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A Bibliometric Study on Early Childhood Autism Research*

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This study aimed to determine trends in early childhood autism research and to suggest directions for future research. A total of 4366 studies related to autism spectrum disorder (ASD) in early childhood were retrieved from the Web of Science database. In total, 2744 articles that met all the selection criteria were selected for review. The VOSviewer and HistCite software were used to conduct bibliometric and co-occurrence analyses. Analyses were conducted regarding the distribution of categories based on publication counts and the distribution of publications and citations by year, geographical distribution, hot topics, and analysis of journals, authors, and global/local citations. This article provides an objective review of recent research between 1994 and 2023 to consider how the field has evolved and focused over time. Our analysis demonstrated a notable rise in articles on ASD in early childhood in recent years. Themes such as "inclusive education," "inclusion," "primary care," "activity schedules," "outcome measures," "mathematics," and "motor skills" have been frequently associated with ASD in early childhood research. However, their frequency was low. ASD in early childhood is addressed by various disciplinary studies, emphasizing the need for interdisciplinary research. The current findings have important contributions to research and practice.

Keywords: autism spectrum disorder, child development disorders, neurodevelopmental disorders, preschool

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Highlights:

- Interest in autism research in early childhood has been rapidly increasing in recent years
- Autism research in early childhood is focused on linguistics, behavioral sciences, family studies and pharmacology
- Early interventions are important in reducing symptoms and skill development of autism in early childhood

Autism is a neurodevelopmental disorder that affects communication and behaviour (American Psychiatric Association [APA], 2013). The term autism spectrum disorders (ASD) encompasses autism, Asperger's syndrome, and pervasive developmental disorder – not otherwise specified (APA, 1994, 2013). The Diagnostic and Statistical Manual of Mental Health Disorders, Fourth Edition, published by the American Psychiatric Association, was the first to conceptualize autism spectrum disorders from a clinical perspective (APA, 1994). ASD is known as a "*spectrum*" disorder because there is a significant difference between the type and severity of symptoms experienced by individuals with autism (Ben-Itzchak & Zachor, 2020; Robain et al., 2020; Waizbard-Bartov et al., 2022). Symptoms are most commonly diagnosed between 2 and 4 years of age (Lord et al., 2020; Sainsbury et al., 2022; van 't Hof et al., 2021). There is a growing awareness of ASD because it is diagnosed at an early age (Montiel-Nava et al., 2023). Therefore, the prevalence of ASD has attracted researchers' interest (Rydzewska et al., 2019).

Worldwide, 1 in 100 children are diagnosed with ASD (Zeidan et al., 2022). Its prevalence has increased significantly in recent years and varies worldwide (Nevison et al., 2018). It is important to accurately estimate the prevalence of ASD to determine its economic and health burden (Salari et al., 2022). Therefore, evaluating future maintenance needs and resource allocation may be required (Zhou et al., 2021). Studies estimating ASD prevalence have investigated the possible reasons for the observed changes in prevalence (Nielsen et al., 2023). They explained the underlying reasons with developed diagnostic tools, increased awareness of ASD, improved screening methods, and changes in diagnostic criteria (Rice et al., 2012; Salari et al., 2022). In this context, some research has focused on the characteristics of autism.

Characteristics of autism include delayed/absent language development and difficulty in interacting with others (Bhat, 2023). Specifically, it appears in difficulties related to executive function (EF). For example, the ability to plan, organize, initiate, and monitor behaviours (Demetriou et al., 2019). EF is the cognitive process of controlling thoughts and behaviours (Demetriou et al., 2018; Tschida & Yerys, 2022). It is essential in many contexts, for example, academic achievement, activities of daily living, social life (Schirmbeck et al., 2021; Souissi et al., 2022) and develops in early childhood (Baker & Jensen, 2023; Philbrook et al., 2022). Moreover, concerning the affective domain, children diagnosed with ASD

require assistance when they encounter a diminished drive to complete a range of tasks independently (López-Belmonte et al., 2022). Therefore, early childhood years are critical for children with ASD.

