from the established diagnosis.

Adaptive Behaviour and Context

Adaptive functioning is shaped partly by environmental expectations. Boys and girls may be given different responsibilities, opportunities for independence, and

forms of protection within families and communities. Ratings of domestic skills, social judgement, personal safety, and community participation may therefore reflect both individual ability and gendered experience.

This does not make adaptive assessment invalid, but it requires contextual interpretation. A learner may have limited experience of a task rather than an intrinsic inability to perform it. Assessment should consider opportunities for learning and participation before conclusions are drawn about adaptive limitations.

Implications for Inclusive Education

Educational support should be based on the learner's functioning and required assistance rather than on gender or IQ alone. Assessment should include academic learning, communication, adaptive skills, participation, and the environmental barriers encountered across settings.

Girls with intellectual disability may face intersecting disadvantages related to gender and disability, including restricted autonomy and reduced expectations. Boys may be more exposed to exclusionary discipline when frustration or communication difficulty is expressed through challenging behaviour. Inclusive planning should therefore address both learning needs and the social conditions affecting participation.

Interim Synthesis

The higher identification of intellectual disability among males may reflect biological factors, but recorded prevalence is also shaped by severity, socioeconomic context, diagnostic criteria, and access to assessment (McKenzie *et al.*, 2016). Gender differences are likely to be more difficult to interpret in mild intellectual disability, where boundaries with educational disadvantage and other developmental conditions are less clear.

Equitable identification requires comprehensive assessment of intellectual and adaptive functioning, careful examination of co-occurring conditions, and attention to the opportunities learners have had to develop and demonstrate independence. Gender should inform contextual understanding, but it should never predetermine expectations of ability.

Gender Disparities in Emotional and Behavioural Difficulties

Emotional and behavioural difficulties are an educational umbrella rather than one epidemiological diagnosis, so prevalence depends on the included conditions. The World Health Organization estimates that 14.3%, or approximately one in seven, of 10–19-year-olds globally experience a mental disorder. Current age-specific estimates include anxiety disorders in 4.1% of 10–14-year-olds and 5.3% of 15–19-year-olds, depression in 1.3% and 3.4%, and conduct disorder in 3.3% and 1.8%, respectively (World Health Organization [WHO], 2025). United States diagnostic data for 2023–2024 similarly indicate current anxiety in 11%, depression in 4%, and

behavioural disorders in 8% of children aged 3–17 years (CDC, 2026a). Differences between these figures reflect age, country coverage, diagnostic definitions, and measurement rather than simple contradiction.

The most recent United States estimates also show opposing sex patterns: current diagnosed anxiety affected 13% of girls and 10% of boys, depression 5% of girls and 3% of boys, and behavioural disorders 5% of girls and 10% of boys (CDC, 2026a). CDC trend monitoring further indicates that poor mental-health indicators increased overall between 2013 and 2023 and remained more common among female high-school students in 2023, although some measures improved slightly from their 2021 peak (CDC, 2024). These figures illustrate why a single combined category can conceal the overrepresentation of boys in externalising classifications and girls in internalising conditions.

Emotional and behavioural difficulties constitute a broad educational category rather than a single diagnosis. Depending on the educational system, the term may include externalising behaviour, anxiety, depression, social withdrawal, emotional dysregulation, conduct problems, and trauma-related responses. This heterogeneity makes gender comparisons sensitive to the definitions and identification procedures used.

Externalising and Internalising Presentations

Boys are more frequently referred for externalising behaviours such as aggression, impulsivity, defiance, and classroom disruption. These behaviours are highly visible and directly affect teaching, making referral more likely. Girls are more frequently reported to experience internalising difficulties during adolescence, including anxiety, depression, withdrawal, and somatic complaints, which may remain less visible in school (American Psychiatric Association, 2022; Patton *et al.*, 2016).

These patterns represent average differences rather than distinct male and female profiles. Boys may experience severe anxiety or depression without expressing distress openly, while girls can display substantial behavioural difficulties. Identification systems that associate boys with misconduct and girls with emotional vulnerability risk missing learners whose presentations do not conform to these expectations.

