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Supporting inclusion in nursing education: a metasynthesis on learning experiences of students with specific learning disorders

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Supporting Inclusion in Nursing Education: A Metasynthesis on Learning Experiences of Students with Specific Learning Disorders

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ABSTRACT

Background. Specific Learning Disorders (SLDs) are neurodevelopmental conditions characterized by persistent difficulties in reading, writing, and mathematics despite adequate intellectual abilities. Understanding the lived experiences of nursing student with SLDs is essential to developing inclusive educational strategies that promote both academic success and patient safety. **Aim.** This qualitative meta-synthesis explored

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and interpreted the lived experiences of undergraduate nursing students with SLDs throughout their academic pathways. **Methods.** Following the Joanna Briggs Institute methodology for qualitative evidence synthesis and reported in accordance with the ENTREQ guidelines, a comprehensive literature search was conducted across PubMed, CINAHL, PsycINFO, EMBASE, and ERIC. Methodological quality of the included studies was appraised using the CASP checklist, while data analysis and thematic synthesis were conducted following the framework proposed by Sandelowski and Barroso. **Results.** Twelve qualitative studies published between 2003 and 2021 met the inclusion criteria. Eight core themes emerged: (1) the impact of SLD on learning; (2) compensatory strategies; (3) disclosure experiences; (4) types of support received; (5) metacognitive awareness; (6) acceptance of one's condition; (7) theoretical learning; and (8) expectations regarding the work environment. SLDs influenced nursing students' learning by affecting clinical performance, emotional stability, and self-confidence. To manage these challenges, students adopted compensatory strategies such as taking extra time, using organizational tools, and relying on digital supports. Disclosure experiences were shaped by stigma, patient-safety concerns, and tutors' attitudes. Support from tutors, peers, services, and families proved essential, while metacognitive awareness helped students recognize their strengths and regulate their learning. Theoretical difficulties were generally manageable, and students tended to prefer predictable, slower-paced work environments, perceiving high-intensity settings as less compatible with their needs. **Conclusion**. Findings highlight the need for Universities to implement inclusive policies in both classroom and clinical settings. Further research is needed to evaluate interventions that strengthen students' self-awareness, metacognitive skills, and learning regulation. Longitudinal and mixed-method studies are also required to understand how students' experiences and coping strategies evolve throughout their academic trajectory and during the transition to professional practice. Additionally, evaluating training programmes for tutors and educators could provide valuable evidence on how inclusive teaching and mentorship

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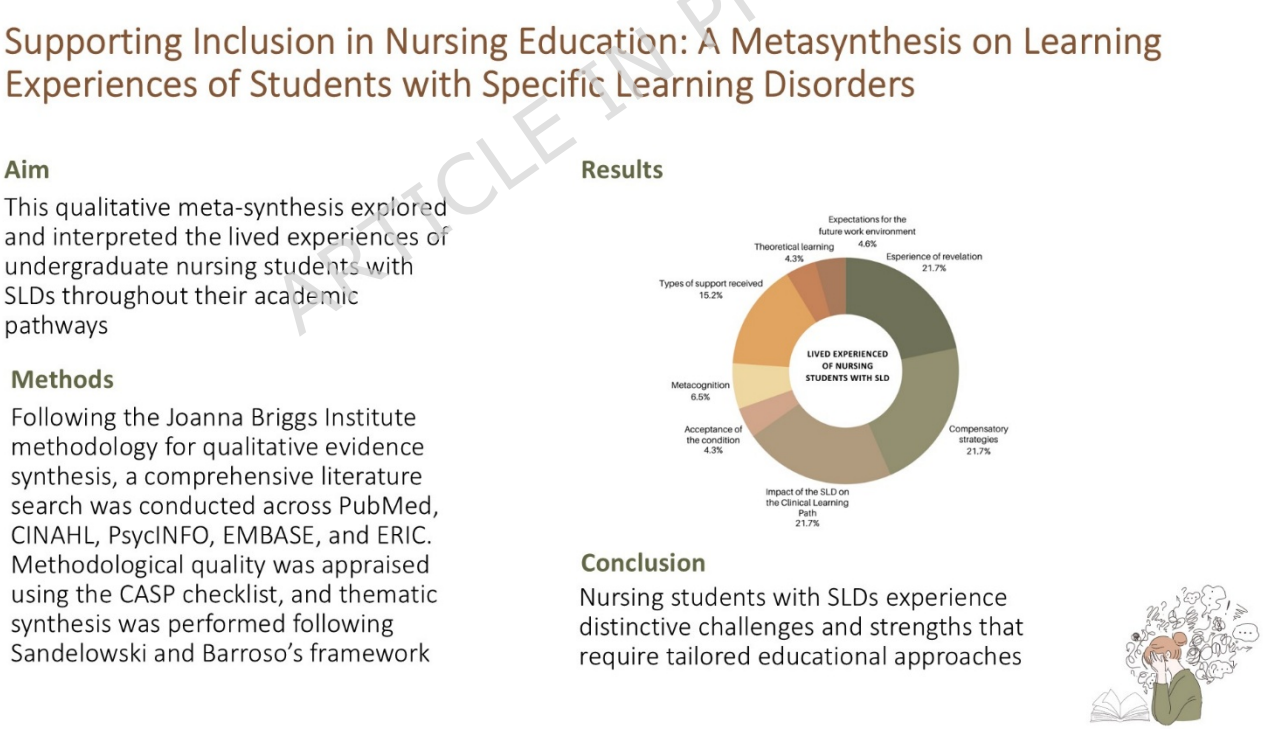
practices influence academic success and professional development in students with SLDs.

Keywords: Specific Learning Disorders, Experiences, Nursing Students, Metasynthesis, Clinical Environments, Classroom.

GRAPHICAL ABSTRACT



BACKGROUND

Specific Learning Disorders (SLDs) are categorized as neurodevelopmental disorders in the Diagnostic and Statistical Manual of Mental Disorders [1]. They are characterized by

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significant and persistent difficulties in acquiring and using skills related to reading, writing, and mathematics. These challenges occur despite the individual having adequate intellectual functioning and do not arise from any sensory or neurological impairments. SLDs are classified by the primary cognitive domain affected. The main types include dyslexia, dysorthographia, dysgraphia, and dyscalculia.

The DSM-5 estimates that the global prevalence of SLDs ranges from 5% to 15% of the population [1]. A more recent meta-analysis by Yang et al. (2022) indicates an average prevalence of 7.1% (95% CI: 6.27–7.97%). The geographical distribution of the studies analyzed shows a higher concentration of cases in Asia (41.9%) and Europe (29.0%), followed by Africa and the Americas (both at 12.9%) and Oceania (3.2%).

