Received: 30 August 2023 | Accepted: 19 October 2023

DOI: 10.1002/rev3.3437

ORIGINAL ARTICLE

Review of Education BERA

Gender differences in special educational needs identification

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Abstract
This study aims to investigate gender differences in the identification for special educational needs services within the context of England. Gender disparities in disability identification have long been of concern, impacting tailored support and opportunities for female students. By utilising population-level data, we seek to ascertain the presence and extent of these gender differences, aligning our findings with existing literature and addressing gaps in knowledge about sex ratio differences in several disability categories. We conducted descriptive analyses of publicly accessible UK government datasets. In our study, we examine how gender differences have evolved over time, and vary across regions, disability types and educational phases (i.e., nursery, primary or secondary). Our observation of the data suggests persistent under-identification of females compared to males across time, disability categories, across different regions and educational phases.

KEYWORDS
disabilities, gender differences, sex ratio, special education

INTRODUCTION

Gender disparities in the identification of disabilities have garnered considerable attention over the past few decades (Arms et al., 2008; Coutinho & Oswald, 2005; Oswald et al., 2003; Rousso, 2003; Simeonsson et al., 2001). The significance lies in the fact that the process of identifying individuals with disabilities is transformative, opening doors to specialised education and support tailored to their unique needs. The multifaceted nature of identification is underpinned by diverse factors, and the issue of gender imbalance has emerged as a

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Context and implications

Rationale for this study

The study aims to address a critical gap in the literature concerning gender disparities in the identification of special educational needs (SEN) within the educational context of England. Although past studies in England have highlighted lower identification of girls for SEN services, the current study provides a more in-depth perspective by dissecting differences in SEN identification disparities across various disability categories.

Why the new findings matter

By employing population-level data within the context of England, the study not only confirms the existence of these disparities but also delineates their extent across various disability categories, geographical regions and educational phases.

Implications for practitioners

The observed gender disparities in SEN identification underscore the necessity for practitioners to adopt a more gender-sensitive approach in their diagnostic and intervention strategies. The data suggest that current practices may inadvertently perpetuate gender biases, particularly the under-identification of females across various disability categories. Consequently, practitioners are urged to critically examine their identification protocols and to consider the influence of gender as a variable in the diagnostic process. This heightened awareness could lead to more equitable identification practices, thereby ensuring that both male and female students with additional needs receive the educational support they require.

central concern in prior scholarship (e.g., Oswald et al., 2003). The under-representation of females in the identification process has been recognised as a critical challenge due to its potential to fuel various challenges, including stigmatisation and the unequal allocation of support (Arms et al., 2008). However, little is known about sex ratio differences in the UK and not much is known about sex ratio differences among certain disability categories in the UK or internationally. Thus, the current study's purpose is to utilise nationally aggregated data concerning gender-related discrepancies in the identification of special educational needs (SEN) within the context of England and explore sex ratio differences on previously under-reported disability categories.

Prior studies have revealed that the extent and formation of gender disproportion varies among different types of disabilities since each disability is identified based on a different criteria and sample of phenotype. Thus, in the following sections we review past literature on gender differences reported in the literature for different disability subtypes.

Gender differences in high-incidence disabilities

High-incidence disabilities is a term used in the field of special education to denote disabilities that are relatively common and are frequently encountered in educational settings.

High-incidence disabilities are typically contrasted with 'low-incidence disabilities', which are less common but often more severe in nature. Examples of high-incidence disabilities include speech language and communication needs, specific learning difficulties such as dyslexia, and socio-emotional mental health needs.

In terms of speech language and communication needs, also known as speech and language disorders, various international data suggest that boys are more likely to be diagnosed with speech language and communication needs compared to girls. According to Karbasi et al. (2011), in a sample of approximately 8000 primary school Iranian students, speech language and communication needs prevalence was higher in males (16.7%) than females (12.7%) in their sample. Similarly, Jessup et al. (2008) documented an overall male-to-female ratio for speech impairment at 1.7:1 in a sample of approximately 300 Australian preschool children. In another Australian study, researchers reported that in a sample of over 10,000 primary school students, 2.29% of males were diagnosed with some form of speech language and communication needs compared to 0.77% of females (McKinnon et al., 2007). Researchers in Taiwan observing longitudinal data also reported that the male-to-female ratio in speech language and communication needs diagnosis for school-aged children ranged from 1.63:1 in 2004 to 1.99:1 in 2010 (Tseng et al., 2015).

