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Bienkowska, Anna, Rehman, Ikram ORCID logoORCID: <https://orcid.org/0000-0003-0115-9024>, Wall, Julie ORCID logoORCID: <https://orcid.org/0000-0001-6714-4867>, Saeed, Nagham ORCID logoORCID: <https://orcid.org/0000-0002-5124-7973>, Saadati, Parisa, Milani, Raffaella ORCID logoORCID: <https://orcid.org/0000-0003-1683-2410>, Ullah, Noor and Khattak, Muazzam Ali Khan (2026) ADHD and Autism in online higher education: a scoping review and thematic synthesis of reported challenges. Education Sciences, 16 (10).

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Review

ADHD and Autism in Online Higher Education: A Scoping Review and Thematic Synthesis of Reported Challenges

Anna Bienkowska ^{1,*}, Ikram Ur Rehman ², Julie Wall ¹, Nagham Saeed ¹, Parisa Saadati ¹, Raffaella Milani ³, Noor Ullah ⁴ and Muazzam Ali Khan Khattak ⁴

¹ School of Computing and Engineering, University of West London, London W5 5RF, UK; nagham.saeed@uwl.ac.uk (N.S.)

² Computer Engineering and Informatics Department, Middlesex University Dubai, Dubai P.O. Box 500697, United Arab Emirates; i.rehman@mdx.ac.ae

³ School of Childhood and Social Care, University of East London, London E16 2RD, UK

⁴ Department of Computer Science, Quaid-i-Azam University, Islamabad 15320, Pakistan; noor.22413005@cs.qau.edu.pk (N.U.)

* Correspondence: anna.bienkowska@uwl.ac.uk

Abstract

Studies involving students with attention-deficit/hyperactivity disorder (ADHD) and/or autism have reported a range of challenges in higher education that may affect academic success and retention. Yet, most existing reviews focus on in-person settings at primary or secondary levels. Few studies address online higher education specifically for students with ADHD and/or autism, leaving a critical evidence gap. This scoping review and thematic synthesis, therefore, examines challenges reported in studies involving students with ADHD and/or autism in online higher education. Following the Joanna Briggs Institute (JBI) methodology, the Population-Concept-Context (PCC) framework and the PRISMA-ScR guidelines, a focused database search, supplemented by backward and forward citation searching, resulted in the inclusion of 39 studies. The findings were synthesised thematically. Six analytical themes were identified: academic and cognitive challenges, social and communication barriers, institutional support and accessibility, technological issues, emotional and mental health impacts, and COVID-19-related challenges. Although publications have increased since 2020, relatively few studies specifically examine ADHD and autism in online higher education, with many considering students with these conditions within broader disability or neurodivergent populations. Evidence concerning students with co-occurring ADHD and autism was particularly limited. The findings highlight priorities for inclusive digital learning environments, institutional support and future research focused specifically on students with ADHD and/or autism.

Keywords: attention-deficit/hyperactivity disorder; autism spectrum disorder; neurodivergent students; online learning; higher education; scoping review



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1. Introduction

Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental condition typically emerging in early childhood and often persisting into adulthood (Sedgwick-Müller et al., 2022; Zendarski et al., 2022). It is broadly associated with differences in attention regulation, activity levels, and executive functioning (Katzman et al., 2017; Salari et al., 2023).

Autism is a neurodevelopmental condition that influences how individuals communicate, interact, and experience the world (Sauer et al., 2021). It is associated with differences in social communication, behaviour, and sensory processing, typically evident in early childhood, and may co-occur with ADHD (Fazana et al., 2017; National Autistic Society, 2025; Royal College of Nursing, 2025).

1.1. Neurodiversity

Neurodiversity refers to the natural variation in human brain functioning, while “neurodivergent” describes individuals whose neurological differences diverge from the neurotypical majority (Goldberg, 2023; NHS England, 2023). Neurodivergence encompasses conditions such as ADHD and autism, as well as many other conditions (Royal College of Nursing, 2025). Although not inherently a disability, neurodivergence may be recognised as such depending on its impact on daily functioning (NHS England, 2023).

1.2. Co-Occurring ADHD and Autism

Neurodivergent conditions frequently co-occur and share overlapping characteristics. Figure 1 shows examples of these intersections.

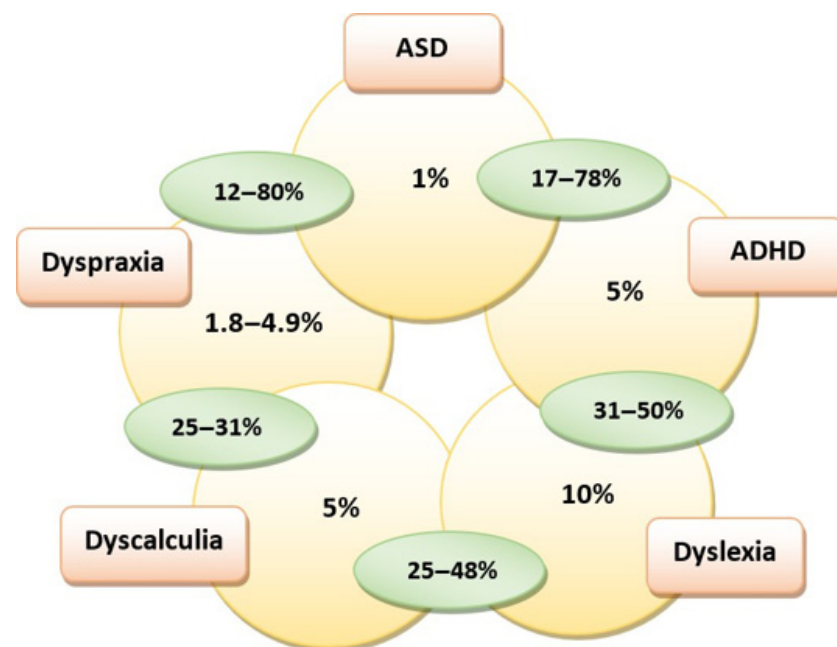


Figure 1. Common co-occurrences among neurodivergent conditions in the general population. Note. Reproduced from What is neurodiversity? by Royal College of Nursing (2025).

ADHD and autism have estimated prevalence rates of around 5% and 1%, respectively, with reported overlap ranging from 17–78%, although estimates vary due to differences in diagnostic criteria and methodologies (Royal College of Nursing, 2025). It is also important to recognise that neurodiversity is associated with strengths, including empathy, creativity, problem-solving, and diverse ways of thinking (Royal College of Nursing, 2025).

Although ADHD and autism are both included within the broader concept of neurodiversity and frequently co-occur, they are associated with different, although sometimes overlapping, experiences and support needs. Combining them within broad categories such as neurodivergence or disability may obscure patterns relevant to particular groups. This review therefore considers evidence concerning ADHD and autism separately, while also examining the limited evidence concerning their co-occurrence. This approach does

not assume that either group is homogeneous or that the reported challenges are unique to a particular diagnosis.

Online education has become a vital part of higher education, offering flexibility and accessibility, as well as new opportunities, but also presenting challenges, especially for students who require support with time management, attention, and social interaction (Murphy et al., 2019). The COVID-19 pandemic accelerated the shift to virtual learning during the 2020–2021 academic year (Zhang et al., 2022), reducing access to in-person resources such as social support and study spaces, and contributing to isolation, lower engagement, and difficulties with motivation and mental health (Schiros et al., 2025). Online learning also places increased demands on executive functioning and self-regulation, which can be particularly challenging for students with ADHD and/or autism (Seddio et al., 2024).

Previous reviews have examined the experiences and support needs of students with ADHD in higher education (Álvarez-Godos et al., 2023; Sedgwick, 2018), while others have synthesised the experiences, challenges, and supports of autistic students in post-secondary and higher education (A. H. Anderson et al., 2017; Davis et al., 2021), identifying key areas relating to academic engagement, social inclusion, institutional support, and access to accommodations. Broader reviews have also considered neurodivergent students across higher education contexts (Clouder et al., 2020). However, these reviews have generally considered higher education as a whole, focused predominantly on face-to-face settings, examined ADHD or autism separately, or included neurodivergent students within broader disability populations.

