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20 years (2004-2024) exploring research trend in intellectual disabilities towards inclusion: a bibliometric study

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Article Info	ABSTRACT
	This study presents a comprehensive bibliometric analysis of intellectual disabilities education towards inclusion research from 2004 to 2024. Using the Scopus database and VOSviewer software, we analyzed 1,562 articles to identify research trends, key contributors, and emerging themes. The results reveal a significant increase in publication output over the two decades, with the highest number of publications occurring in 2022. Major themes include inclusive practices, special education approaches, and social aspects of disability. Keyword analysis highlighted the field's multidisciplinary nature, integrating educational, psychological, and healthcare perspectives. Co-authorship networks showed strong collaboration among Western countries, indicating potential for expanded global partnerships. The study concludes that future research should focus on underrepresented areas such as assistive technology and rare disorders, while expanding international collaborations. This overview provides valuable insights for researchers and practitioners, emphasizing the need for diverse perspectives to enhance the global impact of intellectual disabilities education towards inclusion.

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1. INTRODUCTION

The field of intellectual disabilities education has experienced significant growth and transformation over the past two decades, driven by a global movement towards inclusive educational practices [1]–[3]. Despite this progress, there remains a critical need for a comprehensive overview of the methodologies employed and key topics explored within this domain. This study addresses this gap by providing a bibliometric analysis of research trends in intellectual disabilities education towards inclusion from 2004 to 2024, highlighting significant contributions and identifying areas for future research. Inclusive education for students with intellectual disabilities has been a central theme in the literature. Factors affecting access to general education were examined, emphasizing the role of district special education administrators and revealing systemic barriers and facilitators to inclusive practices [4], [5]. Previous studies have highlighted the importance of district administrators' roles, the gap between policy and practice, and parental involvement in promoting inclusive education for students with intellectual disabilities [4]–[7].

Teachers' attitudes and preparedness significantly impact the effectiveness of inclusive education. South African teachers' attitudes towards learners with severe intellectual disabilities were assessed, revealing a mix of supportive and resistant attitudes [8]. Recent studies have examined teachers' attitudes towards and preparation for working with students with intellectual disabilities, highlighting the importance of hands-on experience and training [8], [9]. Thirty years of inclusive research were celebrated, emphasizing the importance

of participatory methodologies [10]–[13]. The integration of technology in inclusive education to support learning and participation was explored [14]. Digital inclusion for adults with intellectual disabilities was examined, focusing on the dynamics of power and support necessary for effective digital engagement [15]. The intersection of intellectual disabilities with other conditions requires specialized approaches. The need for customized strategies to support individuals with dual sensory loss and intellectual disabilities was identified [16].

Societal attitudes towards inclusive education shape policy and practice. Public opinions on inclusive education in France were investigated, providing insights into societal attitudes influencing policies [17]. Educators' evaluations of children's ideas about social exclusion were studied, highlighting the importance of addressing social barriers for genuine inclusion [18]. The effects of emotional intelligence on students with intellectual disabilities were analyzed, suggesting that higher emotional intelligence can positively influence outcomes [19]. The training and preparedness of university faculty are critical for implementing inclusive practices. Faculty familiarity with inclusive practices at Najran University was examined, identifying gaps in knowledge and training [20]. Barriers to access and the perspectives of individuals with intellectual disabilities were discussed as vital considerations [20]–[23]. Views on ideal school environments were presented, highlighting the importance of supportive and inclusive settings focusing on intellectual disabilities learners [24].