In the case of social, emotional, mental health disorders, which is also referred to as emotional and behavioural disorders, there seems to be variability in gender differences across different types of social, emotional, mental health disorders. For instance, in a review of the literature, Beesdo et al. (2009) reported that among children and adolescents, anxiety disorders were more prevalent in females than males and the difference in gender increased with age; the female-to-male ratio was 2:1 in early childhood and increased to 3:1 in adolescence. In another study, females between 15 and 25 years old had higher rates of depressive disorder (3.3%) and social phobia (6.2%) in the study sample compared to male prevalence rate, which was 1.6% for depressive disorder and 4.4% social phobia (Ohayon & Schatzberg, 2010). Recently, in a sample of 28,000 adolescents in England, Deighton et al. (2019) reported that females were three times more likely than boys to be identified with emotional symptoms (e.g., worries, nervousness, various fears, etc.). Conversely, it was found that boys had a significantly higher likelihood of being diagnosed with conduct disorders (i.e., aggressive behaviour towards others) compared to girls, with a male-to-female odds ratio of 1.58 to 1. Similarly, boys were also significantly more prone to being identified with hyperactivity/inattention problems than girls, with an odds ratio of 1.25 to 1.

Interestingly, in a qualitative analysis of teachers and counsellors' perceptions about social, emotional, mental health disorders, authors reported that professionals' views underscore a critical gender bias within the educational context (Rice et al., 2008). For instance, teachers and counsellors used distinct language when referring to girls with social, emotional, mental health disorders that was not utilised for boys with similar challenges; some professionals described girls as 'perfect' and 'nice', others used derogatory terms like 'nasty', 'catty', and 'manipulative'. Professionals in this study also reported a preference for working with boys rather than girls. Some professionals believed that girls' behaviours were more unpredictable and required more intensive services. This preference for boys over girls in educational settings highlights a concerning bias that could have implications for the identification for special needs services, quality of support and intervention received by girls with social, emotional, mental health disorders.

Gender differences in specific learning difficulties such as dyslexia, internationally referred to as specific learning disabilities, varies among different academic difficulty categories and study samples. Gender differences in dyslexia identification is complex due to inconsistent identification criteria used by practitioners (e.g., Al Dahhan et al., 2021; Daniel, 2023) and researchers (see Fletcher et al., 2019). Historically, dyslexia is thought to affect more males than females, yet some studies have shown no significant gender differences (Flynn & Rahbar, 1994; Shaywitz et al., 1990). Recent analyses by Quinn and Wagner (2015) in the USA found increased male prevalence linked to severity of reading difficulties that showed 2.4:1 male-to-female ratio in children scoring at the 3rd percentile on various reading assessments. In students with reading comprehension difficulties, a longitudinal twin study reported only slightly higher male prevalence rates compared to females (male-to-female ratio 1.1:1; Willcutt, 2014).

Studies that have explored sex ratio differences in maths disabilities or dyscalculia have generally not observed gender differences (Fletcher et al., 2019). For instance, Devine et al. (2013) assessed approximately 1000 primary school children and reported similar prevalence rates of math disabilities in their sample for boys and girls. Similarly, in a review of the literature, Spelke (2005) reported that studies investigating cognitive development across age groups do not support gender differences in maths and scientific aptitude.

Finally, gender differences in writing disabilities or dysgraphia have shown higher male preponderance compared to females. In some studies, the male-to-female ratio for dysgraphia has been 1.5:1 (Berninger et al., 2008; Hooper et al., 1993). Similarly, studies that have assessed males and females on writing assessments have reported females outperforming males on various writing-related assessments (Olson et al., 2013).

In conclusion, the exploration of gender differences in high-incidence disabilities presents a complex landscape. Although many studies point towards a tendency for males to exhibit greater preponderance in certain conditions, this pattern is not consistently observed across all contexts. Notably, speech and language disorders may exhibit male prevalence, as evidenced by studies indicating higher diagnosis rates among males. However, social, emotional, mental health disorder conditions show variability in gender differences, with anxiety disorders displaying greater prevalence in females, whereas boys seem to have a higher likelihood of being identified with conduct disorders and hyperactivity. Dyslexia presents a multifaceted picture; historical beliefs of male predominance are challenged by studies indicating varying degrees of male preponderance, which may be tied to severity levels. Similar gender discrepancies are not consistently observed in maths disabilities, whereas writing disabilities like dysgraphia show a tendency towards male preponderance. These trends are further nuanced by professionals' perceptions and biases, impacting the identification and support received by individuals with special needs. This complex array of findings underscores the importance of careful consideration of sample characteristics, selection criteria and societal perceptions in understanding gender differences across high-incidence disabilities.

Gender differences in low-incidence disabilities

The phrase low-incidence disabilities is used to categorise disabilities that are relatively less common and are less frequently encountered in educational settings. Examples of low-incidence disabilities include autism spectrum disorder, intellectual disabilities (known as moderate, severe or profound learning difficulties in the UK), visual impairments, and hearing impairments.

When examining gender differences in autism spectrum disorder, the Diagnostics and Statistical Manual (DSM-V; American Psychiatric Association [APA], 2013) suggests that males are four times more likely to be diagnosed with autism spectrum disorder compared to females. Even though this odds ratio of 4:1 is widely cited, some researchers have highlighted the substantial variability of the autism spectrum disorder gender ratio across studies. For example, Loomes et al. (2017) conducted a comprehensive meta-analysis derived from 54 prevalence studies conducted in different countries in North America, South America and Europe between the time span of 1992 and 2011. Based on their meta-analysis, Loomes et al. (2017) reported that the expected male-to-female ratio for autism spectrum disorder was observed to be 3.5 to 1.