Behaviour as a Referral Mechanism

School referral is often triggered by the effect of behaviour on classroom functioning. A learner who interrupts, refuses tasks, or becomes aggressive is more likely to be assessed than one who becomes quiet, avoids participation, or maintains compliance despite significant distress.

This creates a risk of over-identifying boys with behavioural categories while under-investigating the causes of their behaviour. Language difficulties, ADHD, learning disorders, bullying, trauma, and unmet sensory needs may all be expressed through frustration or non-compliance. Behavioural classification without

comprehensive assessment can therefore conceal the underlying educational need (McGregor, 2020; Mowlem *et al.*, 2019).

Girls' difficulties may be underestimated for the opposite reason. Withdrawal, perfectionism, school-related anxiety, and social distress may not disrupt teaching and can consequently remain outside formal support pathways. Good behaviour should not be treated as evidence of emotional well-being.

Gendered Interpretation of Distress

Adults may interpret similar behaviour differently according to the learner's gender. Assertiveness or anger may be judged more negatively in girls because it conflicts with expectations of compliance. Emotional expression in boys may be discouraged or reformulated as misconduct because vulnerability conflicts with traditional expectations of masculinity.

These interpretations affect both referral and intervention. Boys may receive disciplinary responses where emotional support is needed, while girls may receive reassurance without investigation of persistent functional impairment. Gender-responsive practice should examine the context and function of behaviour rather than rely on assumptions about how boys and girls normally express distress.

Intersection With Neurodevelopmental Needs

Emotional and behavioural difficulties frequently coexist with ADHD, autism, DLD, intellectual disability, and specific learning disorders. They may also develop in response to repeated academic failure, social exclusion, or years of unsupported difficulty.

Girls with unrecognised ADHD or autism may initially be referred for anxiety or depression, particularly during adolescence (Lockwood Estrin *et al.*, 2021; Young *et al.*, 2020). Boys with language or learning difficulties may be referred primarily because of disruptive behaviour. In both cases, the most visible problem can overshadow the broader developmental profile.

Assessment should therefore consider whether emotional or behavioural difficulties are primary, co-occurring, or partly shaped by unmet educational needs. This distinction cannot be made from behaviour alone.

Discipline and Exclusion

Behavioural visibility can expose boys, particularly those with disabilities or neurodevelopmental differences, to repeated disciplinary action. Exclusion may temporarily remove disruption without addressing the communication, learning, emotional, or environmental factors contributing to it.

Disciplinary responses can also distort identification. Once a student is understood primarily as oppositional or disruptive, later behaviour may be interpreted through the same label. A needs-based formulation should instead examine antecedents, environmental demands, communication barriers, relationships, and the

consequences maintaining the behaviour.

Girls may experience a different form of exclusion through withdrawal from participation, peer isolation, or school avoidance. Although these patterns are less likely to result in formal discipline, they can still substantially restrict educational inclusion.

Implications for Inclusive Education

Schools should combine behavioural observation with assessment of emotional well-being, communication, academic learning, peer relationships, and environmental stress. Screening procedures should include internalising as well as externalising difficulties.

Teacher education should also address the possibility that behaviour has different meanings across contexts. Persistent non-compliance may indicate language overload, academic avoidance, anxiety, or a need for predictability rather than deliberate opposition. Similarly, quietness may reflect concentration, but it can also conceal confusion, fear, or withdrawal.

Support should include psychologically safe classrooms, accessible mental-health provision, anti-bullying procedures, positive behavioural support, and collaboration with families. Punitive responses should not replace assessment of need.

Interim Synthesis

Gender disparities in emotional and behavioural identification are strongly influenced by visibility. Boys' externalising behaviour is more likely to prompt referral or discipline, while girls' internalising distress may remain unnoticed until it becomes severe. Both patterns can lead to misidentification.

Equitable practice requires attention to the function and context of behaviour. The objective is not to classify more boys or girls, but to recognise distress and educational need regardless of whether these are expressed through disruption, withdrawal, anxiety, or apparently successful compliance.