This paper provides a comprehensive bibliometric analysis of research trends in intellectual disabilities education towards inclusion over the past twenty years, identifying key themes, methodologies, and critical areas for future research. The significance of this study lies in its potential to guide future research directions and inform evidence-based practices in inclusive education for individuals with intellectual disabilities. By synthesizing findings from a large corpus of literature, this research offers valuable insights for policymakers, educators, and researchers working towards more inclusive educational systems. Through the application of advanced bibliometric techniques to analyze a two-decade span of research, this study presents a unique bird's-eye view of the field's evolution. This approach reveals emerging trends, gaps in current research, and opportunities for international collaboration, providing insights beyond what individual studies can offer. To achieve these aims, this paper addresses several key questions: i) what are the research trends in intellectual disabilities education towards inclusion according to the year of publication? ii) who writes the most articles? Top 10 scholars; iii) what are the documents per year by source? iv) what are the popular keywords related to the study? and v) what are co-authorship countries' collaboration?

To address these research questions and provide a comprehensive overview of the field, this study employs a bibliometric analysis approach. This methodology allows for a systematic examination of publication trends, key contributors, and emerging themes in intellectual disabilities education research over the past two decades.

2. MATERIAL AND METHOD

This bibliometric study utilized the Scopus database, which is widely recognized for its extensive coverage of scholarly publications [25]. Detailed publication information, such as author name, publication year, source title, document type, subject area, access type, source type, affiliation, country, language, and keywords, was retrieved. To identify relevant publications, a structured search was conducted in June 2024 using specific keywords related to intellectual disabilities and inclusion [26]. Table 1 shows the search string from Scopus database "intellectual disabilities" AND "inclusion" were used in the title, abstract, and keyword fields. In addition, Table 2 shows the search was limited to journals (articles) between 2004 and 2024. Non-English language publications were excluded to maintain consistency in the analysis.

Table 1. The search string

Database	Search string
Scopus	TITLE-ABS-KEY ((("intellectual disability" OR "intellectual disabilities" OR "learning disability" OR "learning disabilities" OR "cognitive disability" OR "cognitive disabilities") AND (inclusion OR inclusive OR "inclusive education" OR "inclusive practices"))) AND (LIMIT-TO (PUBYEAR , 2004) OR LIMIT-TO (PUBYEAR , 2005) OR LIMIT-TO (PUBYEAR , 2006) OR LIMIT-TO (PUBYEAR , 2007) OR LIMIT-TO (PUBYEAR , 2008) OR LIMIT-TO (PUBYEAR , 2009) OR LIMIT-TO (PUBYEAR , 2010) OR LIMIT-TO (PUBYEAR , 2011) OR LIMIT-TO (PUBYEAR , 2012) OR LIMIT-TO (PUBYEAR , 2013) OR LIMIT-TO (PUBYEAR , 2014) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR , 2022) OR LIMIT-TO (PUBYEAR , 2023) OR LIMIT-TO (PUBYEAR , 2024)) AND (LIMIT-TO (SUBJAREA , "SOCI")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")) TITLE-ABS-KEY (("instructional leadership" OR "educational leadership" OR "school leadership") AND ("organizational commitment" OR "employee commitment" OR "workplace commitment")) AND PUBYEAR > 2008 AND PUBYEAR < 2024 AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (PUBSTAGE , "final"))

Table 2. The selection criterion is searching

Criterion	Inclusion	Exclusion
Language	English	Non-English
Timeline	2004-2024	<2004
Literature type	Journal (article)	Book, proceeding, review
Subject area	Social sciences	Psychology, medicine, arts and humanities, health professions, computer science

2.1. Data search strategy

The initial search yielded a substantial number of publications related to intellectual disabilities education towards inclusion. After applying the inclusion and exclusion criteria outlined in Table 2, a total of 1562 articles published within the last two decades (2004-2024) were retrieved from the Scopus database for bibliometric analysis. This timeframe was chosen to capture the most recent trends and developments in the field, providing a comprehensive overview of research progress. The Scopus database was selected for its extensive coverage of peer-reviewed literature across various disciplines, ensuring a robust and representative sample for the analysis.