Taken together, evidence specifically concerning students with ADHD and/or autism in online higher education remains limited and fragmented. Relevant studies frequently include these students within broader disability or neurodivergent samples. To our knowledge, no previous review has specifically synthesised evidence concerning ADHD, autism and their co-occurrence in online higher education. This scoping review therefore synthesises challenges reported in studies involving students with ADHD and/or autism in online and blended higher education, considers the evidence for each group separately, and identifies gaps concerning co-occurring ADHD and autism. The identified barriers may also have implications for students' participation, inclusion and sense of belonging within online higher education.

The paper is structured as follows: the methodology is outlined first, followed by the results, including study characteristics and thematic findings. Themes are analysed across ADHD, autism, and co-occurring ADHD and autism, and the paper concludes with a discussion, limitations, and implications for future research.

2. Method

This scoping review aims to chart existing evidence on students with ADHD and/or autism in higher education within online environments, focusing on their challenges and barriers. It follows the Joanna Briggs Institute (JBI) method to guide the process, including planning, searching, selecting, extracting, analysing and presenting the results, and summarising the evidence in a transparent and rigorous manner (Pollock et al., 2024).

To standardise the review process, this study follows scoping review (ScR) methodology, guided by the PCC (Population, Concept, and Context) framework and the PRISMA-ScR guidelines, including the use of a flow diagram (Figure 2) to ensure clarity in reporting (Veroniki et al., 2025).

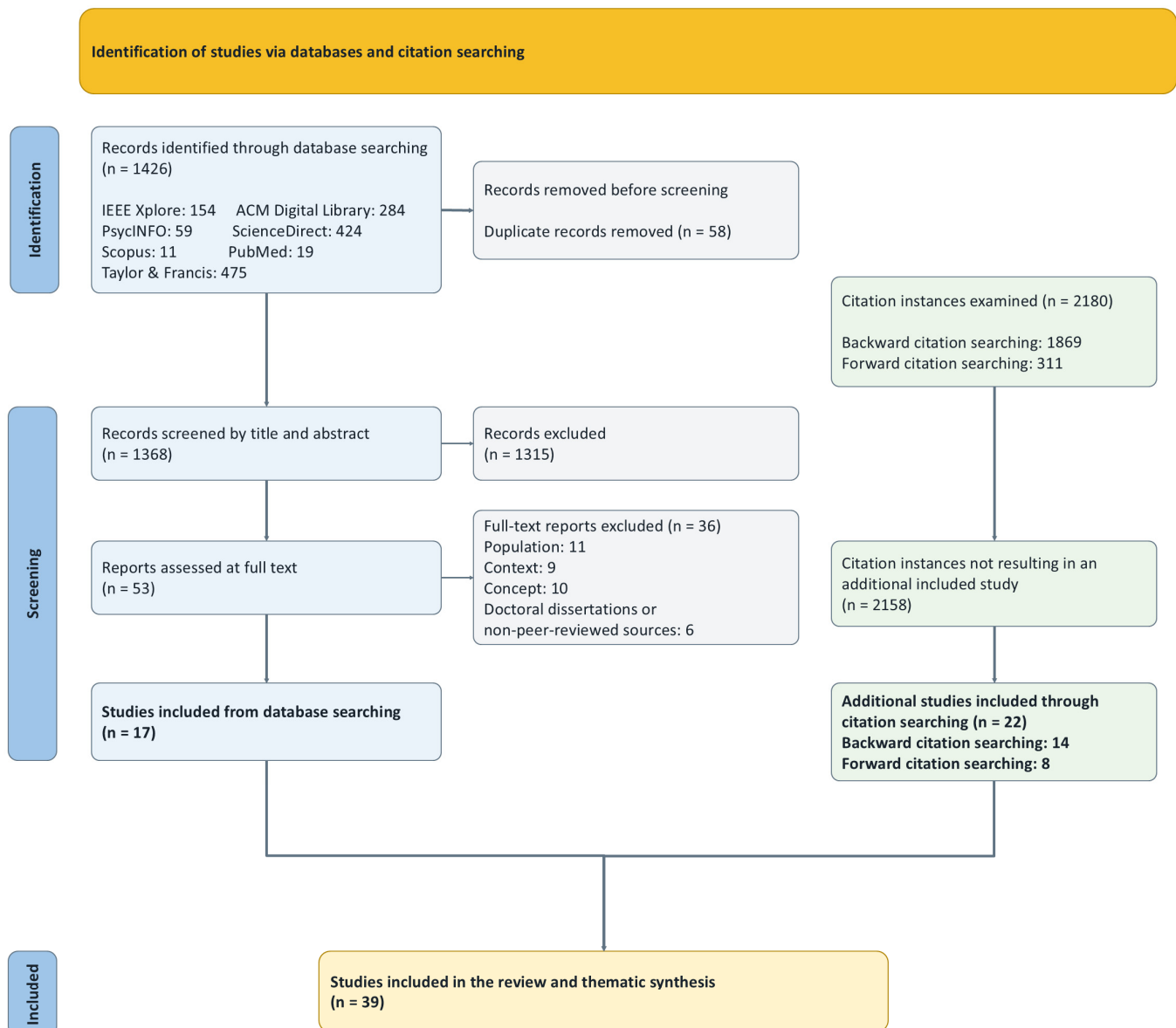


Figure 2. PRISMA-ScR flow diagram of study selection. Note. Adapted from the PRISMA Extension for Scoping Reviews (PRISMA-ScR) reporting guidelines. Database searching identified 1426 records, of which 1368 were screened after duplicate removal and 17 studies were included. Backward and forward citation searching involved examining 2180 citation instances, from which 22 additional studies were included. Across both identification pathways, 1368 database records were screened and 2180 citation instances were examined, resulting in a final sample of 39 studies. Note. Citation searching was conducted manually on a study-by-study basis. The citation counts represent citation instances rather than confirmed unique references. Separate counts for duplicate removal, full-text assessment and the reasons for exclusion were not recorded for this pathway.

The evidence in this area includes qualitative, quantitative and mixed-methods studies conducted across varied educational contexts. A scoping review was therefore selected to map this heterogeneous empirical evidence base, identify gaps in existing knowledge and examine how research in this area has been conducted (Munn et al., 2018; Pollock et al., 2024).

The focus of this scoping review is determined by the research questions, which are outlined and discussed in the following subsection.

2.1. Research Questions

The formulated research question is based on the PCC elements of the inclusion criteria, which are clearly presented (M. D. J. Peters et al., 2022):

RQ1 (primary question): What challenges are reported for students with ADHD and/or autism in online higher education?

Four sub-questions were developed to examine ADHD- and autism-specific challenges, co-occurring conditions, and the impacts of the COVID-19 transition to online learning.

Sub-Question 1: What challenges are reported for students with ADHD in online higher education?

Sub-Question 2: What challenges are reported for autistic students in online higher education?

Sub-Question 3: What evidence is available regarding the experiences of students with co-occurring ADHD and autism in online higher education?

Sub-Question 4: What challenges are reported for students with ADHD and/or autism during the emergency transition to online learning associated with the COVID-19 pandemic?

2.2. Inclusion and Exclusion Criteria

The inclusion criteria were established using the PCC framework (Khalil et al., 2024; M. D. Peters et al., 2020).

Participants: Studies were included if they involved higher education students with either a formal diagnosis or self-identified ADHD and/or autism, as well as broader neurodivergent or disability groups that included at least one participant with ADHD and/or autism.

Concept: The review focused on the challenges students with ADHD and/or autism faced in online higher education.

Context: The context comprised higher education settings involving online or blended learning, including universities, colleges, and institutes of technology worldwide.

2.3. Types of Evidence Sources

This scoping review included primary empirical studies employing quantitative, qualitative, or mixed-methods designs. Eligible studies were published in English between January 2015 and June 2025 from any country. The inclusion and exclusion criteria are summarised in Table 1.

The eligibility criteria were refined during the initial screening process. Initially, eligibility was restricted to participants with a formal diagnosis of ADHD and/or autism, and studies involving broader disability or neurodivergent samples were excluded. During the initial screening of records identified through IEEE Xplore and the ACM Digital Library, the criteria were broadened to include self-identified ADHD and/or autism and studies with broader disability or neurodivergent samples where at least one participant had ADHD and/or autism. This modification was made because initial screening of these two databases identified a limited number of potentially eligible studies under the eligibility criteria, and broadening the criteria allowed evidence involving students with ADHD and/or autism within wider neurodivergent or disability samples to be considered.