Discussion

This review indicates that gender disparities in special educational needs cannot be explained by a single biological or social mechanism. Across ADHD, autism, specific learning disorders, DLD, intellectual disability, and emotional or behavioural difficulties, recorded identification reflects an interaction between underlying developmental variation and the institutional processes through which needs become visible.

Differences Across Diagnostic Categories

The strength and meaning of gender disparities differ across categories. In ADHD, boys' greater identification appears partly related to the visibility of hyperactivity and externalising behaviour, while girls' inattentive and internalising presentations may delay referral (Mowlem *et al.*, 2019; Young *et al.*, 2020).

In autism, active case-finding produces a smaller male-

to-female ratio than reliance on existing diagnoses, suggesting that routine services miss some autistic girls (Loomes *et al.*, 2017). Camouflaging, socially conventional restricted interests, and alternative diagnoses may further reduce diagnostic visibility (Hull *et al.*, 2020; Lockwood Estrin *et al.*, 2021; Tubío-Funqueirino *et al.*, 2021).

For specific learning disorders, the greater identification of boys, particularly with dyslexia, may reflect both greater male variability and referral effects. Boys whose reading problems coexist with ADHD or behavioural difficulties are especially likely to attract attention, whereas girls may compensate or continue struggling without formal assessment (Arnett *et al.*, 2017; Snowling *et al.*, 2020).

DLD provides particularly strong evidence that clinical ratios can differ from population prevalence. Boys are more heavily represented in language-service caseloads, but population research has not found an equivalent male predominance (Norbury *et al.*, 2016). The hidden nature of receptive and higher-level language difficulties may contribute to unequal recognition (McGregor, 2020).

Gender differences in intellectual disability are more difficult to interpret because prevalence varies with severity, aetiology, socioeconomic conditions, and the methods used to assess intellectual and adaptive functioning (McKenzie *et al.*, 2016). Emotional and behavioural categories are even more dependent on institutional interpretation because they combine diverse clinical and educational difficulties.

A Model of Diagnostic Visibility

Across the reviewed categories, identification can be understood as the product of four successive filters:

Expression: how the learner experiences and expresses the difficulty.

Visibility: whether the difficulty becomes observable to adults.

Interpretation: how parents, teachers, and clinicians explain the behaviour.

Institutional response: whether the learner is referred, assessed, diagnosed, and supported.

Gender can influence each filter. Socialisation may affect whether distress is expressed through disruption, withdrawal, compensation, or help-seeking. Gendered expectations can influence which behaviours adults consider unusual. Assessment instruments may be more sensitive to historically dominant presentations, while service structures determine whether identification produces meaningful support.

This model helps explain why equal underlying need would not necessarily produce equal identification rates. It also explains why a recorded disparity cannot automatically be treated as evidence of bias. Differences can enter the pathway at more than one point and can involve both developmental and institutional mechanisms.

The Risks of New Gender Stereotypes

Efforts to improve recognition among girls have generated valuable concepts, including the inattentive presentation

of ADHD and the female autism phenotype. These concepts challenge diagnostic models derived mainly from male samples. However, they can become restrictive if treated as universal profiles.

Not all girls conceal their difficulties, and not all boys display externalising behaviour. Camouflaging occurs across genders, and boys with quiet or internalising presentations may also remain unidentified (Hull *et al.*, 2017; Lai *et al.*, 2017; Wood-Downie *et al.*, 2021). Gender-responsive assessment should therefore broaden the range of recognised presentations rather than create separate diagnostic stereotypes.

The same caution applies to the assumption that higher male identification necessarily represents overdiagnosis. Some boys have substantial and appropriately recognised needs. The relevant question is whether comparable difficulties receive comparable consideration, not whether diagnostic rates become numerically equal.

Intersectionality and Unequal Access

Gender does not operate independently of socioeconomic status, ethnicity, language, disability severity, and access to services. A girl from a well-resourced family may receive a comprehensive assessment despite a subtle presentation, while a boy with visible difficulties may remain unsupported in a system with limited services. Gender disparities may therefore vary substantially across countries and communities.