Symptoms of ASD first appear in early childhood (Chellew et al., 2022). The severity of ASD symptoms may change throughout childhood as children develop (Waizbard-Bartov et al., 2022). Behavioural interventions and therapies can reduce symptoms but cannot provide a complete treatment (Wang et al., 2023). Nevertheless, it can help individuals with ASD to participate in social life (Cakir et al., 2020; Zhou et al., 2021). Given that interventions reduce symptoms for children with ASD, the importance of early childhood intervention becomes apparent (Ma et al., 2022).

Focusing on ASD in early childhood is critical for many reasons. The primary target period for early intervention has become the early childhood period since this is the most common time of first diagnosis (Waizbard-Bartov et al., 2021). One reason to emphasize the importance of early childhood has a long-term effect on people with ASD's life (Maksimović et al., 2023). Early interventions provide opportunities to improve the deficits of people with ASD (Carmona-Serrano et al., 2020a). Early intervention can allow young children to develop communication, social, and self-care skills (Carmona-Serrano et al., 2020a). In addition, it can help a child gain more independence and reduce the severity of the symptoms. Children with ASD require early intervention to reach their full potential. The purpose of this study is to present a bibliometric analysis of Web of Science (WoS) articles that relate to autism in early childhood. As one of the review studies, biblimetric analysis identifies trends and developments in a wide range of scientific disciplines by analyzing scientific publications. Therefore, it provides researchers with information about the subject's history, current status, and possible future trends. It has several advantages, such as analyzing large amounts of data, mapping the literature, and not being affected by the biases of researchers. The variables examined in the bibliometric analysis are the most used keywords, the most productive/cited authors, journals, and countries.

Bibliometric analysis is widely used to analyze scientific literature published on ASD (Carmona-Serrano et al., 2021; Sweileh et al., 2016; Zhang et al., 2022). The amount of scientific research on childhood related to ASD has increased exponentially. A bibliometric review of interventions for children with ASD reported that robots are increasingly being used to promote communicative interaction (Pérez-Vázquez et al., 2020). Zhao et al. (2022) highlighted disability monitoring networks and caregiver-focused questions in childhood ASD. They also emphasized the importance of using AI-based technologies in identifying ASD. The bibliometric analysis of autism studies in education, which has grown in importance since 2007, suggests a tendency toward diagnosis, among mothers of children with ASD, and young people with ASD (Carmona-Serrano et al., 2020b). Furthermore, bibliometric research on parents of children with ASD reveals that behavioural issues in children with ASD induce stress in parents (Carmona-Serrano et al., 2021). However, no bibliometric study focused on early childhood in ASD has been found. In the present study, which is an exploratory study on existing and emerging trends related to ASD in early childhood, the relationship between the concepts of early childhood and autism is presented through visual representations. It also identified trends in parent, caregivers, skill development and innovative practices in the early childhood context

that emerged from previous studies. The research aims to inform future research directions and improve outcomes for children with ASD. The research questions are as follows:

RQ1: What is the distribution of publications on ASD in early childhood by categories of study?

RQ2: What is the distribution of publications on ASD in early childhood by year?

RQ3: Which countries, institutions and authors have contributed the most to disseminating publications on ASD in early childhood?

RQ4: Which journals have contributed the most to disseminating publications on ASD in early childhood?

RQ5: What are the most commonly used keywords in publications on autism and early childhood?

Method

Data

The study was designed to fulfil its objectives using a bibliometric research design. Scientific materials can be accurately quantified and evaluated using this method. Therefore, bibliometric analysis was employed in order to accomplish the objectives of this study, which focused on ASD in early childhood. Research analysis is necessary to identify influential authors and relationships and determine the type of research conducted in a given area of study. An analysis of bibliometric data can also provide insight into possible research directions for the future. Databases were accessed from the WoS publications. The scope of the study was restricted to articles published in SSCI journals that are indexed in WoS. Moreover, the study encompassed an examination of the development of authors, and institutions. WoS furnishes an essential collection of metadata for bibliometric evaluations, which comprises the following: titles, listings of authors, institutions, countries, keywords, abstracts, references, and number of citations. Several valuable bibliometric data, such as cited references, keywords, and bibliographic information, were collected from WoS. It was chosen because WoS provides access to a wide range of academic publications from various fields and is a knowledge repository that includes publications published between 1900 and 2023. To visually represent the sequential steps involved in identifying, screening, eligibility, and including articles in this study, a flowchart diagram (see Figure 1) was created. The reason for this is that the “articles” undergo a rigorous peer-review process and represent unique research, therefore reflecting certain issues within this subject.