Collectively, these epidemiological findings have stimulated increasing scientific attention over the past decades, in parallel with the global development of legislative and educational frameworks addressing learning disorders [2].

The diagnosis of SLDs is typically established during the second or third year of primary school. However, in recent years, increasing attention has been directed toward the identification of SLDs in adulthood, as many individuals only become aware of their learning difficulties later in life. In Italy, University students with SLDs account for approximately 2.3% of the overall student population. In terms of disciplinary distribution, students with disabilities or SLDs are predominantly enrolled in the following fields: social sciences (35.4%), sciences (30.1%), humanities (23%), and health sciences (10%) [3]. The upward trend in university students with SLDs aligns with international patterns, though programme choices vary across countries. In the UK, students with SLDs are overrepresented in creative and agriculture disciplines and underrepresented in languages and law [4]. In Ireland, students with learning difficulties show the highest participation in Arts and Humanities (20.2%), Business Administration and Law (16.1%), and Health and Welfare (14.2%), while the lowest rates occur in Generic Programmes (0.3%), Services (2.3%), and Agriculture, Forestry, Fisheries and

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Veterinary (2.9%). Participation in other fields is moderate, ranging from 5.3% (Education) to 12.8% (Natural Sciences, Mathematics and Statistics) [5].

University students with SLDs encounter various challenges when it comes to organizing academic texts, managing their time efficiently, articulating their thoughts verbally, maintaining focus, and retaining short-term information. They may also struggle with listening comprehension and planning academic assignments. [6]. These characteristics can greatly impact university learning by making it more difficult for students to understand and process complex texts and draw inferences from them [7].

Degree programs in the health professions are notably complex because they combine theoretical knowledge with clinical, practical, educational, and interpersonal skills. Specifically, nursing education necessitates a continuous link between theory and practice to help students develop professional competencies. Becoming a nurse requires engagement in the cognitive, emotional, and physical aspects of learning. Students with SLDs may face unique challenges in these areas [8].

Understanding the learning experiences of nursing students with SLDs is essential to identify how they engage with educational processes, what strategies they employ, and which factors may facilitate or hinder their professional development. In this context, Kolb's [9] experiential learning model offers a valuable framework for interpreting these dynamics, emphasizing experience as the foundation for reflection and the development of new competencies.

To our knowledge, there are currently no systematic reviews that examine the experiences of students with SLDs, either in academic or clinical learning environments. This review seeks to address this gap by providing insights useful to educators aiming to better understand the learning strategies, support tools, and challenges encountered by these students. Such knowledge can inform the design of personalized and inclusive educational pathways that benefit not only the university system but also healthcare institutions, which face the dual challenge of supporting student training while addressing the persistent shortage of nursing staff. Investing time and resources in

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promoting inclusion can thus be viewed not only as an act of equity but also as a strategic approach to enhancing the quality and sustainability of the healthcare system.

MATERIAL AND METHODS

Aim

A qualitative meta-synthesis was conducted to explore and interpret the lived experiences of undergraduate nursing students with Specific Learning Disorders SLDs during their academic studies. Qualitative meta-synthesis aims to generate an integrated and interpretative synthesis of research findings, moving beyond the mere comparison or critical appraisal of individual studies [10]. The study followed the methodology for qualitative evidence synthesis recommended by the Joanna Briggs Institute (JBI), as described in the JBI Manual for Evidence Synthesis [11]. The reporting of this qualitative meta-synthesis followed the ENTREQ guidelines for transparency in qualitative evidence synthesis. The research question guiding this synthesis was:

“What are the lived experiences of undergraduate nursing students with Specific Learning Disorders during their academic journey?”.

The protocol for this review was registered on the Open Science Framework (OSF) under the DOI: https://doi.org/10.17605/OSF.IO/4FMYK.

Framework	Definition	Description
P (Population)	Nursing students with SLDs	Undergraduate nursing students diagnosed with Specific Learning Disorders
I (Phenomenon of Interest)	Lived experiences	Students’ perceptions, feelings, and experiences
Co (Context)	Academic setting	Undergraduate nursing programs

Search Strategy

In accordance with the JBI Manual for Evidence Synthesis, a PICo framework (Population, Phenomenon of Interest, Context) was developed to guide the search strategy (Table 1).

Table 1. PICo Framework

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Relevant keywords, synonyms, and indexed terms were identified for each component of the framework. Additional qualitative research filters were applied to target studies adopting qualitative approaches.

A comprehensive literature search was conducted in the following databases: PubMed, CINAHL, PsycINFO, EMBASE, and ERIC. No temporal limits, language restrictions, or other publication-related limits were applied. Search strings are summarized in Supplementary materials (Supplementary Table S1).

Inclusion and Exclusion Criteria

Inclusion criteria were defined based on the PICo framework and included qualitative studies focusing on the experiences and perceptions of undergraduate nursing students with SLDs, regardless of age, gender, or year of study. In accordance with the JBI guidelines [11], eligible studies employed qualitative methodologies such as phenomenology, grounded theory, ethnography, or action research.

Studies exploring faculty or instructors' perspectives on teaching students with SLDs were excluded, as they did not address the phenomenon of interest. Grey literature (e.g., non–peer-reviewed materials) was not considered for inclusion in this review, as the focus was limited to peer-reviewed empirical studies to ensure methodological rigor and consistency.

The search was conducted from March to April 2025. The search was updated in September 2025.

Study Selection Process

A total of 162 records were initially retrieved. Duplicates were removed, and the remaining records were screened by title and abstract using Rayyan, a free web-based tool for systematic reviews [12].

Two independent reviewers conducted the screening process in a blinded manner (S.F., I.M.); disagreements were resolved through discussion with a third reviewer (D.M.).

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Full-text assessment was then performed on potentially relevant studies. Twelve studies met the inclusion criteria after the first screening phase; however, three were excluded at the full-text review stage due to population irrelevance.

Data from the included studies were systematically extracted into a dedicated data extraction table for subsequent analysis.

Data Extraction

The extracted variables were defined through consensus among the three reviewers, with the aim of systematically collecting all relevant information for the synthesis. The following information was extracted from each study: (a) study title, (b) authors, (c) year of publication, (d) qualitative methodology adopted, (e) stated study aim, (f) sampling strategy, (g) participant characteristics, (h) study setting, (i) main themes identified, (j) subthemes or interpretative categories, (k) illustrative quotations from participants, and (l) study limitations. Only study findings and authors' interpretations, rather than raw qualitative data, were considered as the unit of analysis, in line with Sandelowski and Barroso's recommendations [10].