Following this modification, all records retrieved from IEEE Xplore and the ACM Digital Library were rescreened from the beginning using the revised eligibility criteria. The revised criteria were subsequently applied to records retrieved from all remaining database searches and through backward and forward citation searching.

Table 1. Inclusion and exclusion criteria. Note. Criteria were developed using the Population-Concept-Context (PCC) framework.

Criterion	Inclusion	Exclusion
Language	Studies published in English (from any country)	Studies not published in English
Date Range	Studies published between January 2015 and June 2025	Studies published before 2015
Population	Higher education students with formally diagnosed or self-identified ADHD and/or autism. Studies involving broader neurodivergent or disability samples were eligible where at least one participant had ADHD and/or autism.	Studies with no participants with ADHD and/or autism. Perspectives of educators, parents, caregivers, and clinicians without student perspectives.
Setting	Studies conducted in higher education settings involving online or blended learning, including universities, colleges, and institutes of technology worldwide.	Studies conducted in non-higher education settings.
Intervention/ Exposure	Studies involving online, e-learning, digital, or blended learning environments.	Studies unrelated to online or digitally mediated learning.
Study Design	Quantitative studies: RCTs, cohort studies, and cross-sectional studies. Qualitative studies: interviews, focus groups, thematic analysis. Mixed-methods studies combining quantitative and qualitative evidence.	Non-empirical papers. Non-peer-reviewed materials. Studies where the full text was unavailable.
Focus	Challenges experienced by students with ADHD and/or autism in online higher education.	Studies not addressing the experiences or challenges of eligible students in online higher education.

2.4. Search Strategy

A focused search strategy, guided by JBI methodology (Khalil et al., 2024), was conducted in July 2025 across seven databases: IEEE Xplore, ACM Digital Library, PsycINFO, ScienceDirect, Scopus, PubMed, and Taylor & Francis. The research questions, initial eligibility criteria, types of evidence sources, database selection and search terms were developed collaboratively by two members of the research team. The same Boolean search string was applied consistently across all seven databases: (ADHD OR ASD OR “Attention Deficit Hyperactivity Disorder” OR “Autism Spectrum Disorder” OR neurodivergent OR Asperger) AND (“online learning” OR “online education”) AND (“higher education” OR university). No database-specific modifications were made to the search string.

The search strategy intentionally included the broader term “neurodivergent” in addition to ADHD- and autism-specific terminology. Given the limited number of studies focusing exclusively on ADHD or autism, all retrieved records referring more broadly, for example, to neurodivergence or learning disabilities were not excluded solely because ADHD or autism was absent from the title or abstract. Potentially relevant records were screened to determine whether the study sample included participants with ADHD and/or autism. Studies were eligible where the reported data included participants with ADHD and/or autism, including studies of broader neurodivergent or disability populations in which at least one participant with ADHD and/or autism was represented.

To supplement the focused database search, backward and forward citation searches were conducted. Backward citation searching was conducted by screening the reference lists of the 17 studies identified through database searching. Forward citation searching was conducted by examining publications that cited these 17 studies using Google Scholar

and, where available, citation information provided by the database through which each article was accessed.

Backward and forward citation searches were conducted manually for each of the 17 studies identified through the database search. Citation searches were undertaken manually on a study-by-study basis, and the identified references were not exported as a combined dataset; therefore, a separate duplicate-removal stage was not performed for this pathway. The figures reported for citation searching therefore represent citation instances examined rather than confirmed unique references. Publications already identified through database searching were not counted again as additional included studies. Separate counts of references proceeding to full-text assessment and the reasons for exclusion were not recorded for the citation-searching pathway. Potentially relevant references were assessed through title and abstract and, where required, full-text examination. The same inclusion and exclusion criteria applied to the database search were used for citation searching. The full selection process is presented in the PRISMA-ScR flow diagram (Figure 2).

2.5. Source of Evidence Selection

Following the initial refinement described in Section 2.3, one member of the research team screened all records against the revised eligibility criteria. Information concerning potentially eligible and included studies was recorded in a structured spreadsheet. The final set of studies included in the review was discussed with a second member of the research team, who provided oversight throughout the review process.

The database search identified 1426 records. After the removal of 58 duplicates, 1368 records were screened by title and abstract. Of these, 1315 were excluded and 53 reports were assessed at full text. Following full-text assessment, 36 reports were excluded for the reasons presented in Figure 2, resulting in 17 studies being included from the database search.

Backward citation searching of the 17 studies identified through database searching involved examining 1869 citations, while forward citation searching involved examining a further 311 citations. Overall, 2180 citation instances were examined, resulting in 22 additional eligible studies: 14 identified through backward citation searching and 8 through forward citation searching. Because citation searching was conducted manually on a study-by-study basis, the citations were not exported into a combined dataset for a separate duplication-removal stage. Separate counts of citations proceeding to full-text assessment and reasons for exclusion were not recorded.

Across the two identification pathways, a total of 3606 records and references were identified, comprising 1426 database records and 2180 references identified through citation searching. After the removal of 58 duplicates from the database results, 1368 database records and 2180 citation-searching references were screened. The two pathways resulted in 17 studies from the database search and 22 additional studies from citation searching, giving a final sample of 39 studies. The full selection process is presented in the PRISMA-ScR flow diagram (Figure 2).

2.6. Data Extraction

This scoping review's data extraction process summarises the results according to the objectives, primary research question, and four sub-questions (Alexander et al., 2024). This includes tables that record key information about the source, such as references, country of origin, publication year, research objectives, population (sample size and type of neurodiversity), applied methodology, study design (see Table A1 in the Appendix A), and key findings relevant to the research questions.

One member of the research team extracted data from all included studies using a standardised extraction framework. Information extracted from each study was recorded in a structured spreadsheet. The spreadsheet and final set of included studies supported discussions with a second member of the research team, who provided oversight throughout the review process. Some included studies examined broader neurodivergent or disability samples containing students with ADHD and/or autism. Where diagnosis-specific findings were not reported separately, findings from the full study sample were included. These are described as findings from studies including students with ADHD and/or autism, rather than as experiences attributable specifically to those students.

2.7. Data Analysis and Presentation of Results

Data from the 39 included studies were examined through qualitative content analysis and a primarily inductive thematic approach, guided by established methods for analysing and presenting evidence in scoping reviews (Khalil et al., 2024; Veroniki et al., 2025).

Findings relevant to the review questions, including qualitative and quantitative evidence concerning challenges reported in studies involving students with ADHD and/or autism in online higher education, were extracted and organised in a structured table. One member of the research team reviewed and coded the extracted findings. Initial descriptive codes were developed from the reported findings. Codes representing similar or related issues were compared and progressively grouped into broader categories. Two members of the research team then reviewed the extracted notes and developing categories recorded in the table and discussed the themes identified through this process. The categories and themes were subsequently reviewed, combined and refined through discussion to generate the six overarching themes: academic and cognitive challenges, social and communication barriers, institutional support and accessibility, technological issues, emotional and mental health impacts, and COVID-19-related challenges. The coding and development of the themes were primarily inductive, although the analysis was informed by the review questions. In particular, the research questions guided comparisons across ADHD and autism and directed attention to evidence concerning co-occurring ADHD and autism and the COVID-19 context.

3. Results

3.1. Search Results and Study Characteristics

Database searching identified 1426 records. After removing 58 duplicates, 1368 records were screened by title and abstract. Of these, 1315 records were excluded, and the remaining 53 reports were assessed for eligibility. Following this assessment, 36 reports were excluded, resulting in 17 studies identified through database searching.

Backward citation searching involved examining 1869 citations, while forward citation searching involved examining a further 311 citations. These 2180 citation instances resulted in the inclusion of 22 additional studies: 14 through backward citation searching and 8 through forward citation searching. Because citation searching was conducted manually, the citations were not exported into a combined dataset for separate duplicate removal, and stage-specific full-text assessment and exclusion figures were not recorded.

Following the removal of 58 duplicates, 1368 database records were screened, while 2180 citation instances were examined through backward and forward citation searching. Of the included studies, 17 were identified through database searching and a further 22 through citation searching, resulting in a final sample of 39 studies (Figure 2).

The PRISMA flow diagram illustrates the progression of records and references through the identification, screening, eligibility and inclusion stages (Khalil et al., 2024).