Procedure

An extensive literature review was conducted before the analysis to determine the appropriate keywords. Furthermore, three experts in the field were consulted to confirm the keywords selected. We downloaded and analyzed the metadata on

September 7, 2023. An advanced search was conducted by selecting the topic field for this work. It is the most utilized search field in most bibliographic studies, as it can search both titles and abstracts as well as keywords. The journal articles were identified according to the PRISMA framework to review and select articles for literature search (see Figure 1; Moher et al., 2009).

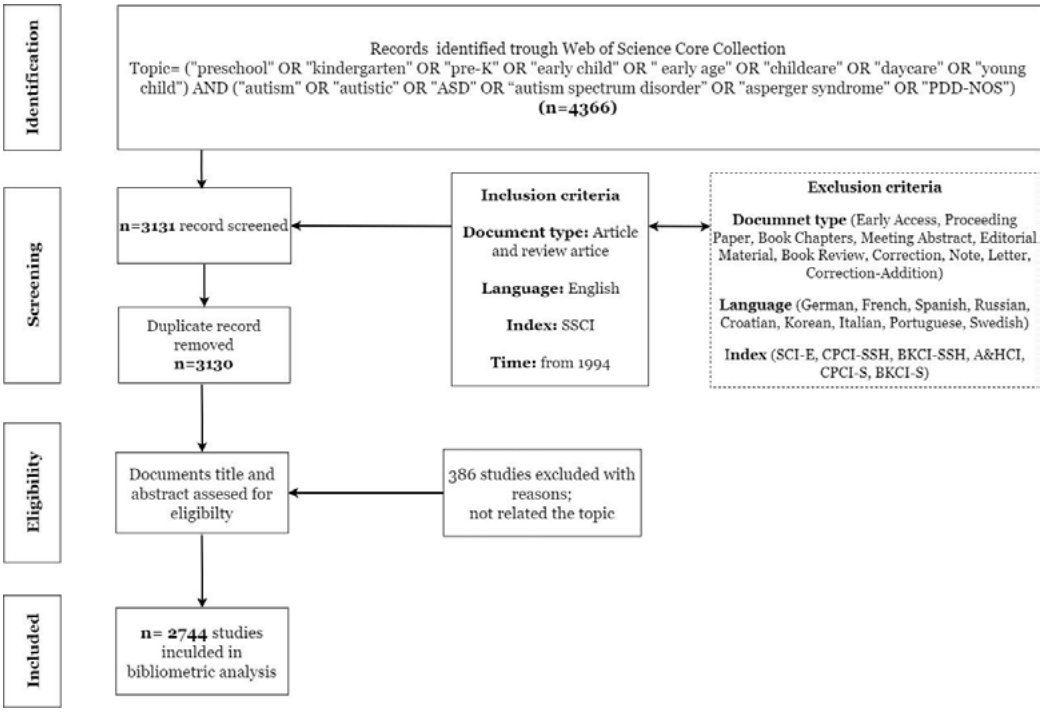
After the keyword searches, the data started to be analyzed. It was found that the abbreviation *ASD* was used instead of *Acute Stress Disorder*. These studies were excluded. In addition, the method sections of the studies were also examined, and studies that did not focus on children were also excluded (e.g., preschool teachers, and parents of children with ASD).

As our research has two focuses, we used the conjunction "*AND*" between both groups of words. The conjunction "*OR*" is also used to include all the derivatives of the keywords in different studies. As a result, after employing the conjunctions identified throughout the research, the terms utilized when searching are as follows: "*preschool*" OR "*kindergarten*" OR "*pre-K*" OR "*early child*" OR "*early age*" OR "*childcare*" OR "*daycare*" OR "*daycare*" OR "*young child*" AND "*autism*" OR "*autistic*" OR "*ASD*" OR "*autism spectrum disorder*" OR "*Asperger syndrome*" OR "*PDD-NOS*". It is primarily to increase the probability of accessing all studies. There were no restrictions on the publication year.

An objective approach is employed by the co-occurrence graphs technique using bibliometric analysis to identify potential research areas. The keyword co-occurrence network in the VOSviewer program was used for analysis (Grames et al., 2019). The HistCite packet software was used to display the study topic's citations in its area as well as those obtained from all fields at the same time. Moreover, images from the WoS database were utilized.