Some past researchers have also explored factors that influence this large sex ratio difference in autism spectrum disorder diagnosis. One reason researchers have explored is the female 'camouflage' effect, which refers to females' adeptness in compensating for their challenges that could potentially result in the under-identification of females and a delay in diagnosis (e.g., Lai et al., 2015; Rynkiewicz et al., 2016). Another reason reported in the literature is that although the autism spectrum disorder phenotype might manifest distinctively in males and females, the criteria outlined in various autism diagnostic instruments may predominantly rely on male characteristics (Tillmann et al., 2018). Interestingly, Loomes et al. (2017) conducted a subgroup analysis that demonstrated that in active studies (i.e., where researchers screen a representative sample to locate individuals with autism spectrum disorder, irrespective of their current diagnosis) the number of girls identified was much higher compared to passive studies (i.e., where researchers review existing databases that has already identified individuals diagnosed with autism spectrum disorder). Thus, while Loomes et al. (2017) confirm a greater preponderance of boys than girls with autism spectrum disorder diagnosis, their subgroup analysis highlights a need for system level improvement in diagnosis of autism spectrum disorder in girls.

In terms of physical and sensory impairment, we located one study that reported on gender differences in identification of visual impairments and blindness (Ulldemolins et al., 2018). In their subsample of 16- to 24-year-old Spanish individuals, a greater percentage of males self-reported some form of visual impairment (1.6% vs 0.8%) and blindness (3.85% vs 1%) compared to females. Similarly, in a sample of American students diagnosed with deafness or hard of hearing, a greater percentage of males (57%) compared to females (43%) were reported to be diagnosed as deaf or hard of hearing (Cawthon et al., 2022). Finally, there were not many studies reporting on low-incidence disabilities except for autism spectrum disorder. We could also not locate any published literature on gender differences in school-age children diagnosed with intellectual disabilities (also known as moderate, severe or profound learning difficulties in the UK).

Past studies of disparities in SEN identification in the UK

Numerous previous studies have examined the demographic characteristics of individuals identified with SEN in the educational system of England. For example, research by Strand and colleagues has shed light on the intricate issue of ethnic disproportionality in SEN identification. Their findings indicate that Black Caribbean and Pakistani students are 1.5 times more likely to be identified with moderate learning difficulties (MLD) compared to their White British peers (Strand & Lindsay, 2009). In a subsequent study, they also found that Black Caribbean students were 1.36 times more likely to be identified with autism spectrum disorder than White British students (Strand & Lindsay, 2012). On the other hand, Asian students, specifically those of Indian, Pakistani, and Bangladeshi origin, were significantly under-represented in the identification of both autism spectrum disorder and social, emotional, mental health disorders. Their odds of being identified in these SEN categories were roughly half those of White British students (Strand & Lindsay, 2009). Further research by Strand and Lindorff (2018) revealed that Indian and Chinese students were under-represented in the MLD category, whereas Pakistani and Black Caribbean students were over-represented. This body of work collectively underscores the complexities of ethnic and disability-specific disproportionality in SEN identification within the English educational context.

In a parallel vein, Black (2019) employed publicly accessible datasets to explore the historical trajectories of SEN in England. Her analysis concentrated on pivotal metrics such as the proportion of students with SEN and the gender balance therein. Intriguingly, her findings disclose a decrease in the number of pupils identified with SEN over time, notwithstanding an increase in overall student population. Furthermore, her study unveils a salient gender-based disproportionality in SEN identification; one-third of the pupils identified with SEN were girls. However, it is noteworthy that while Strand and colleagues have offered a nuanced understanding of ethnic disproportionality by specific disability categories, Black's study provides a more generalised overview and does not disaggregate gender differences by disability category. Thus, the focal point of our current investigation is to further explore gender differences in SEN identification, specifically disaggregated by disability category. This endeavour aims to build on past work and contributes a nuanced layer of understanding to the complex tapestry of SEN identification in England.

Study purpose and research questions

The primary objective of this study was to utilise population-level data to investigate the presence of gender differences in the context of England's SEN identification. Our study aimed to align these findings with existing literature on gender differences in disability identification. Additionally, we sought to address a gap in the literature by shedding light on gender differences in the identification of various low-incidence disability categories, where empirical data has been lacking. We explored the following research questions:

1. How have gender differences in SEN identification evolved over time, specifically examining the proportion of males and females with SEN status compared to typical students from 2015 to 2023?
2. How do the proportions of males and females with SEN status compared to typical students vary across different regions in England?
3. Are there sex ratio differences in the identification of different disability types among pupils in England?
4. Do gender differences in the prevalence of different disability types among the studied population remain constant over time?
5. Do proportions of males and females vary across educational phase?