Methodological Quality Appraisal

Methodological quality was assessed using the Critical Appraisal Skills Programme (CASP) checklist for qualitative research [13]. The tool includes 10 criteria that evaluate methodological transparency, credibility, and rigor. Each criterion was rated as present, absent, or not applicable. The included studies were independently assessed by two authors (S.F., I.M.). Following the evaluation, the two authors compared the CASP findings, and any differences were settled by conversation.

Studies achieving a score above 80% were considered to have acceptable methodological quality. The CASP appraisal serves to enhance methodological transparency and to support critical reflection during the synthesis process. Quality assessment does not determine study exclusion or weighting of findings within the interpretive analysis.

Data Analysis and Thematic Interpretation

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Data analysis followed the two-phase meta-synthesis process described by Sandelowski and Barroso (2007) and was undertaken by a research team with expertise in qualitative methodologies and nursing education, ensuring methodological rigor and interpretative depth.

In the first phase, all included studies were read in full, and findings relevant to the review question were extracted and subjected to inductive, line-by-line thematic analysis. This process resulted in a qualitative meta-summary that identified recurring themes and subthemes across studies.

In the second phase, an iterative, constant comparative approach was applied to examine the relationships among the emerging themes and assess their internal coherence and conceptual consistency. Comparisons were conducted both within and across studies: findings from subsequent studies were coded against existing codes and themes, while new codes and categories were generated when pre-existing concepts could not adequately capture data. This process enabled the progressive refinement, expansion, and integration of themes across the body of evidence.

Reflexive discussions were held throughout the analytical process to acknowledge and critically examine the researchers' preconceptions related to learning disorders and nursing education.

A conceptual map was developed to support the organization, reinterpretation, and synthesis of findings, leading to the generation of higher-order themes and conceptual categories that offered a more comprehensive and integrated understanding of nursing students' lived experiences with SLDs.

To enhance analytical rigor, researcher triangulation was employed: three researchers independently coded and interpreted the data, with discrepancies resolved through iterative discussion until consensus was reached. This collaborative approach minimized subjective bias and strengthened the credibility of the synthesis.

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Manual analysis was intentionally selected to facilitate close engagement with the data and to support an iterative, team-based interpretative process. No computer-assisted qualitative data analysis software was used.

RESULTS

Selection process

Following the execution of the search strings across electronic databases, a total of 162 records were retrieved. After removing 137 duplicates, 35 records remained eligible for title and abstract screening. Of these, 15 records were considered potentially relevant and were assessed for full-text eligibility. During the full-text review, 3 articles were excluded because their populations did not align with the research question, as they focused on educators' experiences rather than nursing students with SLDs. Ultimately, 12 articles were included and analyzed in depth as pertinent to the research question. The selection process was guided and summarized using the PRISMA 2020 Flow Diagram (Figure 1).

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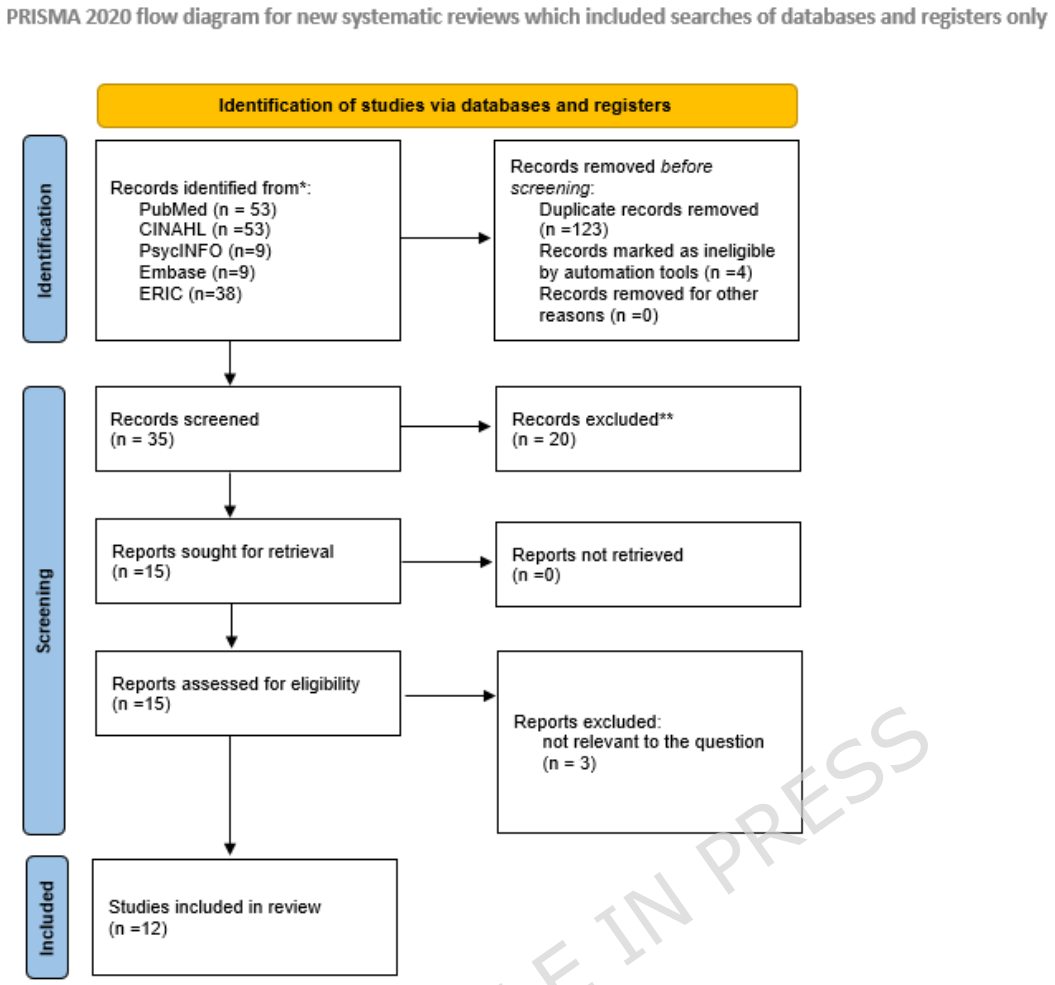

Figure 1. PRISMA Flow Diagram

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Characteristics of the included studies

The included studies were published between 2003 [14] and 2021 [15], with the highest number of publications in 2006 [16, 17], in 2006 [16, 18], in 2011 [19, 20] and in 2015 [21, 22], each contributing two studies. In the remaining years, one study was published per year [14, 15, 23, 24]. Regarding research design, the sample comprised six phenomenological studies [16, 17, 19, 20, 24, 25], two qualitative descriptive design [15, 22], two case studies [14, 18], one grounded theory study [23], and one discourse-based analysis [26].