Upon completion of each phase, an overall count of 4,366 publications emerged. The initial quantity of documents went through refinement by implementing a variety of criteria. The inclusion criteria were articles and reviews published after 1994 that were in the English language and SSCI-indexed. Other document types, indexes and languages were excluded. In addition, after removing duplicated publications, 3130 articles remained. These studies were examined, and 386 unrelated articles were excluded from the scope of the research. A bibliometric analysis was conducted with the remaining 2744 articles.

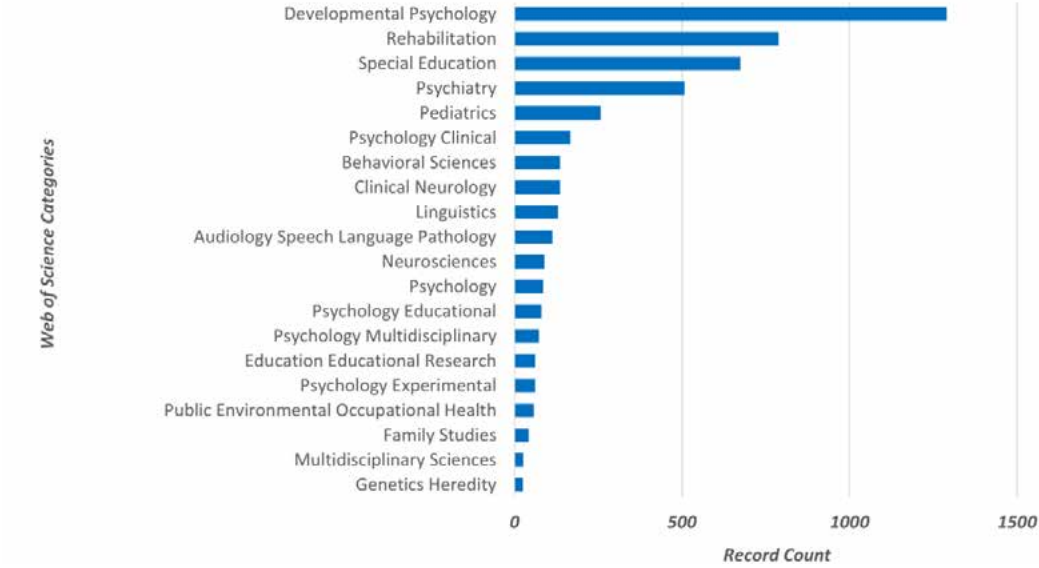
Figure 1
The flowchart of data selection



Results

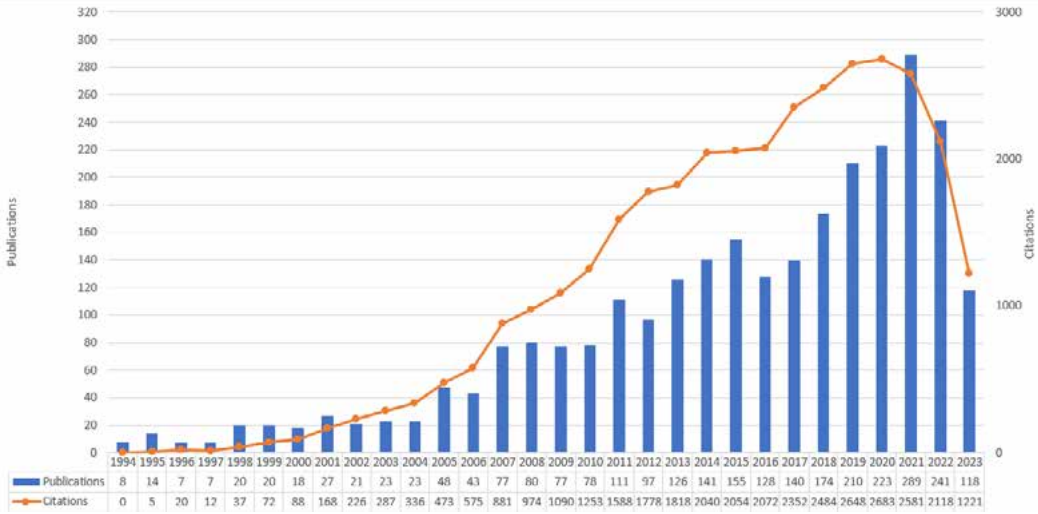
The WoS database yields 4,366 scientific publications when searched with the keywords provided in the method. After the screening and eligibility process, a total of 2,744 articles were included in the analysis. As the document type of scientific publication is examined, 2,495 (90.93%) original articles; and 249 (9.07%) review articles. Figure 2 illustrates the distribution of publications according to their field of study (i.e., WoS categories).