METHODS

Secondary data

Data for this study was accessed through publicly available UK government datasets. The current data set was made available on the gov.uk website on 22 June 2023. According to the government website, this latest dataset offers a comprehensive compilation of data from multiple sources, including the school census for state-funded schools, the annual school census for independent schools, and the general hospital school census. It focuses on pupils with SEN and provides detailed insights into various aspects (Department for Education, 2023). The school census is an annual data collection exercise mandated by the Department for Education in England. It serves as a critical repository of information, capturing a wide range of variables such as pupil demographics, academic performance and SEN classifications.

Within the dataset, there is a detailed breakdown based on different categories such as the type of SEN provision, students' area of primary SEN needs, gender and different regions in England where data were collected. By combining information from these various sources, the current study aims to provide an overview of the educational landscape of gender differences in SEN, facilitating informed decision-making and policy development in this important area.

We conducted descriptive analyses of the available data to explore gender differences in disability identification across years (i.e., from 2015 to 2023). We also explored gender differences by type of primary SEN need, by regions in England, and the phase of education the school provides (i.e., nursery, primary, secondary, special school).

As noted earlier, all data used in these analyses are publicly accessible. According to the British Educational Research Association's Ethics guidelines (BERA, 2018, p. 11) 'when working with secondary or documentary data, the sensitivity of the data, who created it, the intended audience of its creators, its original purpose, and its intended uses in the research are all important considerations'. The Department for Education, who are responsible for collecting and publishing the data, acknowledge that researchers may utilise the data for their studies (Department for Education, 2018). However, it is important to note that the data provided is aggregated and does not contain any personal identifiers. All analyses were conducted using *R* software (R Core Team, 2021) and graphs were created using the *ggplot2* package (Wickham, 2016).

RESULTS

How have gender differences in SEN identification evolved over time, specifically examining the proportion of males and females with SEN status compared to typical students from 2015 to 2023?

As presented in Figure 1, the gender distribution within the typical student population (non-SEN) in the English student population is nearly equal and constant, with females accounting for approximately 52% of the total student population. However, a noticeable disparity persists in the identification of females for SEN services compared to males. Over the years, females consistently constitute approximately 33% of the SEN identified sample, with a slight upward trend observed in recent years. In 2021–2022, the proportion increased to 34%, and further rose to 35% in 2022–2023.

How do the proportions of males and females with SEN status compared to typical students vary across different regions in England?

We also examined the variations in SEN identification across different regions in England for 2022–2023. Figure 2 illustrates that although the proportions of non-SEN males and females are comparable across all regions, there is a consistent pattern of lower female identification for SEN services. Most regions demonstrate a range of 35% to 36% of females receiving SEN support, with slightly lower percentages observed in the East Midlands (34%) and the North-East (34%) regions of England.

Are there sex ratio differences in the identification of different disability types among pupils in England?

Table 1 presents descriptive statistics for the year 2022–2023. Overall, data shows that close to two-thirds of the SEN population in England are males. However, we observed

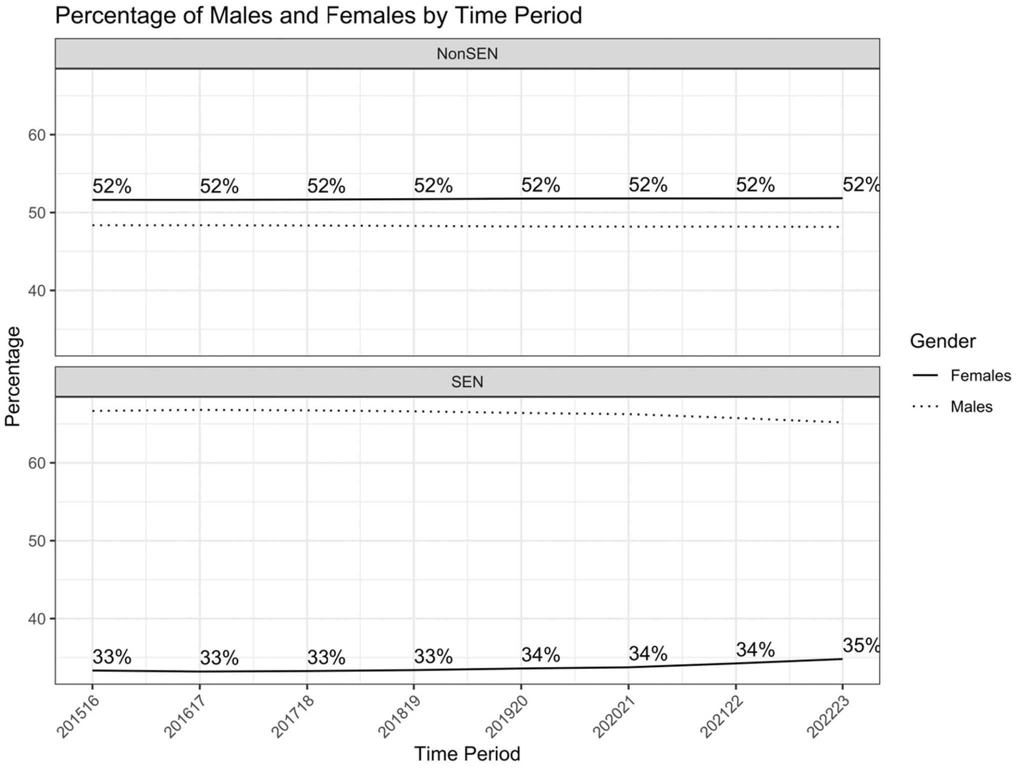

FIGURE 1 Gender differences in special educational needs identification across years. NonSEN, students with no disabilities; SEN, identified with at least one disability. Percentage data labels represent female proportion in the population.