2.2. The analysis

The initial search yielded a substantial number of publications. After applying the inclusion and exclusion criteria, a total of 1,562 documents were identified for further analysis. The metadata for each publication, including title, authors, publication year, source, abstract, keywords, and citation count, were meticulously extracted and compiled into a dataset for detailed examination [27]–[29]. The bibliometric analysis was conducted using both quantitative and qualitative methods to provide a comprehensive overview of research trends in intellectual disabilities education towards inclusion. Microsoft Excel was used for data management, initial analysis, and visualization of basic trends such as annual publication counts and top contributing authors and co-authoship countries collaboration.

Network mapping and visualization of bibliometric data were performed using VOSviewer, a free tool designed to create and visualize bibliometric networks [30]. This analysis focused on the "network" and "link strength" between co-authorship, author keywords, document titles, and countries. Co-authorship analysis identified and visualized the collaborative relationships between researchers, providing insights into the dynamics and key contributors in the field. Keyword co-occurrence analysis mapped the relationships between frequently occurring terms to identify major research themes and emerging topics within the domain of intellectual disabilities and inclusion.

3. RESULTS AND DISCUSSION

3.1. What are the research trends in intellectual disabilities education towards inclusion according to the year of publication?

To address our first research question regarding research trends in intellectual disabilities education towards inclusion, we analyzed publication trends over the past two decades. Figure 1 presents a line graph of publication trends in intellectual disabilities education towards inclusion research from 2004 to 2024, based on Scopus data. It illustrates a significant increase in research output over the past two decades, indicating a growing interest in the topic. From 2004 to 2008, publication rates were modest, averaging around 20-25 per year. From 2009 to 2016, the number of documents increased steadily, from 30 to 80 per year. The most significant increases occurred between 2017 and 2021, with publications more than doubling to over 150 per year.

The highest number of publications occurred around 2022, with about 150 documents, followed by a small decrease in later years. This pattern shows how the field has grown from a niche area to an established discipline. Increased awareness, policy changes, technology breakthroughs, and international collaboration have all contributed to this expansion. The current plateau could represent a maturing discipline or a shift in research focus. While this approach provides useful insights about the field's evolution, it is important to highlight that it focuses on the number rather than the quality or impact of the research.

3.2. Who writes the most article? Top 10 scholars

To identify key contributors in the field, addressing our second research question, we examined the top 10 scholars based on the number of articles published. Based on Scopus data, the graph shown in Figure 2 refers to the top ten authors who have contributed to intellectual disability education research. C. Bigby is the most prolific author, with over 24 documents, significantly more than other researchers in the field. Strnadová comes next with roughly 15 documents, followed by M. Pallisera and I. Wiesel, who each have around 12 documents. The remaining authors, M. Nind, R. J. Stancliffe, P. Frawley, J. Fullana, J. Walmsley, and E. W. Carter, each provided between 8 to 11 document each.