Figure 2
Distribution of categories based on publication counts



The most publications on autism in early childhood were published in Developmental Psychology (1,289; 46.97%), Rehabilitation (788; 28.71%), Special Education (674; 24.56%) and Psychiatry (508; 18.51%) (see Figure 2). The leading categories focused on diagnostics, education and rehabilitation. Clinical trials, linguistics, neuroscience, and experimental studies were also among the categories that stood out.

Figure 3
Distribution of publications and citations by year



The publications and citations to publications have increased over the years (see Figure 3). It was determined that the highest number of publications were in 2021 (289; 10.53%), 2022 (241; 8.78%), 2020 (223; 8.13%), and 2019 (210; 7.65%), respectively. The total number of publications and number of citations received are parallel.

Figure 4
Distribution of publications by country

It is observed that the countries with the highest number of publications are the United States (1460; 53.20%), England (257; 9.36%), Australia (241; 8.78%), Canada (201; 7.32%) and China (159; 5.79%). The number of publications in Eastern countries and Africa is low compared to other countries. It has been determined that developed countries are leading countries in terms of the number of publications.

Table 1
Authors with the highest number of publications

Author	Nb	%	h-index	Institution	LCS	GCS	GCS/Nb
Charman T	41	1.5	70	King's College London	735	5,663	138.12
Zwaigenbaum L	40	1.5	76	University of Alberta	230	1,929	48.23
Gillberg C	32	1.2	107	Göteborg University	167	1,231	38.47
Kasari C	31	1.1	63	University of California	564	3,017	97.32
Duku E	28	1.0	42	McMaster University	134	947	33.82
Szatmari P	28	1.0	95	University of Toronto	200	1,375	49.11
Smith IM	27	1.0	52	Dalhousie University	165	832	30.81
Watson LR	26	0.9	40	University of North Carolina	107	764	29.38
Lord C	25	0.9	159	University of California	777	9,782	391.28
8,172 Authors	--	--	--	--	--	--	--

Note. Nb-number of articles; LCS-Local Citation Score; GCS-Global Citation Score

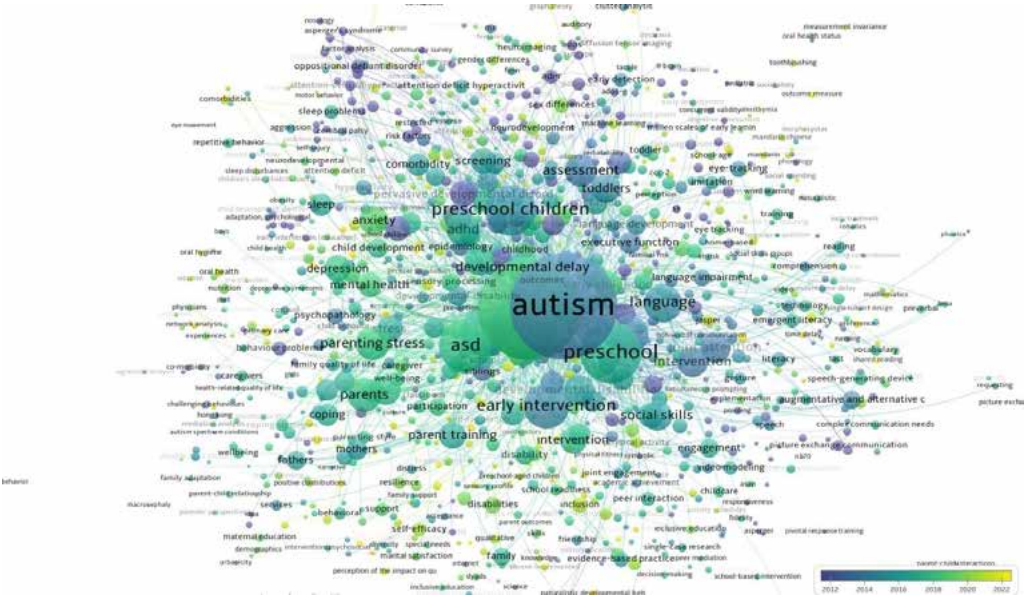
When authors with the highest number of publications were examined, 9 authors published at least 25 or more publications on this subject (see Table 1). While it is seen that the highest number of publications was published by "Charman T", the highest h-index belongs to "Lord C". In addition, there were 8,172 authors with a maximum of 24 and a minimum of 1 publication.