variation in gender differences across different disability type with male-to-female ratios ranging from 3.04:1 to 1.08:1. For instance, the largest difference in the identification rates was for autism spectrum disorder, with males accounting for 75% of individuals diagnosed with this disability type in the 2022–2023 academic year.

Likewise, significant disparities exist in the male-to-female ratio for identifying SEN cases, such as speech, language and communication disorders (2.24:1), socio-emotional mental health disorders (2.18:1), as well as severe learning difficulties or severe intellectual disabilities (1.93:1). Among the various disability types, hearing impairment displayed the least pronounced difference in male-to-female ratio for SEN identification (1.08:1). Overall, there were close to half a million fewer females identified for SEN services compared to males in England in 2022–2023.

Do gender differences in the prevalence of different disability types among the studied population remain constant over time?

Figure 3 provides insights into the gender differences observed for each disability type over the period from 2015–2016 to 2022–2023. The descriptive analysis shows that these differences have exhibited varying trends over time. Specifically, the proportion of females identified with autism spectrum disorder has gradually increased from 17% in 2015–2016 to nearly 25% in 2022–2023. Similarly, the percentage of females identified with socio-emotional mental health disorders has risen from 26% to 31% during the same period. Another

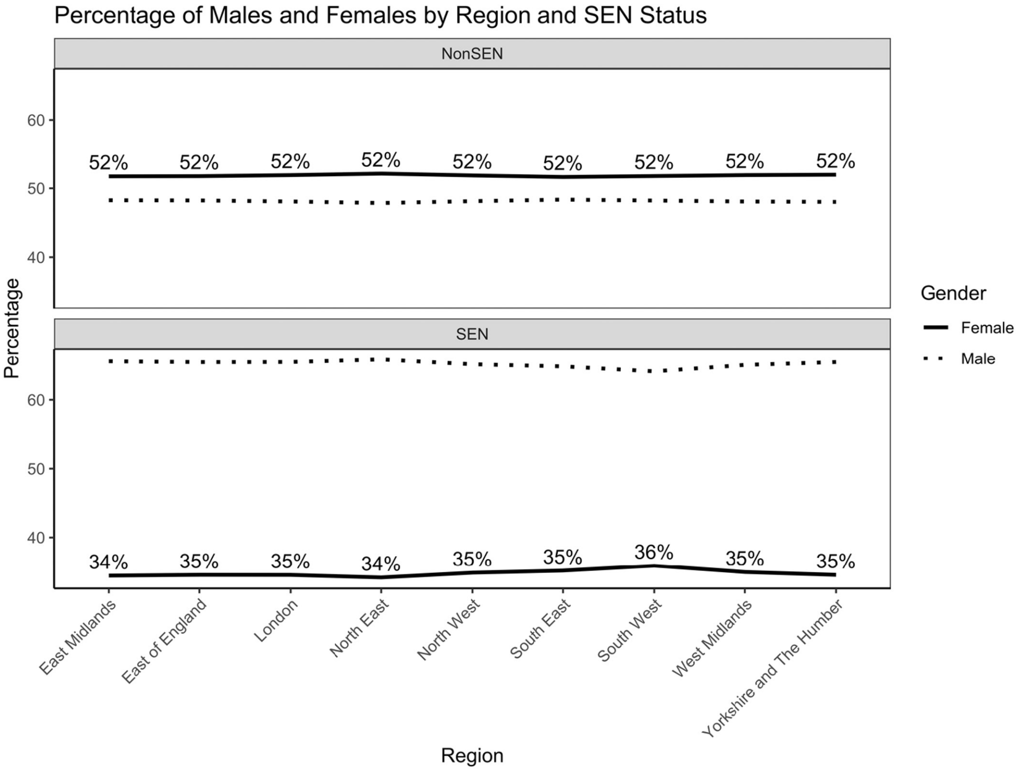

FIGURE 2 Gender differences in special educational needs identification across regions in 2022–2023. NonSEN, students with no disabilities; SEN, students with special educational needs. Percentage data labels represent female proportion of SEN and NonSEN students in the population for 2022–2023.

notable change is observed in the identification of females with specific learning difficulties, which has shown an increase from 38% in 2015–2016 to 44% in 2022–2023.