The data also reveals a concentration of research output among a few key authors in the field. This pattern suggests the presence of established experts who are consistently contributing to the body of knowledge in intellectual disabilities education [31], [32]. The variation in publication counts among these top authors may reflect differences in research focus, career stage, or collaborative tendencies. This information is valuable for identifying influential researchers and potential collaboration opportunities in the field.
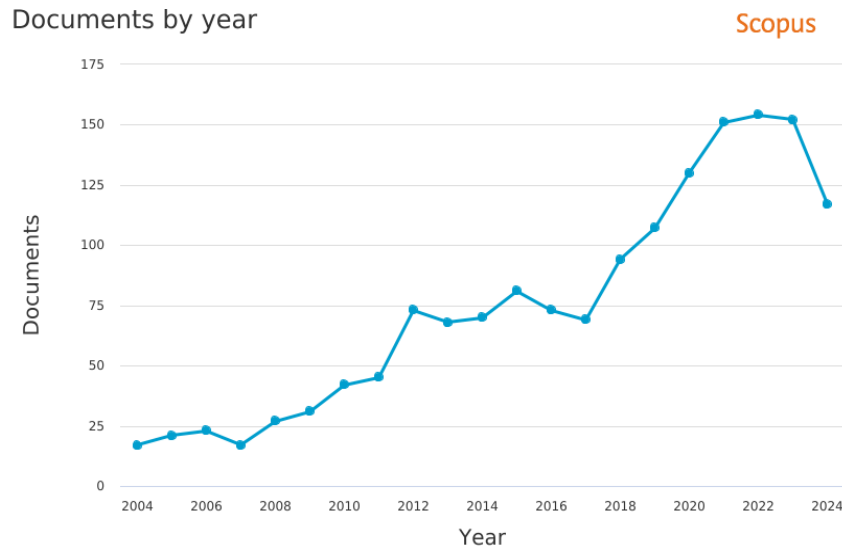
Figure 1. Plotting document by years
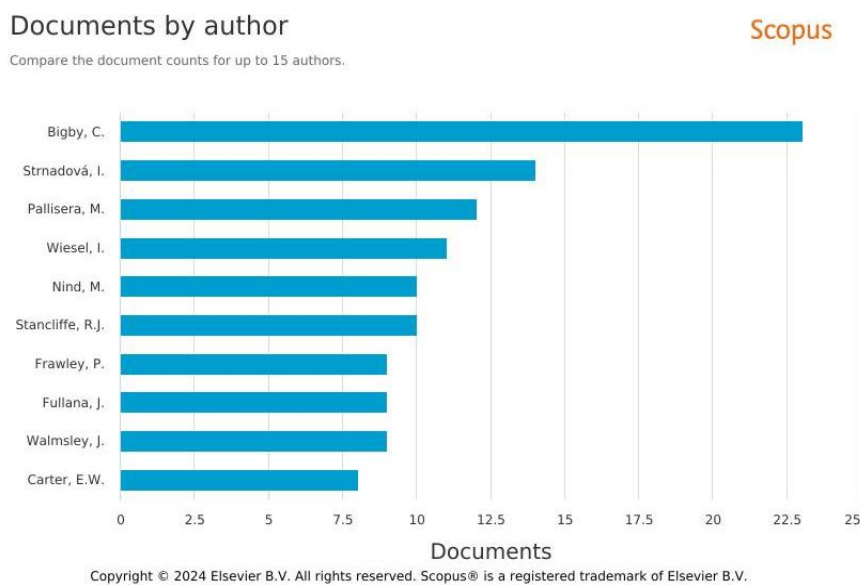
Figure 2. Documents by author

3.3. What are the documents per year by source?

To further understand publication trends and address our third research question, we analyzed the distribution of documents per year across key journals in the field. The graph illustrates varying patterns for each journal, with notable increases and decreases in publication frequency. Figure 3 illustrates the publication trends across five key journals in the field of intellectual disabilities education towards inclusion from 2004 to 2024. This graph provides insights into how research output has evolved over time in specific influential journals, helping to identify shifts in publication patterns and the relative contributions of different journals to the field. The fluctuations in publication numbers for each journal over the years reflect changing research

priorities and interests within the academic community. The Journal of Applied Research in Intellectual Disabilities demonstrates the highest peak, reaching about 15 publications in 2018. The Journal of Policy and Practice in Intellectual Disabilities shows significant activity around 2013. Overall, there's an observable increase in publication frequency across all journals over the 20-year period, indicating growing research interest in the field [33]–[35].