Co-occurrence Analysis

It is useful to identify the most frequently used concepts in early childhood research on autism through Co-occurrence Analysis. We uncovered the network or association between keywords occurring in all 2,744 scientific publications. A visual representation of the results is presented in Figure 5.

Figure 5

Network/relationship between keywords



Circle sizes indicate the frequency of use of the keyword (see Figure 5). A larger circle size indicates that the keyword is more frequently used. The circle colours represent the years of the articles published. For example, while the word "*autism*" was mostly used in the early years, it was found that "*autism spectrum disorder*" was used more frequently in recent years instead of this concept. In Figure 5, the terms "*preschool children*" and "*early intervention*" were frequently used.

Figure 6
The overlay visualization of the co-occurrence map

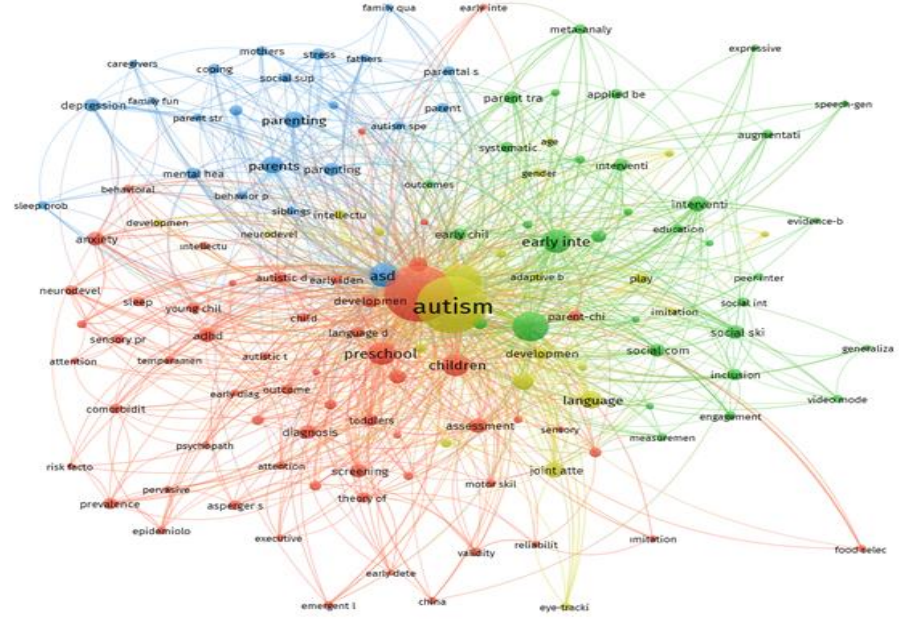


Figure 6 shows that early interventions and skills form a cluster (e.g., parent, early intervention, and preschool). Moreover, variables related to family and social support form another cluster (e.g., caregivers, parenting, and parent stress). Another cluster is formed by the factors associated with diagnosis (e.g., prevalence, assessment, and screening). One last classification consists of abilities related to early childhood development (e.g., social skills, inclusion, and engagement).