In contrast, certain disability types have maintained a relatively consistent gender difference in SEN identification rates. For instance, the proportion of females identified with speech, language and communication disorders has remained around 30% from 2015–2016 to 2022–2023. The lower percentage of female identification has also persisted in severe learning difficulties or severe intellectual disabilities, with females accounting for approximately 35% of the identified cases in both 2015–2016 and 2022–2023. These findings highlight the intricate nature of the issue, indicating that while there has been an increase in the identification of females in certain disability types, this trend does not apply universally across all disability categories.

Do proportions of males and females vary across educational phase in 2022–2023?

Figure 4 presents data on the distribution of disabilities by educational phase, disaggregated by gender. The findings highlight the variability in gender identification across different educational phases. For instance, there is a notable increase in the proportion of females identified with specific learning difficulties from nursery (36%) to secondary schools (45%). Similarly, the percentage of females identified with socio-emotional mental health disorders increases from nursery (30%) to secondary school (37%). Notably, the proportion of females with mild

TABLE 1 Descriptive statistics for students with special educational needs in England for 2022–2023.

	Males		Females		
Primary need	***n***	**%**	***n***	**%**	**Male-to-female ratio**
ASD	155,584	75.25	51,175	24.75	3.04:1
SLC	238,288	69.09	106,595	30.91	2.24:1
SEMH	194,841	68.53	89,473	31.47	2.18:1
SevLD	22,146	65.91	11,453	34.09	1.93:1
MSI	2854	64.32	1583	35.68	1.80:1
Other	31,971	60.88	20,548	39.12	1.56:1
NSA	30,001	59.89	20,089	40.11	1.49:1
MLD	130,109	58.54	92,163	41.46	1.41:1
PMLD	6284	57.42	4660	42.58	1.35:1
Physical	20,881	56.74	15,922	43.26	1.31:1
SpLD	95,090	55.92	74,971	44.08	1.27:1
VI	7570	55.28	6123	44.72	1.24:1
HI	12,016	51.82	11,173	48.18	1.08:1
Total SEN	947,635	65.19	505,928	34.81	1.87:1
Total NonSEN	3,384,683	48.16	3,642,990	51.84	0.92:1

Abbreviations: ASD, autism spectrum disorder; HI, hearing impairment; MLD, moderate learning difficulties or mild intellectual disability; MSI, multisensory impairment; NonSEN, students with no disabilities; NSA, child received SEN support without identification; Other, other disabilities; Physical, physical disabilities; PMLD, profound and multiple learning difficulties or profound intellectual disabilities; SEMH, socio-emotional mental health disabilities; SEN, special educational needs; SevLD, severe learning difficulties or severe intellectual disabilities; SLC, speech, language and communication disabilities; SpLD, specific learning difficulties or specific learning disabilities (such as dyslexia); VI, visual impairment.

learning difficulties or mild intellectual disabilities shows an increase from nursery (30%) to primary and secondary schools (42%). However, the percentages remain relatively constant across educational phases for females identified with autism spectrum disorder, hearing impairment, visual impairment, and speech, language and communication disorders.

DISCUSSION

The findings of this study contribute to the ongoing discourse surrounding gender differences in the identification of SEN services, providing insights into both high- and low-incidence disabilities within the context of England. Our analysis of the National Pupil database in England provides compelling evidence that boys are more frequently identified for SEN services compared to girls. However, the degree of this disproportionality varies substantially across different disability conditions, geographic locations and developmental period. We highlight notable similarities and distinctions from previous research findings on gender differences in SEN diagnosis.

Exploring insights from past research and current findings

High-incidence disabilities

The examination of high-incidence disabilities reveals a complex interplay of gender differences across various conditions. Speech and language disorders exhibit male prevalence