This data reveals the dynamic nature of research output in intellectual disabilities education towards inclusion [23]. The varied patterns suggest shifting focus areas within the field over time, potentially reflecting changes in research priorities [36], funding, or policy initiatives [37], [38]. The consistent presence of multiple journals throughout the period underscores the sustained importance of this research area. The graph also hints at the multidisciplinary nature of the field, with journals covering policy, practice, and societal aspects of intellectual disabilities.
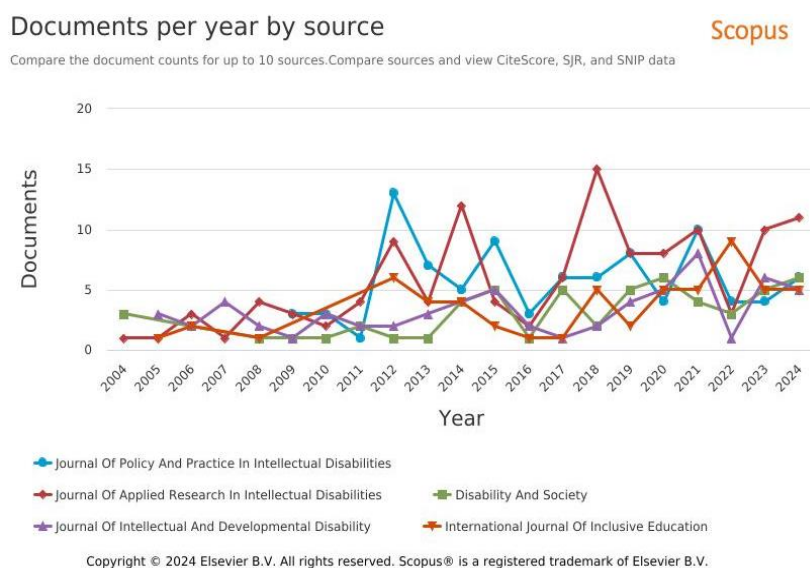

Figure 3. Documents per year by source

3.4. What are the popular keywords related to the study?

To identify major themes and concepts in the field, addressing our fourth research question, we conducted a keyword analysis. Figure 4 shows the keyword cluster visualization that reveals the diverse and interconnected research areas within intellectual disabilities education towards inclusion. The central and largest node, "intellectual disability," is surrounded by key themes such as inclusion, special education, and social inclusion.

This reflects the field's core focus on integrating individuals with intellectual disabilities into educational and social contexts [39]. The visualization also shows key subthemes: teaching methods, stages of life, research methods, and social issues. The interconnectedness of these keywords demonstrates the multidisciplinary nature of the field, encompassing educational [40], psychological [41], [42], social [8], and healthcare dimensions in addressing the complex needs of individuals with intellectual disabilities [18], [35], [43]. This comprehensive keyword analysis provides insights into the multifaceted nature of the research [44].

3.5. What are co-authorship countries' collaboration?

To examine international collaboration patterns, addressing our fifth research question, we analyzed co-authorship relationships between countries. Figure 5 presents a network visualization map of co-authorship countries' collaboration in the field of intellectual disabilities education towards inclusion. This visualization helps to identify the global nature of research efforts and the strength of international collaborations. The size of each node represents the number of publications from that country, while the thickness of the lines between nodes indicates the strength of collaboration between countries. This map provides valuable insights into the geographical distribution of research and highlights potential areas for expanding international partnerships in the field [45]–[48]. The co-authorship network visualization reveals the global collaboration patterns in intellectual disabilities education research [24], [39], [48]. The United States emerges as the central hub, with the largest node, indicating its dominant role in research output and international collaborations. Other major

contributors include the United Kingdom, Australia, and several European countries such as Germany, Netherlands, and Spain. This reflects a strong Western influence in the field [5], [49], [50].