Table 2
Journals by the number of publications and citations received (LCS and GCS)

Journal	Nb	%	LCS	GCS	GCS/Nb
Journal of Autism and Developmental Disorders	429	15.7	3,509	28,641	66.76
Research in Autism Spectrum Disorders	161	5.9	556	4,656	28.92
Autism	159	5.8	940	5,967	37.53
Research in Developmental Disabilities	99	3.6	428	3,302	33.35
Autism Research	92	3.4	213	2,945	32.01
Topics in Early Childhood Special Education	47	1.7	276	1,518	32.30
Focus on Autism and Other Developmental Disabilities	45	1.6	105	580	12.89
Journal of Child Psychology and Psychiatry	45	1.6	615	5,393	119.84
Journal of Developmental and Physical Disabilities	37	1.3	50	435	11.76
Journal of Speech-Language and Hearing Research	35	1.3	144	1,062	30.34
Frontiers in Psychiatry	34	1.2	0	310	9.12
Frontiers in Psychology	34	1.2	0	234	6.88
International Journal of Developmental Disabilities	34	1.2	9	148	4.35
American Journal of Occupational Therapy	32	1.2	56	1,292	40.38
452 journals	--	--	--	--	--

Note: Nb-number of articles; LCS-Local Citation Score; GCS-Global Citation Score.

Table 2 shows that 14 journals published at least 1.00% or more of the total publications on this subject. Furthermore, 452 journals had publications that fell below 1.00%. The journal with the highest number of publications was "*Journal of Autism and Developmental Disorders*" accounting for approximately 15.7% of total publications. Moreover, this journal possessed the highest number of both LCSs and GCSs. Of the 14 journals with the most publications, "The *Journal of Child Psychology and Psychiatry*" had the highest GCS/Nb ratio, while "*International Journal of Developmental Disabilities* " had the lowest.

Discussion

The study provided a bibliometric analysis of scientific literature on ASD in early childhood. Using the WoS database, we collected data on publications related to the topic, including cited references, keywords, and bibliographic information. Furthermore, we identified potential research areas using the co-occurrence graph technique. To our knowledge, this is the first study to review autism in early childhood using bibliometric analysis.

Firstly, most publications on autism in early childhood were published in Psychology Developmental, Rehabilitation, Education Special, and Psychiatry. To establish this topic, these four categories provide sufficient research and theoretical support. However, interventions in early childhood can improve the prognosis (Brinster et al., 2023) and outcome of ASD (Steed & Leech, 2021). The importance of diagnosing ASD early in childhood and the requirements of subsequent special education may have led to an increase in research in these related fields. The distribution of study areas for publications in early childhood shows that linguistics, behavioural sciences, family studies, and pharmacology are among the fields of study. Besides relating to autism, these domains can also be used to identify which areas are directly or indirectly affected by autism in early childhood.

Secondly, the findings show that the number of publications and citations to publications has increased over the years, with the highest number of publications in 2021. Figure 3 also shows that document citations peaked in 2013 and continued to rise after 2017. According to the Diagnostic and Statistical Manual of Mental Disorders (Fifth Edition; DSM-5), The comprehensiveness of the diagnostic criteria used to diagnose "autism spectrum disorder" leads to many cases being diagnosed as ASD (Tsai & Ghaziuddin, 2014). Behavioural symptoms have become more common as study numbers have increased. As a result, it may be due to the World Health Organization (WHO) approving the Global Action Plan for Physical Activity 2018–2020 (GAPPA) in 2017 (WHO, 2019), which addresses the needs of persons with disabilities for the first time, aims to prevent and control physical inactivity, promote physical activity, and encourage physical activity. Improvements in the approval of GAPPA and DSM-5 by the World Health Organization may explain the quality and quantity of research in this field.

Thirdly, comparing the number of publications by countries shows that the United States, England, Australia, Canada, and China had the most publications. The result is consistent with the other bibliometric study (Carmona-Serrano et al., 2020b). Moreover, these countries, institutions, and authors are also leaders in

studies dealing with ASD-related research (see Table 1). A recent study investigating the prevalence of autism found that ASD was prevalent in Asia, America, Europe, Africa, and Australia in the following proportions: 0.4%, 1%, 0.5%, 1%, and 1.7% (Salari et al., 2022). The epidemiological research on autism is not entirely consistent with this result. Among these countries, China uses a Chinese Mental Disease Classification Program and Diagnostic Criteria (CCMD) for defining mental illness. However, these criteria are based on similar criteria to ICD-11 and DSM-5 (Chen, 2002; Wang et al., 2018). A country or region's progress in medicine and the ability to detect ASD will contribute to the number of scientific publications in the field of ASD within that country or region. Therefore, countries' criteria for defining autism may explain this result.