The 39 included studies employed qualitative, quantitative, and mixed-methods designs and were published between January 2015 and June 2025. They examined challenges reported in studies involving students with ADHD and/or autism in online, blended, or digitally mediated higher education. Data-collection methods included surveys, questionnaires, interviews, observations, focus groups and written accounts, while study designs included cross-sectional studies, cohort studies and case studies.

3.1.1. Inclusion of Sources of Evidence

Table A1 (Appendix A) summarises the characteristics of the included studies.

3.1.2. Geographical Distribution of Studies and Neurotypes

The studies originated from eight countries, with the majority from the USA ($n = 16$; 41%), followed by Israel ($n = 6$; 15%) and the UK ($n = 5$; 13%). Together, these three countries accounted for 69% of the sample. Other countries, including Spain, Canada, and Australia ($n = 3$ each), contributed fewer studies, while Japan ($n = 2$) and Greece ($n = 1$) were minimally represented. ADHD research was present across all eight countries, while only four (Australia, Canada, the UK, and the USA) included studies involving autistic students or students with co-occurring ADHD and autism. The USA contributed the largest number of studies and participants, with ADHD being the most commonly studied neurotype. In contrast, studies involving autistic students and students with co-occurring ADHD and autism were less common.

3.1.3. Year of Publication

Publications remained low between 2015 and 2020 (0–1 studies per year), followed by a sharp increase from 2021 ($n = 4$) to a peak in 2024 ($n = 10$).

3.1.4. Types of Studies

Qualitative studies were the most common ($n = 19$), followed by quantitative ($n = 12$) and mixed-methods studies ($n = 8$).

3.1.5. Neurotypes and Participant Representation

ADHD was the most frequently represented neurotype category. Across the included studies, at least 7784 participants were recorded in the ADHD category, at least 1157 in the autism category, and at least five in the co-occurring ADHD and autism category. Participants clearly identified as having both conditions were recorded in the co-occurring category and were not counted again in the separate ADHD and autism totals. These figures should be interpreted cautiously because diagnostic reporting varied across studies and neurodivergent participants were often included as small subgroups within broader samples.

Study designs also varied across the neurotype categories. Among studies involving students with ADHD, qualitative designs were the most common ($n = 14$), followed by quantitative ($n = 11$) and mixed-methods designs ($n = 4$). Studies involving autistic students were more evenly distributed between qualitative ($n = 5$) and mixed-methods designs ($n = 5$), with three quantitative studies. The four studies containing evidence relevant to co-occurring ADHD and autism used qualitative designs (Table 2).

The proportion of neurodivergent participants varied considerably, ranging from small subgroups within broader samples to studies focused entirely on students with ADHD or autism. Alves et al. (2025) reported 12 participants with ADHD and seven autistic participants in overlapping diagnostic categories but did not provide mutually exclusive subgroup totals. Owenz et al. (2024) did not provide complete diagnosis-specific totals. For these studies, minimum identifiable counts ($\geq$) were derived from participant characteristics reported alongside quotations.

Table 2. Study Types by Neurotype. Note. Studies could contribute to more than one neurotype category where their samples contained different participant groups. Participants clearly identified as having co-occurring ADHD and autism were recorded in the co-occurring category and were not counted again as separate ADHD or autism participants.

Neurotype	Mixed-Methods	Qualitative	Quantitative	Total
ADHD	4	14	11	29
Autism	5	5	3	13
Co-occurring ADHD and autism	0	4	0	4

3.2. Thematic Findings

Findings from the 39 included studies were synthesised using inductive thematic synthesis, with reported challenges coded and grouped into overarching themes reflecting challenges reported in studies involving students with ADHD and/or autism in online higher education.

Six key themes were identified:

1. Academic and cognitive challenges, including difficulties with attention, organisation, and engagement;
2. Social and communication barriers, such as limited interaction, challenges in group work, and feelings of isolation;
3. Institutional support and accessibility, highlighting gaps in support, accommodations, and inclusive course design;
4. Technological challenges, including issues with platforms, connectivity, and access to assistive tools;
5. Emotional and mental health impacts, encompassing stress, anxiety, and reduced motivation;
6. COVID-19-related challenges, reflecting the effects of the rapid transition to online learning.

3.2.1. Reported Challenges in Studies Including Students with ADHD

Twenty-nine studies included students with ADHD, exploring various challenges in online higher education. Some studies also included participants with co-occurring ADHD and autism. These participants were recorded separately in the co-occurring category and were not included in the ADHD participant total. Where findings were not reported separately by diagnosis, they are presented as findings from studies including students with ADHD rather than as ADHD-specific experiences.

Studies including students with ADHD reported academic and cognitive challenges, particularly with attention, concentration, workload, organisation, time management, and motivation. Inconsistent course structures, unclear locations of learning materials, a lack of explanation in online content, and poorly organised online resources were reported to increase confusion and negatively affect performance (Podsiadlik, 2023; Terras et al., 2015). While recorded lectures offered flexibility by allowing students to pause and watch at their own pace, they also contributed to procrastination and inconsistent study patterns (Zhang et al., 2022). Studies indicated increased cognitive load associated with poorly structured materials, as well as lower academic self-efficacy and confidence in managing learning tasks and successfully completing courses (Kim & Lee, 2025; Le Cunff et al., 2024; Sharabi & Shelach Inbar, 2024).

Focus-related challenges varied across the studies. Some studies reported difficulty with long live sessions, limited interaction, and the lack of physical structure, while others reported that online environments could be less distracting than face-to-face settings (Faggella-Luby et al., 2023; Verdinelli & Kutner, 2016; Zhang et al., 2022). Organisation,

planning and time management were particularly problematic due to reduced structure and a lack of external cues, leading to procrastination, difficulty remaining focused, and difficulty meeting deadlines (S. K. Anderson et al., 2024; Mullins & Mitchell, 2022; Reyes et al., 2025). Studies also identified a need for clearer guidance, flexible deadlines, and additional support to manage multiple tasks (Terras et al., 2020). Although extended time was commonly provided, it was not always sufficient to address these challenges, indicating the potential need for more tailored academic support (Reyes et al., 2023).

Social and communication barriers were also common. Several studies identified difficulties with online discussions, group work, written communication, and contacting staff, often leading to anxiety, frustration, and reduced participation (Kim & Lee, 2025; Podsiadlik, 2023; Reyes et al., 2023). Loneliness was reported in studies involving students with ADHD, including fewer meaningful social connections during online learning (Laslo-Roth et al., 2022; Sharabi & Shelach Inbar, 2024).

Studies examining ADHD disclosure identified stigma and fear of judgement as important barriers, with participants expressing concerns about being perceived as “difficult or incapable” or being treated differently (S. K. Anderson et al., 2024; Warren & Schwitzer, 2018). Some participants reported negative experiences with staff and a perceived lack of understanding, which could discourage them from seeking support (Reyes et al., 2025). Some studies reported limited or ineffective communication with teaching staff and described participants relying on external resources (Reyes et al., 2025; Warren & Schwitzer, 2018).

One study described institutional support as limited and inconsistent in online settings (S. K. Anderson et al., 2024). Studies reported fewer accommodation options online, unclear procedures for accessing support, and limited staff awareness of hidden disabilities (Laslo-Roth et al., 2022; Podsiadlik, 2023; Terras et al., 2020). The studies highlighted the need for consistent and ongoing support, clearer communication, better coordination between academic staff and disability services, greater awareness and understanding of ADHD, particularly as a hidden disability, and improved guidance on available resources (S. K. Anderson et al., 2024; Melián & Meneses, 2022). Although extended time was often requested, it was not always sufficient to address the full range of students’ support needs. This suggests that extra time alone may not be enough, and that more personalised forms of academic support may be required (Reyes et al., 2023; Terras et al., 2020).

Studies concerning students with ADHD identified technological challenges in online learning that were mainly related to the organisation and presentation of online learning materials rather than technological accessibility barriers (Verdinelli & Kutner, 2016). Difficulties included locating resources, navigating inconsistent platforms, and following slides that lacked sufficient explanation, which contributed to increased cognitive load and mental effort (S. K. Anderson et al., 2024; Le Cunff et al., 2024; Mullins & Mitchell, 2022). One study reported a preference for offline study methods, including downloading or printing materials, to support focus and comprehension (Reyes et al., 2023).