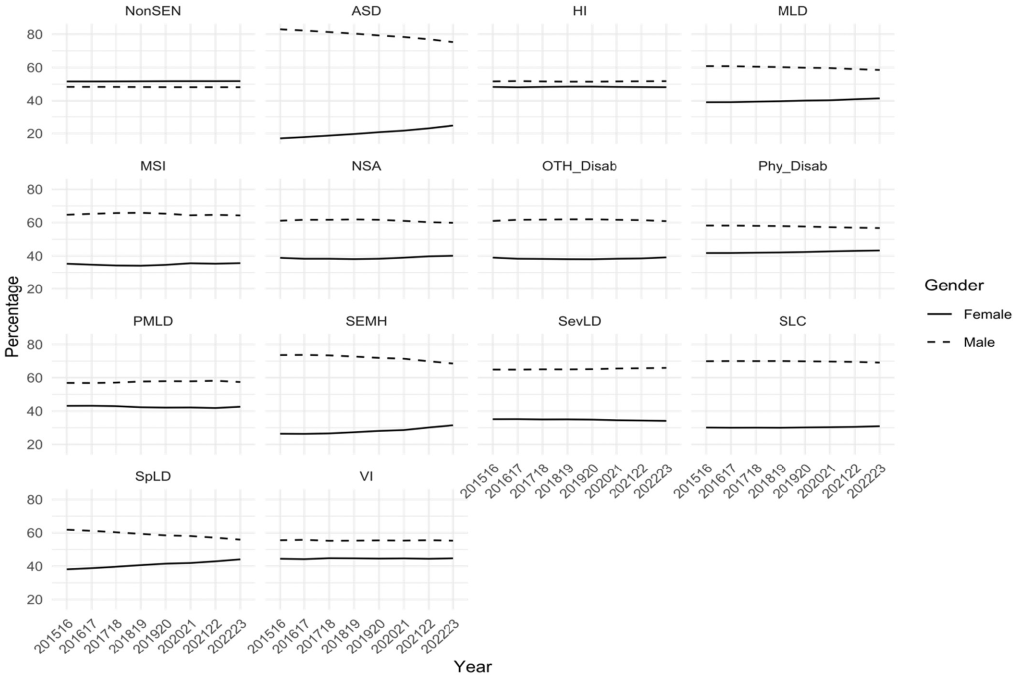

FIGURE 3 Gender differences in SEN identification across years by disability type. ASD, autism spectrum disorder; HI, hearing impairment; MLD, moderate learning difficulties or mild intellectual disability; MSI, multisensory impairment; NonSEN, students with no disabilities; NSA, child received SEN support without identification; Oth_Disab, other disabilities; Phy_Disab, physical disabilities; PMLD, profound and multiple learning difficulties or profound intellectual disabilities; SEMH, socio-emotional mental health disabilities; SevLD, severe learning difficulties or severe intellectual disabilities; SLC, speech, language and communication disabilities; SpLD, specific learning difficulties or specific learning disabilities (such as dyslexia); VI, visual impairment.

across time and phase of school, corroborating international studies that report higher diagnosis rates among males (e.g., Tseng et al., 2015). It is important to note that higher male prevalence rates have been found in active (Jessup et al., 2008; Karbasi et al., 2011) and passive studies (Tseng et al., 2015).

In contrast, compared to past literature where females are more prevalent in some social, emotional, mental health disorder categories such as anxiety disorders, our current findings from England show a consistently higher percentage of male identification compared to females. However, as shown in Figure 3, over the last few years the percentage of females being identified for social, emotional, mental health disorder services seems to be increasing. It is important to highlight that social, emotional, mental health disorder is a broad umbrella term that encompasses several distinct mental health disorders (e.g., depressive disorders, anxiety disorders, attention-deficit disorder, conduct disorder). The aggregated data could inadvertently obscure the subtle gender differences observed in prior studies (e.g., Beesdo et al., 2009; Deighton et al., 2019).

Similarly, more males than females are identified for specific learning difficulties; however, as shown in Figure 3, there has been a consistent rise in the number of females being identified for services in this disability category. Again, given the nature of the dataset, we were unable to explore differences in sex ratio by the type of academic difficulties (i.e., reading, maths or writing) for which students were identified. Thus, it may be imperative for reporting agencies to explicitly identify the specific social–emotional mental health issue or specific learning difficulties domain for a more nuanced understanding of the data.