From a geographical perspective, the majority of studies were conducted in the United Kingdom (n = 7) [16–20, 23, 25], followed by Ireland (n = 2) [22, 26], the United States (n = 2, one from South Dakota) [14, 24], and Italy (n = 1) [15].

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The study populations consisted of nursing students with Specific Learning Disorders (SLDs) enrolled in three- or four-year undergraduate nursing programs, depending on the length of the degree in each country. The SLDs reported included dyslexia, dyscalculia, dysorthographia, and dysgraphia, sometimes occurring in combination. Participants' ages ranged from 20 to 55 years, and both male and female students were represented.

All the studies focused on exploring the lived experiences of students with SLDs in clinical placements. Four studies additionally examined the students' experiences across the broader educational journey, including both the theoretical and clinical components of the nursing curriculum.

Quality appraisal

The methodological quality of the included studies was generally high (Table 2). All studies clearly stated their research aims and adopted an appropriate qualitative design and recruitment strategy (A1–A5 = YES in all cases). The main limitation across studies concerned criterion A6, related to the consideration of the researcher–participant relationship, which was frequently not addressed (absent in 8 out of 12 studies). Ethical considerations (B1) and data analysis rigor and transparency (B2) were adequately reported in most studies, though a few demonstrated partial or insufficient detail. Overall, all studies achieved more than 80% positive responses on the CASP checklist, indicating acceptable methodological quality.

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Table 2. Quality appraisal

Author(s)	Year	A1	A2	A3	A4	A5	A6	B1	B2	C1
Crouch *et al.*	2019	YES	YES	YES	YES	YES	NO	YES	YES	YES
Howlin *et al.*	2014	YES	YES	YES	YES	YES	NO	NO	YES	YES
Galletti *et al.*	2021	YES	YES	YES	YES	YES	YES	YES	YES	YES
Evans *et al.*	2014	YES	YES	YES	YES	YES	NO	YES	YES	YES
Morris *et al.*	2006	YES	YES	YES	YES	YES	NO	YES	YES	YES
Morris *et al.*	2007	YES	YES	YES	YES	YES	NO	YES	YES	YES

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Author(s)	Year	A1	A2	A3	A4	A5	A6	B1	B2	C1
White *et al.*	2007	YES	YES	YES	YES	YES	NO	YES	YES	YES
Child *et al.*	2011	YES	YES	YES	YES	YES	YES	YES	YES	YES
Ridley *et al.*	2011	YES	YES	YES	YES	YES	NO	YES	YES	YES
Reep-Jarmin *et al.*	2016	YES	YES	YES	YES	YES	NO	YES	YES	YES
Kolanko *et al.*	2003	YES	YES	YES	YES	YES	NO	YES	YES	YES
Price *et al.*	2006	YES	YES	YES	YES	YES	NO	YES	YES	YES

Themes emerged from included studies

The thematic analysis conducted according to Sandelowski and Barroso [10] involved the systematic comparison and abstraction of the primary study findings, understood as the authors' interpretive results rather than raw data. Through this interpretive integration process, the following main synthesized themes were identified from the included studies regarding the experiences of nursing students with SLDs during their academic path: (a) the impact of dyslexia on the learning process, encompassing both the concrete difficulties encountered during clinical practice and the emotional consequences associated with SLDs in academic learning; (b) the compensatory strategies adopted by students, including practical approaches and strategies aimed at managing emotional impact; (c) the experiences of disclosing one's SLD to clinical tutors during placements, which involve aspects related to stigma, the decision to share the condition in the interest of patient safety, the factors influencing such a choice, and respect for personal privacy; (d) the types of support received, with both positive and, less frequently, negative experiences reported; (e) the metacognitive elements, understood as awareness and regulation of one's own cognitive processes; (f) the acceptance of one's condition, ranging from full acceptance to partial or total rejection of the disorder; (g) the experiences related to theoretical learning; and (h) the expectations concerning the future work environment. These themes are analytically distinct in focus, as each captures a specific dimension of students' experiences, while remaining conceptually interconnected within the broader process of professional

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formation. Although presented separately for analytical clarity, the themes were not treated as independent categories during synthesis. Relationships among them were explored iteratively, allowing the identification of cross-cutting processes linking emotional experience, identity construction, contextual adaptation, and professional development. Supplementary materials (**Table S2**) provide a descriptive meta-summary of themes, sub-themes, and illustrative quotations extracted from the included studies, whereas **Table 3** presents the higher-level interpretive synthesis resulting from the metasynthesis process.

Table 3. Thematic interpretation derived from the analysis

Original findings	**Thematic grouping**	**Interpretative findings**
Perceptions of the impact of dyslexia on clinical practice (Crouch, 2019) Difficulties in clinical practice (White, 2007) Clinical Practice (Galletti, Abbagnale & Di Martino, 2021) Literacy deficit (Price & Gale, 2006) Organizational Skills Issues (Price & Gale, 2006) Emotional aspects of being a dyslexic nursing student (Morris & Turnbull, 2006) Emotional aspects of the diagnosis (White, 2007) Stress and frustration (Crouch, 2019) Frustration (Galletti, Abbagnale & Di Martino, 2021) 'Being stupid' and dyslexia (Evans, 2014)	Negotiating performance under cognitive strain Emotional vulnerability and threat to professional legitimacy	IMPACT OF DYSLEXIA ON THE CLINICAL LEARNING PATHWAY
Strategies and resources used to manage the perceived impact of dyslexia (Crouch, 2019) Compensatory Strategies (Galletti, Abbagnale & Di Martino, 2021) Self-managing strategies (Morris & Turnbull, 2006) Strategy compensative (Price & Gale, 2006) Practical support (White, 2007)	Self-regulation and cognitive load redistribution Restoring control and safeguarding credibility	COMPENSATORY STRATEGIES