Several studies reported emotional challenges during remote learning, including loneliness, anxiety, stress, frustration, low motivation and reduced self-efficacy (S. K. Anderson et al., 2024; Mullins & Mitchell, 2022; Reyes et al., 2023; Sharabi & Shelach Inbar, 2024). Across studies, these challenges were associated with academic pressure, fear of failure, limited support, poor communication and concerns about stigma, judgement and disclosure (S. K. Anderson et al., 2024; Terras et al., 2020; Warren & Schwitzer, 2018). Negative interactions with staff and difficulties in group work further contributed to emotional distress and reduced confidence (Reyes et al., 2023, 2025).

Studies examining learning during the COVID-19 pandemic reported disruption to routines, reduced structure and accountability, and increased isolation following the rapid shift to online learning (Alves et al., 2025; Zhang et al., 2022). Greater difficulty in adjusting

to remote learning, managing workload, and maintaining engagement were also observed, alongside reduced academic performance and life satisfaction (Sarid & Lipka, 2023; Schiros et al., 2025).

Studies reported declining motivation, increased procrastination, attendance problems, difficulties with attention regulation, and inconsistent study habits (Alves et al., 2025; Faggella-Luby et al., 2023; Zhang et al., 2022). The lack of physical reminders, external structures and environmental cues made time management particularly difficult (Mullins & Mitchell, 2022). Emotional impacts included increased anxiety, stress, depression, and loneliness, especially among those without prior online learning experience (Kalman-Halevi et al., 2023; Takeda et al., 2023; Zhang et al., 2022). Some studies also identified increased difficulties associated with inattention, hyperactivity, and impulsivity (Seddio et al., 2024; Takeda et al., 2023).

Reduced access to support services was also noted, including difficulties obtaining assistance and reduced access to campus-based resources, study spaces, and opportunities for social connections (Mullins & Mitchell, 2022). Overall, the evidence suggests that online learning can offer flexibility for students with ADHD; however, the studies also identified challenges related to structure, accessible support, and inclusive teaching design, which may contribute to academic and emotional barriers.

3.2.2. Reported Challenges in Studies Including Autistic Students

Thirteen studies involved autistic students in online higher education. Overall, the evidence identified academic, social, communication, institutional, technological, and emotional challenges, while also highlighting potential benefits of online learning, including flexibility, reduced face-to-face interaction, and greater control over the learning environment.

Academically, studies involving autistic students reported difficulties with workload, engagement, organisation, time management, and motivation. Large amounts of information, tight deadlines for submitting assignments, unclear task instructions, and visually cluttered materials could make online learning overwhelming (Adams et al., 2019; Cage & McManemy, 2022). Studies reported preferences for clearly structured content, broken into smaller sections and presented with minimal distractions (Adams et al., 2019). While some students found online learning easier to manage than face-to-face environments, others found studying at home unstructured, “too freeform”, and distracting (Ballantine et al., 2023; Nelson et al., 2023; Satterfield et al., 2015).

Several studies involving autistic students reported social and communication barriers. Studies reported challenges with engaging with peers and instructors, particularly in group work, live sessions, unexpected and intense interactions, and situations requiring immediate responses (Adams et al., 2019; Verdinelli & Kutner, 2016). Some preferred recorded lectures, written communication, or lower levels of social interaction, as this reduced anxiety and allowed greater control (Adams et al., 2019; Ballantine et al., 2023; Satterfield et al., 2015). However, reduced face-to-face contact also contributed to loneliness and isolation (Alves et al., 2025; Bevens et al., 2024; Nelson et al., 2023).

Several studies reported that disclosing an autism diagnosis posed a challenge because some students were uncertain about how to do it online or doubted if it would result in adequate support; as a result, some chose not to disclose or delayed doing so (Adams et al., 2019).

Institutional support and accessibility were also key concerns. Studies described difficulties requesting accommodations online, delayed responses from staff, unclear guidance, and limited access to suitable support services (Cage & McManemy, 2022; Nelson et al., 2023). Studies reported concerns about limited staff understanding of autism and identified a need for greater awareness, clearer communication, more inclusive teaching practices,

and better training for lecturers to support neurodivergent students (Alves et al., 2025; Ballantine et al., 2023; Nelson et al., 2023).

Several studies reported technological and platform-related difficulties in online learning. Problems such as unstable internet connections, ineffective online teaching delivery, and difficulties navigating learning platforms contributed to confusion, reduced participation, and increased anxiety (Ballantine et al., 2023). Some students found teleconferencing environments overwhelming due to sensory sensitivities and the intensity of visual and social stimuli (Ballantine et al., 2023). Studies also identified difficulties with cluttered or complicated digital materials and reported preferences for simpler, more structured layouts with fewer visual distractions, less colour, and no flashing lights or loud noises (Adams et al., 2019; Nelson et al., 2023). Navigation of learning management systems was often described as unclear, unintuitive, and “unnecessarily complicated”, further increasing cognitive load and uncertainty in the online learning environment (Adams et al., 2019; Ballantine et al., 2023).

Participants described increased anxiety, particularly during live sessions and social interactions, where communication difficulties and lack of visual cues created additional stress (Nelson et al., 2023; Satterfield et al., 2015). Studies reported discomfort with sharing views or support needs, sometimes leading to withdrawal from participation (Adams et al., 2019; Verdinelli & Kutner, 2016). One study reported higher levels of loneliness among autistic students than among their non-autistic peers (Nelson et al., 2023). While some experienced anxiety related to online systems and unfamiliar environments, others found relief in online learning, as it reduced the need to mask their autistic traits (Ballantine et al., 2023).

Studies examining the COVID-19 period reported difficulties among autistic students in adapting to online learning, including disruption to routines, reduced structure, and challenges involving time management, motivation, and academic engagement (Cage & McManemy, 2022; Noble et al., 2024).

Studies reported that reduced face-to-face interaction initially provided some relief but could contribute to increased loneliness and isolation over time (Cage & McManemy, 2022). While some valued the ability to control social engagement and avoid masking, many struggled with limited opportunities for connection and found it difficult to build relationships online (Ballantine et al., 2023; Nelson et al., 2023). Studies reported difficulties with maintaining focus, managing workload, and sustaining motivation, with some experiencing reduced attendance and declining performance (Monahan et al., 2021; Noble et al., 2024). One study associated the lack of routine and external structure with additional difficulties in managing online learning (Noble et al., 2024).

The emotional impact was substantial, with increased anxiety, stress, and uncertainty (Alves et al., 2025; Cage & McManemy, 2022). While some students adapted by establishing new routines or benefited from family support, others experienced loss of independence and reduced confidence in their academic abilities (Ballantine et al., 2023; Noble et al., 2024).

One study reported limited access to support services, uncertainty concerning accommodations and reduced availability of institutional support (Monahan et al., 2021). The studies identified a need for clearer communication and improved access to academic and mental health support (Cage & McManemy, 2022; Monahan et al., 2021).

Overall, although online learning offered flexibility and reduced social pressure, the studies also reported challenges related to structure, social connection, and well-being.

3.2.3. Evidence on Co-Occurring ADHD and Autism

Four studies were identified as containing evidence relevant to co-occurring ADHD and autism. However, at least five participants were clearly identified as having both conditions across the four studies. This represents a substantial gap in the literature and is

insufficient to support a reliable thematic synthesis or broad conclusions about the experiences of this group. The limited findings are therefore presented cautiously as indications from the available literature and primarily demonstrate the need for further research.

The four studies reported issues relating to academic engagement, social interaction, institutional support and technology. Reported academic and technological issues included difficulties with attention, navigating complex interfaces, and processing online materials, sometimes resulting in task abandonment (Meyers & Bagnall, 2015). Although flexibility and self-paced learning could be beneficial, the studies also reported barriers associated with teaching formats that had not been adapted to students' needs (Kotera et al., 2021; Owenz et al., 2024). In Alves et al. (2025), a participant with co-existing ADHD and autism described disrupted attendance and routine associated with online classes, including increasingly skipping Zoom lectures.

Other reported issues included reduced interaction, limited contextual cues, feelings of isolation, unclear guidance, delayed or insufficiently tailored support, and limited staff understanding of disabilities (Kotera et al., 2021; Meyers & Bagnall, 2015; Owenz et al., 2024). Online environments were also perceived in some instances as reducing stigma (Kotera et al., 2021; Meyers & Bagnall, 2015). However, because these findings were drawn from studies involving broader samples and were not consistently reported separately for participants with co-occurring ADHD and autism, they cannot be interpreted as experiences specific to this group.