Language and cultural background are particularly important. Behaviour regarded as unusual in one context may be interpreted differently in another. Assessment instruments developed in one language or cultural setting may not capture equivalent behaviour elsewhere. Failure to consider these influences risks attributing educational disadvantage or second-language development to an intrinsic disorder.

Research has not adequately represented gender-diverse learners. Binary comparisons dominate the literature, and terminology is often imprecise. Future studies should distinguish sex assigned at birth, gender identity, and gendered social experience where these variables are relevant and ethically appropriate.

Implications for Assessment

Several principles emerge across categories. First, assessment should use multiple sources of information. Parent, teacher, learner, and clinician perspectives provide evidence from different contexts, and disagreement between them may be meaningful.

Second, functional impact should receive as much attention as symptom visibility. Apparently adequate performance may depend on disproportionate effort, extensive parental support, or avoidance of demanding situations.

Third, developmental history is essential. Current anxiety, behaviour, or academic failure may obscure earlier patterns of attentional, language, social, or learning difficulty.

Fourth, standardised measures should support rather than replace professional judgement. Scores must be interpreted in relation to the learner's language, culture, educational opportunity, and everyday functioning (American Psychiatric Association, 2022; World Health Organization, 2022).

Implications for Inclusive Education

Inclusive education requires a shift from category-driven provision towards support based on functional need. Diagnosis can provide explanation and access to services, but it should not be the only route to assistance.

Universal screening can reduce dependence on teacher referral, particularly in reading and language. Classroom observation should include internalising and compensatory presentations as well as disruptive behaviour. Teachers also require training to recognise varied patterns without being expected to make clinical diagnoses.

Support can begin while assessment is pending. Clear instructions, visual information, organisational scaffolding, explicit language teaching, predictable routines, sensory adjustments, and accessible mental-health support are low-risk responses to demonstrated need. Such practices reduce the consequences of delayed identification and may benefit the wider student population.

This needs-based approach is also consistent with evidence that executive-function interventions can support reading comprehension, mathematical reasoning, and classroom engagement when cognitive training, self-regulation, or digital activities are embedded in structured educational contexts (Vasileiou, 2026). Such provision should be offered in response to demonstrated functional need rather than restricted by gendered diagnostic prototypes.

Limitations

Several limitations should be considered. First, this was a structured narrative review rather than a systematic review or meta-analysis. Although the search was organised transparently, study selection and interpretation inevitably involved author judgement (Baethge *et al.*, 2019; Snyder, 2019).

Second, the diagnostic categories were methodologically heterogeneous. Studies differed in age, language, national context, referral procedures, thresholds, and measurement instruments. Direct comparison of gender ratios across categories is therefore inappropriate.

Third, much of the literature used binary female–male classifications without clearly distinguishing sex from gender. Gender-diverse learners were rarely represented, limiting the inclusiveness of the available evidence.

Fourth, research concerning female ADHD and autism has developed more extensively than corresponding research on DLD, intellectual disability, and specific learning disorders. Conclusions are consequently stronger for some categories than others.

Finally, many studies used clinically referred samples.

Such samples are essential for examining presentation and service experience but cannot provide unbiased estimates of population prevalence because they already reflect earlier recognition and referral decisions.

CONCLUSION

The reviewed evidence shows that gender disparities in SEN identification are produced by the interaction of developmental variation with visibility, referral practices, diagnostic prototypes, informant reports, measurement, and service access. The clearest recurring result was not a uniform male-female difference, but a visibility effect: disruptive behaviour and conspicuous academic failure tend to accelerate referral, whereas inattention, internalising distress, camouflaging, and compensatory effort can delay recognition. The balance of these mechanisms differed across ADHD, autism, specific learning disorders, developmental language disorder, intellectual disability, and emotional or behavioural difficulties.

Equitable identification therefore requires developmental history, evidence from multiple settings and informants, direct assessment of functional impact, and attention to the effort required to sustain apparently adequate performance. Schools should not wait for a diagnostic label before providing proportionate support, and gender-responsive practice should broaden recognition without replacing older prototypes with new stereotypes. The appropriate goal is not identical diagnostic rates, but comparable recognition and educational support for comparable levels of need.

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