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Coping strategies and recommendations for developing a toolkit (Child & Langford, 2011) Usefulness of a mentor (Crouch, 2019)		
Knowledge Acquisition (Galletti, Abbagnale & Di Martino, 2021) Learning to learn with a SLD (Kolanko, 2003) The need for more time (Morris & Turnbull, 2006) Problems with time (Kolanko, 2003)	Regulating learning pace and processing demands Need for time and processing adaptation	THEORETICAL LEARNING
Process of disclosure (Howlin, Halligan & O'Toole, 2014) Disclosure (Morris & Turnbull, 2006) Disclosure (Morris & Turnbull, 2007) SLD Disclosure (Galletti, Abbagnale & Di Martino, 2021) Dyslexia Disclosure Issues (Price & Gale, 2006) Disclosing One's Disability for Safety (Howlin, Halligan & O'Toole, 2014) Disclosure to ensure professionalism - influence of disclosure (Ridley, 2011) Security Issues (Price & Gale, 2006) Deciding to Disclose the Disorder (Reep-Jarmin, 2016)	Negotiating visibility within hierarchical contexts Moral positioning and professional accountability	EXPERIENCES OF DISCLOSURE
Receiving support (Howlin, Halligan & O'Toole, 2014) Support People (Galletti, Abbagnale & Di Martino, 2021) Dyslexia Supports (Ridley, 2011)Importance of the role of the tutor (Child & Langford, 2011)Usefulness of a mentor (Crouch, 2019)	Mediating belonging through relational support Institutional responsiveness and structural facilitation	TYPES OF SUPPORT RECEIVED
Dyslexic identity positioning (Evans, 2014) Rejecting medical and disability constructions (Evans, 2014) Not understood (Evans, 2014) Living with dyslexia (Ridley, 2011) Dynamic process of self-awareness and personal development (Ridley, 2011) Learning to learn with a SLD (Kolanko, 2003) Identifying a Learning Disorder: Understanding What Learning	Developing reflexive self-awareness Transforming cognitive difference into competence	METACOGNITION

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Disorder Means (Reep-Jarmin, 2016)		
Awareness of diversity rather than 'disability' (Ridley, 2011) Rejecting medical and disability constructions (Evans, 2014) Identifying a Learning Disorder: Understanding What Learning Disorder Means (Reep-Jarmin, 2016) The dysfunctional student (Price & Gale, 2006)	Reconstructing identity beyond deficit narratives Integrating diagnosis into a coherent professional self	ACCEPTANCE OF ONE'S CONDITION
Choice of future work setting (Morris & Turnbull, 2006) Dyslexia as an occupational problem (Ridley, 2011) Security Issues (Price & Gale, 2006)	Anticipating professional fit and environmental compatibility Prioritizing safety and quality through contextual choice	EXPECTATIONS REGARDING THE FUTURE WORK ENVIRONMENT

The Impact of Dyslexia on the Learning Process

This theme encompassed two interrelated interpretative dimensions: negotiating performance under cognitive strain and emotional vulnerability and threat to professional legitimacy.

Across the included studies, dyslexia emerged not simply as a specific learning difficulty, but as a condition that permeated the entire process of professional formation. Its impact extended beyond isolated academic challenges and became particularly visible within the clinical environment, where cognitive demands intersected with expectations of efficiency, precision, and patient safety. Tasks such as documentation, reading complex terminology, medication calculations, and time management were not experienced merely as technical requirements, but as high-stakes performances embedded within a culture of accuracy and rapid decision-making [15, 17, 18, 22, 23]. Handover communication was likewise perceived as particularly demanding, as students with SLDs often struggled to summarize and convey patient information clearly and concisely [17]. Reading difficulties were also widely reported [20, 23], particularly in relation to understanding scientific terminology or complex technical language [14, 17, 18]. In addition, answering the telephone was described as a stressful activity due

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to challenges with language comprehension, strong accents, background noise, the absence of non-verbal cues, and difficulties in quickly taking notes or recalling numerical information [17]. Mathematical calculations and the administration of pharmacological therapy represented further areas of concern [15, 18, 23], with potential implications for patient safety [23]. Students also reported organizational challenges, particularly in prioritizing workloads and coordinating complex tasks such as patient discharge planning [16–18, 23].

Additional difficulties involved short-term memory [15, 18, 23], comprehension, and task execution [23], which could compromise both the accuracy and the quality of care [18, 23]. Problems with concentration were likewise common and often intensified the cognitive load associated with learning and clinical performance [14, 15]. This perception introduced a moral dimension to learning: students did not simply fear academic failure, but worried about harming patients or being judged as professionally incompetent.

The emotional consequences were not secondary effects but integral components of this experience. Feelings of frustration, inadequacy, and self-doubt were recurrent across studies [15, 20, 23, 24]. Many students internalized their struggles, describing themselves as “stupid” when unable to perform tasks that appeared effortless to others [14, 17]. Feelings of shame [16, 24], embarrassment [16], and fear of negative judgment further intensified this internalization process [24].

A cyclical dynamic became evident: cognitive strain increased emotional distress, while emotional distress further compromised concentration, memory, and performance. Persistent anxiety [14, 24], stress [23], anger [16], feelings of vulnerability [19], and social isolation [14] were therefore not isolated psychological reactions, but part of a reinforcing loop in which perceived underperformance deepened self-doubt and heightened fear of making mistakes.

Compensatory Strategies

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This theme encompassed two interrelated interpretative dimensions: self-regulation and cognitive load redistribution and restoring control and safeguarding credibility.

The analysis revealed a wide range of compensatory strategies that nursing students with SLDs employed to cope with the challenges encountered in clinical practice and to manage the associated emotional impacts. Central to this process was self-regulation and cognitive load redistribution.

The most frequently reported strategy involved dedicating additional time to understand and complete tasks [14–16, 18, 20, 22, 24]. Many students described the need to slow down and work at their own pace to ensure both accuracy and comprehension [16]. In this context, time functioned not merely as a practical necessity but as a regulatory resource through which students attempted to align their learning rhythm with the accelerated tempo of clinical environments.

Organization also emerged as a crucial strategy [17, 24]. Students often relied on mnemonic or visual tools including to-do lists, color-coded pens, and simplified note-taking, to manage information effectively [15–17, 23]. Practical aids such as checklists, dropdown menus, stickers, and systematic double-checking procedures were also used to support documentation and minimize errors [16, 18, 23]. These strategies can be understood as external cognitive scaffolds that redistributed cognitive load, transforming complex and high-pressure tasks into structured and manageable sequences. Similarly, digital technologies including calculators for medication administration and electronic nursing records [15, 16, 18] were valued not only for efficiency, but for the sense of reliability and procedural security they provided. Within clinical placements, requesting advance information about the unit, routines, and expectations represented an anticipatory strategy aimed at reducing uncertainty and facilitating adaptation [15].

In addition, many participants emphasized the importance of rest as a self-regulation strategy, suggesting that alternating periods of academic lessons, clinical placements, and vacations, as well as taking breaks or days off during training, helped maintain

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concentration and emotional balance [18, 22]. This deliberate modulation of effort was useful for students to monitor their cognitive limits and actively manage their resources to prevent overload.