The network shows dense interconnections among these leading countries, suggesting active international collaboration. However, there's less representation from African, South American, and many Asian countries, with the exception of Japan and China [51]–[54]. This highlights potential areas for expanding global research partnerships [55]. The visualization also indicates varying degrees of collaboration intensity between countries, with thicker lines representing stronger collaborative ties, particularly among English-speaking nations and within the European research community.
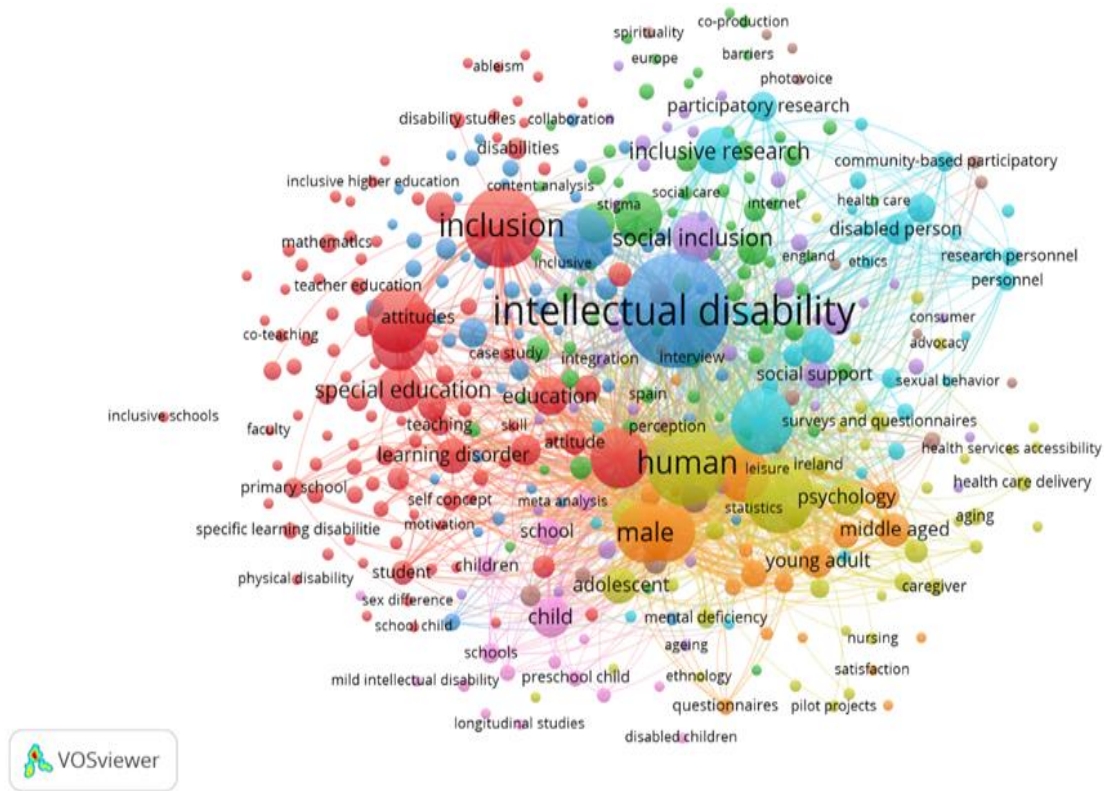

Figure 4. Network visualisation map of popular author keywords

Figure 5. Network visualisation map of co-authoship countries collaboration

4.   CONCLUSION

This bibliometric analysis reveals findings that not only align with but also expand upon the initial research questions and objectives of this study regarding intellectual disabilities education towards inclusion. The results demonstrate a significant increase in research output over the past two decades, reflecting growing interest in this field. The identification of key scholars, popular keywords, and research themes addresses our aim to understand who is driving research in this area and reflects the multidisciplinary nature of the field. The examination of international collaborations provides insights into the global nature of research efforts, albeit with a concentration among Western countries. These findings have important implications for future research, suggesting a need for broader engagement from underrepresented regions to diversify perspectives, and emphasizing the importance of integrating insights from various disciplines to develop more comprehensive inclusive education strategies. Future studies could explore the effectiveness of inclusive education practices in diverse cultural contexts, examine long-term outcomes for individuals with intellectual disabilities, and investigate the application of emerging technologies in inclusive education settings. Such research directions could significantly contribute to enhancing policy and practice in the field of intellectual disabilities education towards inclusion.

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