3.2.4. Summary of the Reported Themes in ADHD, Autism and Co-Occurring ADHD and Autism

Across 29 studies involving students with ADHD, the most commonly reported issues included Academic and Cognitive Challenges (23 studies), Emotional and Mental Impact (22), and Social and Communication Barriers (20). In comparison, Technological Issues were less frequently noted, appearing in just 7 out of 29 studies.

Regarding studies involving autistic students, the most frequently reported challenges across 13 studies were Social and Communication Barriers (11), Emotional and Mental Impact (10), and Academic and Cognitive Challenges (9). Again, Technological Issues were less commonly mentioned, appearing in only 4 out of 13 studies.

In the four studies containing evidence relevant to co-occurring ADHD and autism, academic and cognitive challenges, social and communication barriers, and institutional support and accessibility were recorded most commonly, while technological issues were recorded in two studies only. Given that at least five participants were clearly identified as having both conditions, these counts are descriptive and should not be interpreted as establishing patterns for this group (Table 3).

Table 3. Summary of reported themes across neurotype categories. Note. Values represent the number of studies reporting each theme within each category. Studies could contribute to more than one category where their samples contained different participant groups. Participants clearly identified as having both ADHD and autism were recorded in the co-occurring category and were not counted again in the separate ADHD or autism participant counts. Inclusion within a category does not necessarily mean that the reported findings were diagnosis specific. At least five participants were clearly identified as having both conditions; therefore, the study-level counts should not be interpreted as a substantive evidence base for this group.

Themes	ADHD	Autism	Co-Occurring ADHD and Autism
Academic and Cognitive Challenges	23	9	4
Social and Communication Barriers	20	11	3
Institutional Support and Accessibility	15	7	3
Technological Issues	7	4	2

Table 3. *Cont.*

Themes	ADHD	Autism	Co-Occurring ADHD and Autism
Emotional and Mental Impact	22	10	2
COVID-19-Specific Impact	16	7	3
Total Studies	29	13	4

3.2.5. Limitations Reported by the Authors in the Included Studies

The most common limitations were categorised into broader groups and subgroups based on 39 articles, with the frequency of each limitation recorded.

The first limitation identified was sample-related issues, including small sample sizes or small subgroups (22 articles), single institution or single site studies (9 articles), lack of diversity in factors such as age, gender, ethnicity or socioeconomic status (14 articles), and unrepresented samples with bias towards certain groups (10 articles). The second limitation concerned measurement and data collection, with studies often relying on self-reported experiences or outcomes and lacking objective measures (12 articles) or using self-reported, unverified diagnoses (9 articles). The third limitation was related to study design and methodology, with several studies employing cross-sectional designs that cannot infer causality (4 articles) or correlation designs that cannot establish cause-and-effect relationships (3 articles). The fourth limitation involved participant bias, such as self-selection bias due to voluntary participation or a focus on specific topics (5 articles), missing voices, including dropouts, students not registered with disability services, or those avoiding participation (6 articles), exclusion of individuals who choose not to disclose their disability (2 articles), exclusion of participants with certain mental health disorders (1 article), and exclusion of a “mixed” learning category (1 article).

The fifth limitation involved disability classification issues and overlapping symptoms, with multiple disabilities making it difficult to interpret findings; this was noted in 8 articles, where considerable co-occurrence and symptom overlap complicated the isolation of the effects of individual diagnoses (Figure 3).

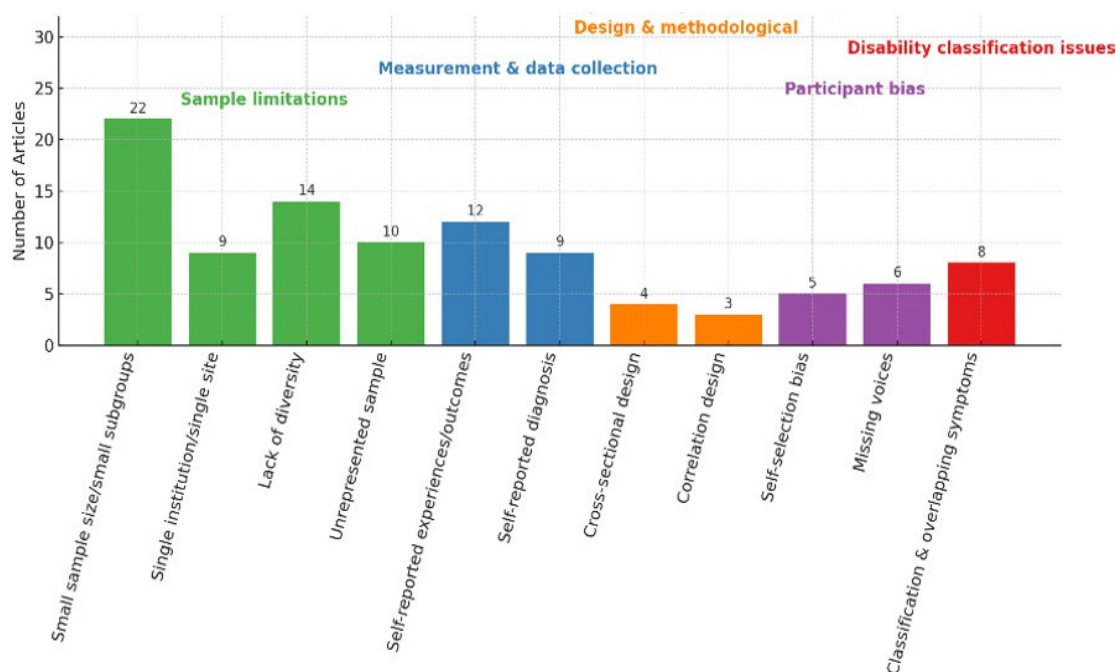


Figure 3. Limitations reported in the included studies ($n = 39$). Note. Categories were derived inductively from limitations reported across the included studies.

4. Discussion

This scoping review synthesised challenges reported across 39 studies involving students with ADHD and/or autism in online higher education. Six themes were identified: academic and cognitive challenges, social and communication barriers, institutional support and accessibility, technological issues, emotional and mental health impacts, and COVID-19-related challenges.

ADHD was represented in 29 studies and autism in 13. Four studies contained evidence considered relevant to co-occurring ADHD and autism, although at least five participants were clearly identified as having both conditions. The greater focus on ADHD may partly reflect its higher reported prevalence within higher education (Sedgwick-Müller et al., 2022). Autism research has also reported challenges in recruiting representative samples of autistic participants, which may contribute to the disparity in the literature (Rødgaard et al., 2022).

This imbalance represents a substantial research gap. The experiences of students with co-occurring ADHD and autism remain underexplored, and the available evidence is insufficient to support conclusions about the nature or severity of the barriers encountered by this group. The findings broadly align with previous reviews of students with ADHD, autistic students and neurodivergent students in higher education, which identified challenges relating to academic engagement, social inclusion, institutional support and access to accommodations (Álvarez-Godos et al., 2023; A. H. Anderson et al., 2017; Clouder et al., 2020; Davis et al., 2021; Sedgwick, 2018). The present review extends this evidence by examining how these challenges are reported within online and blended learning environments. In particular, reduced external structure, increased demands on self-regulation, difficulties navigating digital platforms and reduced access to campus-based support were reported as barriers in the included studies. At the same time, some studies reported that online learning provided flexibility, reduced social or sensory pressure and greater control over participation. These contrasting findings indicate that online learning is not uniformly beneficial or disadvantageous and that reported experiences vary both within and across neurotype groups. This variation supports examining ADHD and autism separately rather than combining them within broad categories such as neurodivergence or disability, while recognising heterogeneity within each group and overlap between them. These patterns should be interpreted cautiously because several studies included broader disability samples or small diagnosis-specific subgroups.

Geographically, research has concentrated in Western contexts, particularly the USA, UK and Israel, limiting the wider applicability of the findings. Qualitative studies were most common ($n = 19$), followed by quantitative ($n = 12$) and mixed-methods studies ($n = 8$). The comparatively small number of mixed-methods studies indicates an opportunity for future research to combine quantitative patterns with detailed accounts of students' experiences. The increase in publications beginning in 2021 may reflect greater scholarly attention following the widespread transition to online learning during the COVID-19 pandemic.