Collaborative and experiential learning approaches also proved useful. Small-group learning activities [18] and Work-Based Learning programs [19] were reported to facilitate understanding through peer interaction and practical engagement. However, some students noted that these methods could occasionally be counterproductive, as group settings sometimes increased distractions [24].

Importantly, compensatory strategies extended beyond task management into the emotional domain. These practices were closely linked to restoring control and safeguarding credibility within clinical environments. Many students described adopting a strong sense of personal responsibility [20], often expressed through hypervigilance and meticulous attention to detail [16, 23]. This intensified monitoring functioned both as a strategy to safeguard patient safety and as a response to students' perceived vulnerability within evaluative and hierarchical clinical environments. At the same time, avoidance behaviors [16–18, 23] reveal the psychological cost of sustained self-surveillance. When fear of making mistakes became overwhelming, some students preferred to avoid certain tasks, as ongoing self-surveillance gradually undermined their confidence. *Experiences of Disclosure*

This theme comprised two interrelated interpretative dimensions: negotiating visibility within hierarchical contexts and moral positioning and professional accountability.

Across the included studies, disclosure emerged as a context-sensitive process embedded within clinical hierarchies. It was not simply a matter of "telling" or "not telling" about having an SLD, but a negotiation of visibility within environments where students were continuously observed and assessed in relation to professional expectations. Many students described hesitation in revealing their condition due to fear of being judged, discriminated against, or perceived as less competent [15, 18–20, 24]. Clinical settings were often experienced as more evaluative than the university

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environment [16, 24]. For this reason, disclosure involved the risk of being treated differently or losing professional credibility. Students therefore carefully weighed the potential benefits of receiving support against the risk of stigma.

Relational and organizational factors also shaped this decision. Tutors who were perceived as empathetic and informed encouraged openness, whereas rigid or poorly informed attitudes led students to remain silent [22, 25]. High workloads, lack of privacy, or short placement durations made it more difficult to find appropriate opportunities for discussion. In contrast, stable and longer supervisory relationships helped build trust and facilitated disclosure [25].

Control over personal information was another important aspect. Some students preferred that the university inform clinical tutors in advance, in order to reduce the emotional burden of direct disclosure. Others emphasized the importance of deciding independently when and to whom to reveal their diagnosis [16, 19, 20]. When this control was lost, students reported feelings of vulnerability and reduced autonomy, reinforcing how disclosure was shaped by power dynamics embedded in clinical hierarchies.

At the same time, disclosure was not driven only by self-protection. In several studies, students explained that they chose to disclose their condition in order to ensure patient safety [17, 20, 22, 25]. Informing the clinical tutor was viewed as an act of transparency and professional responsibility. In this sense, disclosure functioned as a form of moral positioning and professional accountability, through which students aligned openness with ethical standards and commitment to safe practice.

Types of Support Received

This theme comprised two interrelated interpretative dimensions: mediating belonging through relational support and institutional responsiveness and structural facilitation.

Across the included studies, support emerged as a central element in the educational trajectory of nursing students with SLDs. It was not limited to practical assistance in

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overcoming specific difficulties, but significantly shaped how students experienced both academic and clinical environments.

Relational support, particularly from clinical tutors, was consistently described as the most influential form of support [15, 18, 20, 22]. Students emphasized the importance of close supervision and ongoing guidance in developing clinical competencies [15]. Tutors who demonstrated genuine interest, patience, flexibility, and effective communication fostered not only technical learning, but also confidence and intrinsic motivation [20]. In such contexts, feeling understood and supported reduced isolation and allowed students to perceive themselves as legitimate members of the clinical team. Relational support therefore mediated students' sense of belonging and directly influenced their confidence and perception of competence [20].

Academic tutors also played a meaningful role by facilitating communication between the university and clinical settings and helping align academic requirements with clinical expectations [15]. This bridging function supported students in navigating potentially conflicting demands and reduced tensions between theoretical and practical performance standards. Peer support further strengthened this sense of inclusion [15]. Sharing experiences with fellow students helped normalize difficulties and alleviate feelings of inadequacy. These horizontal relationships were perceived as less evaluative and provided a safer space in which vulnerabilities could be expressed without fear of judgment, further strengthening students' sense of inclusion. Family and friends were frequently described as essential sources of emotional encouragement and motivation throughout the training journey [14, 15, 18, 24]. In addition, online platforms and digital communities for students with SLDs provided accessible spaces for sharing experiences and coping strategies [15] extending networks of support beyond formal institutions.

Alongside relational dynamics, institutional responsiveness also shaped students' experiences. University services dedicated to students with SLDs were perceived as beneficial when they offered structured guidance and facilitated access to reasonable accommodations [15, 24]. Clear procedures and formal recognition of learning

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differences did more than organize support; they reduced systemic barriers and made participation in the educational pathway more sustainable. In this way, support operated not only through interpersonal relationships but also through structural conditions that enabled continued engagement.

Metacognitive Elements

This theme comprised two interrelated interpretative dimensions: developing reflexive self-awareness and transforming cognitive difference into competence. Another important aspect emerging from the analysis concerns metacognition, understood as the ability to be aware of one's own way of thinking and learning and to regulate it accordingly. Across studies, this awareness was not described as automatic, but as a capacity that developed over time and influenced how students approached both academic study and clinical practice.

Students with SLDs reported progressively developing reflexive self-awareness. This increased self-awareness allowed them to choose strategies that suited them better and to adjust their study methods depending on the situation. Many described actively monitoring their performance, anticipating possible challenges, and organizing themselves to manage them effectively. In this sense, metacognition functioned as an ongoing process of self-reflection and adaptation.

Several studies also showed that students were able to recognize and build on their strengths, especially in practical and hands-on contexts [20]. Understanding how they learned best helped them engage more effectively with clinical activities. At the same time, many students reported having to "work twice as hard as others" to achieve similar results [17]. This increased effort was not only a response to difficulty, but a conscious decision to invest more energy in reaching their goals.

In addition, qualities such as empathy, interpersonal sensitivity, and spatial awareness were often identified as strengths that supported both learning and clinical performance [20]. Over time, cognitive difference was not experienced only as a limitation, but also as a potential resource. The development of metacognitive awareness, therefore,

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helped students gradually transform their difficulties into areas of competence, strengthening their confidence and sense of capability within nursing education.

Acceptance of One's Condition

This theme comprised two interrelated interpretative dimensions: reconstructing identity beyond deficit narratives and integrating diagnosis into a coherent professional self.

The findings indicate that accepting a specific learning disorder is not a simple or linear process, but develops gradually over time. Rather than representing a single moment of realization, acceptance emerges as an ongoing process of reworking one's identity within academic and clinical contexts.