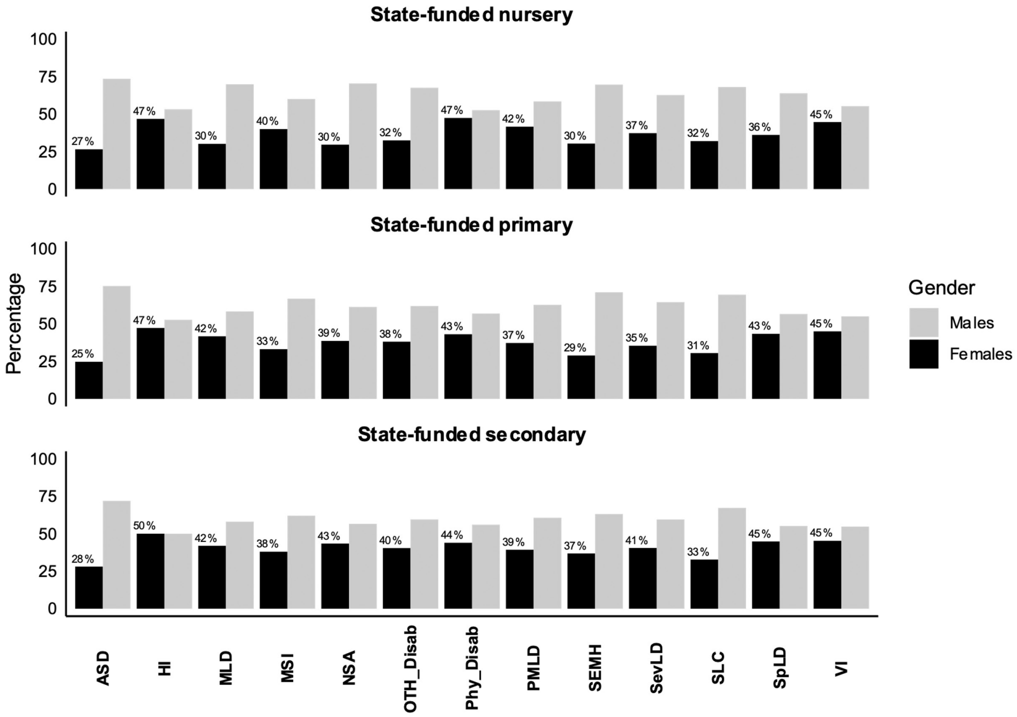

FIGURE 4 Gender differences in SEN identification by phase of school in 2022–2023. ASD, autism spectrum disorder; HI, hearing impairment; MLD, moderate learning difficulties or mild intellectual disability; MSI, multisensory impairment; NSA, child received SEN support without identification; Oth_Disab, other disabilities; Phy_Disab, physical disabilities; PMLD, profound and multiple learning difficulties or profound intellectual disabilities; SEMH, socio-emotional mental health disabilities; SevLD, severe learning difficulties or severe intellectual disabilities; SLC, speech, language and communication disabilities; SpLD, specific learning difficulties or specific learning disabilities (such as dyslexia); VI, visual impairment; State-funded AP school, state-funded alternate provision school. Percentage data labels represent female proportion in the population.

Low-incidence disabilities

In alignment with prior research, our findings reveal the most pronounced sex ratio disparity in the context of autism spectrum disorder identification. As illustrated in Figure 3, it is important to observe that during the academic year 2015–2016, a significant majority (82%) of diagnosed autism spectrum disorder cases in England were males. This observation aligns with the suggested prevalence ratio of males to females at 4:1 as outlined in the DSM-V (APA, 2013). However, in the academic year 2022–2023, the proportion of males diagnosed with autism spectrum disorder had decreased to 75%, bringing it closer to the sex ratio estimate noted in Loomes et al. (2017). This shift suggests evolving patterns in autism spectrum disorder identification and diagnosis, possibly reflecting an improved recognition and diagnosis of females with autism spectrum disorder.

Additionally, our study sheds light on gender differences in several low incidence disability categories that have not been well documented in prior research. Across different low-incidence disability categories, we observed that males consistently have a higher proportion of SEN identification. Longitudinal data, shown in Figure 3, also suggests very little change in sex ratio across these different low-incidence disability categories such as visual impairments, multisensory impairment, and profound and multiple learning difficulties (also known as profound intellectual disabilities).

LIMITATIONS

It is important to acknowledge the limitations of this study. The use of publicly available aggregated data precludes an in-depth analysis of individual cases, limiting the ability to explore the complexities of gender differences. Additionally, the study is confined to the context of England, and cultural variations in gender norms and diagnostic practices may impact the generalisability of findings. Furthermore, it is important to highlight that each disability category is an umbrella term that encompasses severe distinct disabilities. For example, social, emotional, mental health disorder represents a host of social and mental health disorders and the current study's finding is unable to disaggregate sex ratio differences for each of these distinct disability subcategories.

FUTURE RESEARCH AND CONCLUSION

The persistent under-representation of females in the disability identification process gives rise to concern. The early detection of disabilities holds pivotal significance in facilitating students' access to requisite services that bolster their academic trajectories. Should a scenario unfold wherein girls in English schools do not receive timely diagnoses, the implication is that the prognosis for their conditions could exacerbate, thereby engendering more formidable challenges for amelioration in later stages of life.

There is a need to further unravel the current study's findings to explore the reasons for the consistent under-identification of females for special needs services in England. First, the findings emphasise the need for a nuanced approach that considers the variability of gender differences across different disabilities. Second, empirical data is needed to explore if professionals' biases, as highlighted in the social, emotional, mental health disorder domain (Rice et al., 2008), exist in England that may be associated with the lower percentage of females being referred to and identified for SEN services. Future studies could potentially delve into aspects of professionals' perceptions in the identification process, providing deeper insights into the mechanisms that underlie gender disparities.

In conclusion, this study advances our understanding of gender differences in disability identification by unravelling complex patterns across high- and low-incidence disabilities. The nuanced nature of these findings underscores the importance of tailored interventions, awareness programmes and inclusive practices that cater to the diverse needs of individuals across gender spectrums, promoting an equitable and supportive educational environment.

FUNDING INFORMATION

This research was supported by Durham University's School of Education's Research Funds.

CONFLICT OF INTEREST STATEMENT

The authors report there are no competing interests to declare.

DATA AVAILABILITY STATEMENT

Data are publicly available on https://explore-education-statistics.service.gov.uk/find-statistics/special-educational-needs-in-england#dataBlock-f6985648-7393-45e0-56f8-08db6d916588-tables.

ETHICS STATEMENT

The present study utilized publicly available data; therefore, ethical approval from an Ethics Committee was not required. All data were anonymized and aggregated prior to analysis to ensure confidentiality and privacy. The research was conducted in accordance with the ethical standards delineated by British Educational Research Association.

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How to cite this article: Daniel, J., & Wang, H. (2023). Gender differences in special educational needs identification. *Review of Education*, *11*, e3437. https://doi.org/10.1002/rev3.3437