Despite these insights, the evidence base has clear limitations. Reported issues included small sample sizes, lack of diversity, single-site studies, reliance on self-reported data, cross-sectional designs, and participant bias, such as self-selection or missing voices. Although small samples may limit the breadth and generalisability of the overall evidence base, they are not inherently a limitation of qualitative research, which often prioritises depth of understanding. Several barriers recurred across studies conducted in different settings, indicating some consistency in the evidence despite variation in sample size. However, this consistency does not remove the limitations associated with small diagnostic subgroups, broader disability samples and limited geographical representation.

Classification challenges and overlapping symptoms further complicate interpretation. This limitation suggests that, while the findings identify key reported challenges, they do not provide a comprehensive representation of the experiences of students with ADHD and/or autism. Overall, the findings indicate recurring concerns relating to structure, communication, accessibility and institutional support in online higher education. However, uneven attention across neurotype categories, mixed-disability samples and methodological limitations restrict the conclusions that can be drawn. Evidence concerning co-occurring ADHD and autism, different cultural contexts and the role of technology remains particularly limited.

The findings of this review have broader implications for diversity, equity, inclusion and belonging within higher education. These findings suggest that belonging should be considered an important outcome of inclusive online education, alongside accessibility, participation and academic success. Although online learning may increase flexibility and accessibility for some students, online higher education environments may continue to reflect assumptions concerning neurotypical communication, organisation, engagement and self-regulation. These reported barriers may have implications not only for academic participation but also for belonging, self-advocacy and equitable access to support. These findings suggest that inclusive online higher education requires more than the provision of formal accommodations. Institutions should consider how course design, communication practices, accessibility procedures, staff awareness, opportunities for social connection and flexible forms of participation may influence access, participation and sense of belonging for students with ADHD and/or autism. Collaboration among academic staff, instructional designers, disability support services and institutional leaders may support the development of more inclusive digital learning environments (Sedgwick-Müller et al., 2022). Additionally, educators should be equipped with the knowledge and skills needed to better support students with ADHD and/or autism (Duncan et al., 2025).

Finally, these findings may also have implications for the development of learning analytics and artificial intelligence in online higher education. Future AI-supported educational technologies should adopt human-centred, multimodal, and context-aware approaches that recognise varied patterns of engagement among students with ADHD and/or autism, support decision-making, and help educators provide more equitable and personalised support for these students (Alfredo et al., 2024). Collectively, these findings suggest that improving accessibility alone is insufficient. Inclusive online higher education should also foster belonging, participation and equitable engagement for students with ADHD and/or autism.

5. Study Limitations

This scoping review has several limitations. Only 39 studies met the inclusion criteria, and many included students with ADHD and/or autism within broader disability or neurodivergent samples. The limited and uneven evidence base restricts the breadth and generalisability of the findings. Autism was represented in fewer studies than ADHD, while evidence concerning students with co-occurring ADHD and autism was particularly limited.

Importantly, the fact that some challenges are less frequently discussed in the literature does not mean they are less important; rather, it reflects the uneven focus of existing research.

The database search used a focused set of terms relating to online learning and higher education and did not include all possible synonyms, such as “distance learning”, “remote learning”, “e-learning”, “blended learning”, “college” and “postsecondary education”. Although forward and backward citation searching identified additional relevant studies, some eligible studies may not have been captured.

Citation searching was conducted manually on a study-by-study basis, and the identified citations were not exported into a combined dataset. Consequently, separate counts for duplicate removal, full-text assessment and reasons for exclusion were not retained for this pathway, limiting the completeness and reproducibility of its PRISMA reporting.

Screening, data extraction and initial coding were undertaken by one member of the research team rather than independently in duplicate. Although the review process and final set of included studies were discussed with a second member of the research team, the use of a single reviewer for these stages may have increased the risk of selection error or subjective interpretation.

Another limitation is the geographical bias, with the studies originating from the USA (16), Israel (6), the UK (5), Spain (3), Canada (3), Australia (3), Japan (2), and Greece (1), while other regions are not represented. This leads to a lack of cultural and contextual diversity in the evidence. Additionally, the review was limited to peer-reviewed studies published in English. Consequently, this restriction may have excluded relevant evidence published in other languages, potentially contributing to the geographical concentration of the included literature and limiting representation across a broader range of cultural and educational contexts. Because the review focused on online higher education, evidence from school settings, face-to-face learning and broader disability research was not included.

The included studies were heterogeneous in their research objectives, study designs, methods, samples and institutional contexts. This heterogeneity meant that the synthesis was primarily descriptive rather than comparative or quantitative.

As this review covered publications from January 2015 to June 2025, many included studies were conducted during the COVID-19 pandemic, when online learning was introduced as an emergency measure. The findings may not fully represent post-pandemic online learning practices. Consistent with JBI guidance for scoping reviews, no formal critical appraisal was undertaken because the purpose was to describe and synthesise the included evidence rather than evaluate the quality or effectiveness of individual studies. The absence of critical appraisal limits the conclusions that can be drawn about the strength and reliability of the evidence.

6. Conclusions

This scoping review examined challenges reported in studies involving students with ADHD and/or autism in online higher education, with particular attention to inclusion, accessibility and equitable participation. The review followed JBI methodology and was reported using the PRISMA-ScR framework.

The database search identified 1426 records, of which 1368 were screened after removing 58 duplicates, resulting in 17 included studies. This was supplemented by backward and forward citation searching, through which 2180 citation instances were examined and 22 additional studies were identified. Thirty-nine studies met the inclusion criteria and were included in the literature review. The synthesis identified recurring academic, cognitive, social, communication, institutional, technological and emotional challenges. However, the findings also indicated that online learning can provide benefits for some students, including greater flexibility, reduced social pressure and increased control over the learning environment.

The evidence base remains limited and heterogeneous, particularly in relation to students with co-occurring ADHD and autism. Many studies included students with ADHD or autism within broader disability or neurodivergent samples, limiting the extent to which some findings could be attributed to a particular group.

Future research should prioritise longitudinal, qualitative, mixed-methods and intervention studies examining both the challenges and strengths associated with online

learning for students with ADHD and/or autism across diverse institutional and cultural contexts. This should include students’ capabilities, preferences and positive online learning experiences, alongside the challenges they encounter. Particular attention should be given to students with co-occurring ADHD and autism, who remain underrepresented in the existing evidence. Research should also examine inclusive digital design, institutional support and emerging AI-supported technologies to determine how these approaches can support equitable participation in online higher education.

Expanding this evidence base may support the development of more equitable, accessible and inclusive online higher education environments that foster participation, meaningful belonging and academic success for students with ADHD and/or autism.

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Conflicts of Interest: The authors declare no conflicts of interest.

Appendix A

Table A1. Characteristics of included studies.

Study	Country & Year	Research Objectives	Participants & Neurotype	Method	Study Design
Kim and Lee (2025)	USA, 2024	Exploring online learning experiences of students with various disabilities and understanding the post-pandemic learning context.	ADHD and/or LD N = 91 91 out of 143	Survey + Questionnaire	Quantitative
Podsiadlik (2023)	UK, 2023	Investigating how students with Specific Learning Difficulties experience blended learning.	ADHD & dyslexia N = 1 1 out of 6	Semi-structured interviews + Case study	Qualitative
S. K. Anderson et al. (2024)	USA, 2024	Concerns regarding recommendations for supporting the success of online students with disabilities.	ADHD N = 3 3 out of 13	Semi-structured interviews	Qualitative
Terras et al. (2020)	USA, 2020	Comparing various students’ disability accommodations in online courses.	ADHD N = 3 3 out of 13	Semi-structured interviews	Qualitative

Table A1. Cont.