A central aspect of this process concerns the language students use to describe their experience. Many refer to "difference" rather than "disability," interpreting dyslexia as a challenge without equating it with a personal deficit [20, 26]. This terminological shift reflects an effort to move away from deficit-centered narratives and to construct a more balanced understanding of their abilities. For some students, receiving a diagnosis had a clarifying and even empowering effect, as it allowed them to reinterpret past academic struggles and reorganize their learning identity [20].

Conversely, difficulties in accepting the diagnosis were often linked to resistance toward the label of dyslexia and rejection of the term "disability," which was perceived as limiting or stigmatizing [16, 20, 26]. When dyslexia was understood primarily through a deficit lens, students reported negative effects on self-image, including reduced confidence and doubts about professional competence. Receiving a diagnosis later in life appeared to intensify these challenges and was associated with lower self-esteem and, in some cases, reduced confidence in clinical performance [18, 20].

Speaking openly about their condition during their educational journey frequently marked an important step. In this context, disclosure was not merely an act of communication, but a process of integrating diagnosis into one's sense of self and professional identity [21]. Several students described feelings of relief when they were

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able to name and explain their experience [24], suggesting that acceptance involved moving from silence or concealment toward recognition and self-definition.

Theoretical Learning

This theme comprised two closely related interpretative dimensions: the need for time and processing adaptation and regulating learning pace and processing demands.

Overall, students did not report significant difficulties in theoretical learning that were directly attributable to their SLD. The challenges described mainly concerned common issues such as concentration, memory, and study organization [15]. Some participants also noted difficulty maintaining attention during lengthy examinations, especially when sustained focus was required for extended periods [24].

Rather than being related to the complexity of academic content, these challenges appeared to concern the pace and mode of information processing. Many students emphasized the need for more extended time to understand, organize, and consolidate study materials, highlighting how theoretical learning often required adjustments in timing and delivery speed.

To respond to these demands, students adopted various strategies aimed at regulating their learning process. These included using concept maps to structure information, requesting lecture slides in advance [15], and asking lecturers to adopt a slower pace during explanations [24]. Through these approaches, students sought to manage the volume and speed of incoming information, reducing cognitive overload and making study more sustainable over time.

Expectations Regarding the Future Work Environment

This theme comprised two interrelated interpretative dimensions: anticipating professional fit and environmental compatibility, and prioritizing safety and quality through contextual choice.

Anticipating professional fit and environmental compatibility emerged as a forward-looking process grounded in students' growing self-awareness. Rather than expressing generic preferences, participants projected their understanding of their cognitive styles,

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processing pace, and stress responses into future career planning. Environments described as particularly challenging were those characterized by high unpredictability, frequent changes, heavy documentation requirements, multiple care settings, and constant interaction with patients' families [18]. These contexts were perceived as demanding continuous multitasking and rapid information processing, which students associated with increased stress and risk of error.

Most participants expressed a preference for slower-paced settings not only because they felt more manageable, but because they were perceived as safer and more conducive to high-quality patient care [16]. Slower environments were seen as allowing more time for reflection, accuracy, and organization.

In this sense, selecting or avoiding certain clinical contexts was not framed merely as self-protection, but as a responsible professional strategy. Students' anticipated choices were grounded in a desire to align personal capacities with environments that would support safe, effective, and sustainable practice.

Figure 3 graphically represents the main themes that emerged from the metasynthesis and the frequency with which each theme was addressed within the included studies

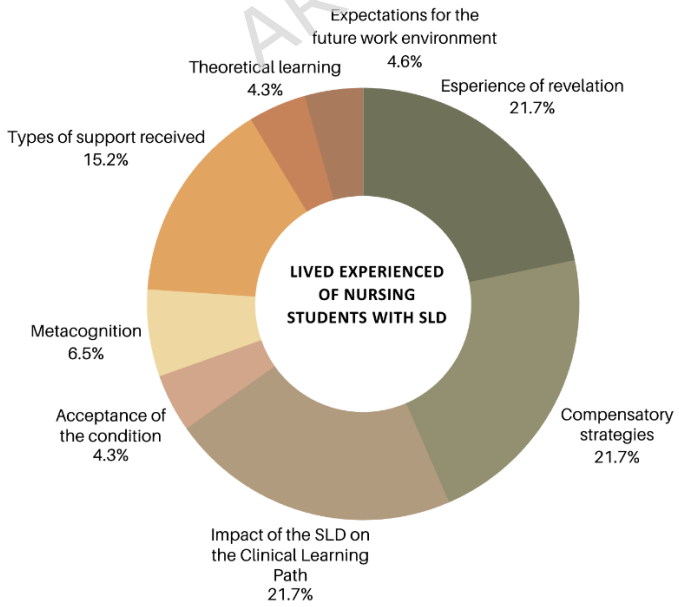

Figure 3. Themes emerged from the included studies

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DISCUSSION

This metasynthesis aimed to explore and interpret the lived experiences of nursing students with SLDs throughout their educational pathway. The findings expand existing knowledge on the topic and offer practical insights for educators and academic institutions seeking to develop inclusive teaching strategies that foster both professional competence and patient safety.

The studies analysed, published between 2003 and 2021, reflect a growing international interest in this issue, parallel to significant legislative and diagnostic developments including the refinement of learning disorder classifications in the DSM and ICD systems and the introduction of the Equality Act [27], which strengthened the educational rights of students with disabilities [28]. The clustering of eligible qualitative research within this timeframe suggests a phase of sustained scholarly engagement and theoretical development in nursing education, during which the experiential dimensions of students with SLDs were more systematically explored and conceptually articulated.

Most of the research focused on students diagnosed with dyslexia, the most common form of SLD in nursing education [17–20, 23, 26]. This predominance likely reflects the higher prevalence of dyslexia compared to other types of SLDs in higher education, but it may also indicate a research gap regarding the experiences of students with less frequently reported conditions such as dyscalculia, dysgraphia, or dysorthographia. Future research should therefore broaden the focus beyond dyslexia to capture the heterogeneity of SLD profiles within nursing education.

Overall, the findings suggest that the educational experience of nursing students with SLDs can be conceptualized as a continuous negotiation between cognitive demands, professional legitimacy, and adaptive self-regulation within hierarchical and safety-oriented clinical systems.

Our results described a substantial emotional impact associated with learning difficulties. Students frequently report low self-esteem, frustration, shame, anxiety, and

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social isolation, factors that may hinder academic performance and the development of professional identity [14, 17, 20, 24]. When unaddressed, these experiences may lead to secondary psychological distress [29]. Importantly, emotional vulnerability was not merely an individual reaction but appeared closely intertwined with the performance-oriented and evaluative nature of clinical training environments.

In the literature on theoretical learning, nursing students with SLDs receive comparatively limited attention. This may reflect a greater familiarity with compensatory tools and learning strategies already developed during earlier stages of education, allowing students to manage theoretical coursework and assessments more effectively. In contrast, clinical environments, characterized by dynamic, unpredictable, and high-stakes situations, tend to expose residual challenges that are less evident in classroom settings.

A central theme emerging from the metasynthesis concerned disclosure of diagnosis in clinical contexts. Many students hesitated to share their SLD for fear of being labelled as “different” or “less competent” [15, 19, 26]. Others, however, choose to disclose their condition as a matter of professional responsibility and patient safety [17, 22, 25]. Overall, stigma appears as a critical determinant of the learning experience and, consistent with previous literature, may negatively affect psychological well-being, motivation, and academic engagement, reinforcing a cycle of frustration and withdrawal [29–31].

Another key aspect concerns educational and emotional support. Relationships with clinical and academic tutors play a decisive role in building trust and self-efficacy [20]. Alongside institutional support, informal networks including peers, family, and online communities, serve as protective factors against isolation and academic disengagement [14, 18, 24]. However, the quality and consistency of such support vary greatly across contexts, underlining the need for specific training for clinical tutors on the characteristics of SLDs and inclusive strategies.

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Expectations regarding clinical learning environments remain relatively underexplored. Some studies indicate that students with SLDs prefer structured, slower-paced settings perceived as safer and more compatible with their learning profiles [16], whereas dynamic and unpredictable contexts, such as critical care units, are described as particularly demanding due to documentation and multitasking requirements [18]. These preferences align with the compensatory strategies commonly reported in previous literature by students with SLDs. The strategy mentioned most frequently involves dedicating additional time to understand and complete tasks [14, 15, 22, 24]. Their need for more time and for working, especially at the beginning of a clinical placement, at their own pace to ensure accuracy and comprehension [15, 16] naturally leads them toward learning environments that are less pressured and more predictable, which are therefore perceived as more supportive of their learning. Thus, ensuring that early placements occur in structured and supportive settings may help build confidence and gradually prepare students for more complex and unpredictable environments. However, given the limited evidence available, further research is needed to clarify how different clinical contexts affect learning processes, emotional well-being, and professional development among nursing students with SLDs.

Across both classroom and clinical contexts, individual characteristics, such as self-acceptance, personal maturity, and metacognitive awareness, emerged as central to managing SLDs effectively [14, 22]. Students with SLDs who demonstrate greater confidence and interpersonal competence tend to capitalize on their strengths, particularly in practical activities, maintaining high levels of motivation and engagement [17]. However, metacognition remains an underexplored dimension within nursing education for students with SLDs [20]. Considering the contrasting findings reported in studies conducted also on other university populations [32–34], further research is needed to clarify the role of metacognition in supporting adaptive learning among nursing students with SLDs.

Implications for Practice and Research

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The findings of this metasynthesis highlight the need for educational environments that actively support inclusion and recognize the diverse learning profiles of nursing students with SLDs. Universities should strengthen institutional policies and personalized learning frameworks that foster an academic culture where cognitive diversity is acknowledged, valued, and integrated into teaching and clinical education practices.

Clinical and Academic tutors emerge as pivotal figures in guiding students with SLDs throughout their educational journeys. Individualized tutoring based on trust, empathy, and ongoing dialogue serves not only as a support mechanism but also as a means of promoting reflection, self-assessment, and metacognitive growth. Implementing structured and integrated tutorial systems, featuring regular briefing and debriefing sessions, can help ensure continuity between theoretical and clinical learning, facilitating the development of adaptive strategies and self-regulation skills.

From a research standpoint, the results point to the importance of deepening the understanding of metacognitive competence among nursing students with SLDs. Future studies should assess the effectiveness of targeted educational interventions designed to strengthen self-awareness, metacognition, and learning regulation. Moreover, longitudinal and mixed-method research is needed to explore how students' experiences and coping strategies evolve across the academic trajectory and during the transition to professional practice. Finally, evaluating training programmes for tutors and educators could provide valuable evidence on how inclusive teaching and mentorship practices influence academic success and professional development in students with SLDs.

Limitations

While providing a valuable contribution to understanding the experiences of nursing students with SLDs, this metasynthesis presents several limitations. The number of available primary studies remains limited, and the majority were conducted in the United Kingdom and other European contexts, potentially restricting the representativeness of educational systems in other geographical regions. Differences in

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cultural, linguistic, and organizational structures of nursing programmes may therefore affect the transferability of the findings. In addition, the included studies span a relatively long publication timeframe. During this period, policies, legislative frameworks, and institutional approaches to inclusion in higher education have evolved substantially. Changes in disability legislation, reasonable accommodation practices, and inclusive education policies may influence how students experience support, disclosure, and professional development. As a result, some findings may reflect historical contexts that differ from current institutional realities, potentially affecting their contemporary applicability. Moreover, the qualitative nature of the included studies entails an inherent degree of subjectivity in data interpretation, and some nuances may have been lost during synthesis. The review was limited to peer-reviewed empirical studies and did not include grey literature, which may have excluded potentially relevant findings from non-indexed sources. Finally, several included studies predate recent policy and legislative developments in higher education inclusion, which may limit the contemporaneity of some findings.

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CONCLUSION

This metasynthesis contributes to addressing the fragmented literature on nursing students with SLDs by providing a more integrated understanding of their experiences across academic and clinical contexts. The findings highlight the importance of continuous educational and tutorial support that recognizes individual strengths and promotes adaptive learning pathways. Promoting learning environments that acknowledge and accommodate diverse cognitive profiles represents not only an ethical and educational imperative but also a meaningful investment in the quality and safety of nursing education and patient care.

DECLARATION

Ethics approval and consent to participate

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Not applicable. This study is a review and did not involve human participants, human tissue, or the collection of individual-level data.

Consent for publication

Not applicable. The manuscript does not contain any identifiable individual person's data.

Availability of data and materials

All data generated or analysed during this study are included in this published article and its supplementary information files.

No additional datasets were generated.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

Conceptualization, S.F., D.M., E.G., E.B., I.M.; methodology, I.M.; investigation, S.F. and I.M.; data curation, S.F.; writing—original draft preparation, I.M., S.F.; writing—review and editing, D.F.M., D.R., G.V., A.P., E.G., E.B., A.O., V.T.; supervision, A.O. and D.F.M; project administration, I.M.

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