Study	Country & Year	Research Objectives	Participants & Neurotype	Method	Study Design
Meyers and Bagnall (2015)	Australia, 2015	Research report on the issues and experiences of an adult learner with co-occurring ADHD and autism in an undergraduate online learning environment.	Co-occurring ADHD and autism $N = 1$	Semi-structured interviews + Case study	Qualitative
Terras et al. (2015)	USA, 2015	Assessing disability accommodations in online courses and the graduate student experience.	ADHD $N = 2$ 2 out of 11	Semi-structured interviews	Qualitative
Satterfield et al. (2015)	USA, 2015	Exploring autistic students' preferences for online course delivery to improve inclusive practices.	Autism $N = 268$ 268 out of 653	Survey	Quantitative
Melián and Meneses (2022)	Spain, 2022	Examine students' disclosure experiences with hidden disabilities at the online university.	ADHD, dyslexia $N = 6$ 6 out of 34	Interviews	Qualitative
Kotera et al. (2021)	UK, 2021	Exploring the experience and understanding of loneliness among online students with disabilities and identifying strategies to alleviate it.	Co-occurring ADHD and autism $N = 1$ 1 out of 9	Semi-structured interviews	Qualitative
Sharabi and Shelach Inbar (2024)	Israel, 2024	Examine how students with ADHD and/or SLD experience distance learning, personal resources and feelings of loneliness in higher education.	ADHD $N = 58$ ADHD + SLD $N = 56$ 114 out of 276	Questionnaire	Quantitative
Nelson et al. (2023)	USA, 2023	Examine the challenges that students with autism face in emergency, remote, and hybrid postsecondary education.	Autism $N = 8$ 8 out of 19	Interviews + Questionnaire	Mixed-methods
Kalman-Halevi et al. (2023)	Israel, 2023	Analyse the emotional impact and consequences for postsecondary students with LD/ADHD from the abrupt shift to emergency remote teaching during COVID-19.	$N = 11$ ADHD $N = 43$ ADHD + LD 54 out of 237	Survey + Questionnaire	Quantitative
Laslo-Roth et al. (2022)	Israel, 2022	Investigating the experience of loneliness among college students with ADHD during distance learning.	ADHD $N = 119$ 119 out of 648	Survey	Quantitative

Table A1. Cont.

Study	Country & Year	Research Objectives	Participants & Neurotype	Method	Study Design
Sarid and Lipka (2023)	Israel, 2023	Examine how students with learning disabilities (LD) and/or ADHD adjusted to higher education during the transition to remote learning (RL) during the COVID-19 pandemic.	LD and/or ADHD $N = 198$ 198 out of 621	Questionnaire	Quantitative
Shraga-Roitman et al. (2022)	Israel, 2022	Assess the adjustment to emergency remote teaching (ERT) during the COVID-19 pandemic among diverse students.	ADHD $N = 96$ 96 out of 390	Questionnaire	Quantitative
Adams et al. (2019)	Australia, 2019	Online learning for students on the autism spectrum.	Autism $N = 21$	Survey + Questionnaire	Mixed-methods
McDowell (2015)	UK, 2015	Explore how technology-enhanced learning can improve educational inclusion for learners with Asperger's Syndrome in higher education.	Autism $N = 1$ 1 out of 4	Interviews + Observations + Case study	Qualitative
Reyes et al. (2023)	Spain, 2023	Exploring why students with disabilities choose online higher education and how well it meets their needs and expectations.	ADHD $N = 3$ 3 out of 24	Semi-structured interviews + Case study	Qualitative
Reyes et al. (2025)	Spain, 2025	Examining coping strategies among online students with disabilities and their methods for handling challenges.	ADHD $N = 3$ 3 out of 24	Semi-structured interviews + Case study	Qualitative
Verdinelli and Kutner (2016)	USA, 2016	Factors affecting persistence among online graduate students with disabilities.	ADHD $N = 2$ Autism $N = 2$ 4 out of 35	Semi-structured interviews + Questionnaire	Qualitative
Warren and Schwitzer (2018)	USA, 2018	Reporting on the counselling needs of two-year college distance-learning students with psychological disorders and exploring the roles of counsellors in supporting their success.	ADHD $N = 1$ 1 out of 7	Semi-structured interviews	Qualitative

Table A1. Cont.

Study	Country & Year	Research Objectives	Participants & Neurotype	Method	Study Design
Schiros et al. (2025)	USA, 2025	Investigating the pandemic's impact on first-year college students with ADHD and their adjustment.	ADHD $N = 113$ (pre-COVID-19) ADHD $N = 133$ (during COVID-19) 246 out of 3006	Survey	Quantitative
Seddio et al. (2024)	USA, 2024	Investigate how COVID-19 experiences influence the relationship between ADHD and anxiety symptoms in college students.	ADHD $N = 66$ 66 out of 200	Survey + Questionnaire	Quantitative
Takeda et al. (2023)	Japan, 2023	Exploring the impact of the COVID-19 pandemic on university students with ADHD.	ADHD $N = 30$ 30 out of 252	Survey	Quantitative
Ando et al. (2021)	Japan, 2021	Study of the impacts of the COVID-19 pandemic on the lives of individuals with ADHD.	ADHD $N = 4$	Interviews	Qualitative
Faggella-Luby et al. (2023)	USA, 2023	Exploring college students with disabilities' perceptions of remote learning during the COVID-19 pandemic.	ADHD $N = 84$ Autism $N = 30$ 114 out of 216	Survey	Mixed-methods
Mullins and Mitchell (2022)	Canada, 2021	The impact of COVID-19 on students with disabilities during the shift to online learning.	ADHD $N = 69$ 69 out of 222	Survey	Mixed-methods
Le Cunff et al. (2024)	UK, 2024	To examine how neurodiversity influences perceived cognitive load in online learning to improve support for neurodivergent students.	ADHD $N = 64$ Autism $N = 35$ 99 out of 231	Survey	Quantitative
Alves et al. (2025)	Canada, 2025	Assessing the experiences of neurodivergent students during the COVID-19 pandemic.	ADHD $N \geq 9$ Autism $N \geq 4$ Co-occurring ADHD and autism $N \geq 2$ Total sample $N = 17$	Semi-structured interviews + Questionnaire	Qualitative
Ballantine et al. (2023)	Canada, 2023	Investigating the learning experiences of autistic students due to the shift from face-to-face to online education during the COVID-19 pandemic.	Autism $N = 8$	Semi-structured interviews	Qualitative

Table A1. Cont.

Study	Country & Year	Research Objectives	Participants & Neurotype	Method	Study Design
Shonfeld and Ronen (2015)	Israel, 2015	Exploring online learning among students from diverse backgrounds, including those with disabilities and with varying performance levels from average to excellent.	ADHD $N = 25$ 25 out of 121	Semi-structured interviews + Questionnaire	Mixed-methods
Cage and McManemy (2022)	UK, 2022	Assessing the experiences of autistic and non-autistic students during the COVID-19 pandemic, with attention to burnout and dropping out, mental health and coping.	Autism $N = 70$ 70 out of 385	Questionnaire	Mixed-methods
Zhang et al. (2022)	USA, 2022	Examining the experiences of students with disabilities and mental health issues during the COVID-19 pandemic.	ADHD $N = 2$ 2 out of 142	Semi-structured interviews + Survey	Mixed-methods
Owenz et al. (2024)	USA, 2024	The objective is to explore the experiences, challenges, and desired changes of students with disabilities during the post-pandemic return to normal to inform more inclusive university practices.	ADHD $N \geq 5$ Autism $N = 0$ Co-occurring ADHD and autism $N \geq 1$ Total sample $N = 12$	Semi-structured questionnaires + Focus groups	Qualitative
Noble et al. (2024)	USA, 2024	Exploring the impact of COVID-19 on autistic college students.	Autism $N = 75$	Written reports + Case study	Qualitative
De Vos et al. (2024)	Australia 2024	Exploring the higher education experiences of students with learning disabilities in online education, with an emphasis on factors that either facilitate or hinder their experiences, to inform broader improvements beyond just curriculum-related efforts.	ADHD $N = 1$ 1 out of 11	Semi-structured Interviews	Qualitative
Monahan et al. (2021)	USA, 2021	Exploring anxiety and the needed support for autistic college students during the COVID-19 pandemic.	Autism $N = 76$	Survey	Mixed-methods

Table A1. Cont.

Study	Country & Year	Research Objectives	Participants & Neurotype	Method	Study Design
Bevens et al. (2024)	USA, 2024	Investigate the relationships between loneliness, online learning, and academic achievements among students living with disabilities, using the National College Health Assessment from spring 2022.	ADHD N = 6479 Autism N = 559 7038 out of 69,131	Survey	Quantitative
Seiradakis (2024)	Greece, 2024	Investigate online education experiences among students with invisible disabilities during the COVID-19 lockdown.	ADHD N = 4 4 out of 7	Interviews	Qualitative

Note: ADHD, autism, and co-occurring ADHD and autism were recorded as separate participant categories. Participants clearly identified as having both ADHD and autism were recorded in the co-occurring category and were not counted again in the separate ADHD or autism participant counts. Where complete diagnosis-specific totals were unavailable, minimum identifiable counts are shown using $\geq$.

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