Fourthly, the journal with the most publications was found to be *"*Journal of Autism and Developmental Disorders*"* in 14 journals (see Table 2). *"*Journal of Child Psychology and Psychiatry*"* had the highest GCS/Nb ratio. While *"*International Journal of Developmental Disabilities*"* had the lowest. "Journal of Autism and Developmental Disorders" is a multidisciplinary journal that accounts for approximately 15.7% of total publications. It discusses and evaluates clinical diagnoses and treatments for ASD and related disabilities, studying and evaluating theoretical and applied research. The multidisciplinary journals stand out from other journals in this field. Moreover, there is a wide range of journals, some of which have a long history, and others that are relatively new. As an example, the Journal of Autism and Developmental Disorders first appeared in 1971, and Frontiers in Psychiatry appeared in 2010 (Curran & Brownlow, 2014). As a result, the number of publications and citations received by the articles published by the journals may have also been affected by the years in which the journals were established. Many of the journals mentioned above have conducted bibliometric reviews on ASD and have been at the forefront of other research concerning ASD (Chiew et al., 2022; Feng et al., 2022; Shekarro et al., 2021).

Finally, the co-occurrence of terms and frontier topics identified by the authors' keywords showed that the studies of autism in early childhood continue to be of interest. Some concepts that have emerged recently from the network/relationship between keywords (see Figure 5) are inclusive education, learning environment, primary care, scanning, functional communication traits, mental health literacy, motor control, and motor skills. The result indicated that autism studies in early childhood were also affected during the COVID-19 pandemic and its aftermath (Alhuzimi, 2021; Pachner & Aranyi, 2021). Recent studies have demonstrated a trend in the use of technology and tools that utilize technology. This may be the result of the restrictions, isolation, and closures imposed during COVID-19. In addition, the effect of GAPPA, published by the WHO, has enabled researchers to focus on physical activities in early childhood.

Implications

The current findings have multiple practical implications. Firstly, the dominance of English-speaking countries in ASD in early childhood research, particularly the USA, England, Australia, and Canada, suggests the importance of international collaboration and knowledge exchange. Institutions and researchers in these countries

play an important role and can serve as valuable resources for global interventions. The significant impact of DSM-5 and GAPPA on publication trends highlights the significance of diagnostic frameworks and global mental health programs in contributing to research and practice. Additionally, the growing focus on technology, education, health, and sports in recent publications indicates evolving research priorities, signaling areas that warrant increased attention. Despite the emergence of programs such as inclusive education, learning environment, and mental health literacy, their relatively low frequency suggests the need for better understanding and emphasis in future research. Moreover, the interdisciplinary nature of studies addressing ASD in early childhood suggests the importance of collaborative efforts between diverse fields. It should also be highlighted that understanding the major lines of research created in this field of study enables scientists to lead trends. As a result of this research, they can determine which lines of inquiry they can pursue without consulting previous studies. One of the practical implications is that this research may be used by therapists to explore novel methods of intervention as well as to identify the therapies that employ the most appropriate technology and produce the greatest outcomes. According to the progression of early education research, building a long-term support structure for children's development is extremely important. Creating a sustainable growing environment for children with autism involves collaboration across academia, families, and society. Therefore, Interdisciplinary research should be fostered more. Research including family, academia, and society should be the primary emphasis of multidisciplinary research.

Limitations

Our research has some limitations, even though we undertake extensive bibliometric analysis. In our data analysis, we only used the WoS database, thereby limiting the number of references to specific empirical studies and peer-reviewed articles. Other data sources besides the WoS database may be useful to future studies. Moreover, the study's language bias, which focused primarily on English-language articles, may have excluded crucial insights from non-English-language studies. For the selection of keywords for analysis, a literature review was conducted. Furthermore, to confirm the selected keywords, three experts in the field were consulted. However, the keywords were limited to those derived from expert opinions and a literature review. For future endeavors in this domain, it is suggested that they expand their data sources, incorporate multilingual research, and remain alert to the constantly changing nature of keywords and terminologies.

Conclusions

This study found that the English-speaking countries (i.e., USA, England, Australia, Canada) came to the fore and had the most publications, while the majority of research is conducted in China after these countries. Several keywords have been trending throughout the decade, including inclusive education, learning environment, primary care, scanning, functional communication traits, mental health literacy, motor control, and motor skills. The number and quality of publications have been determined to be affected by the publication of DSM-5 and the acceptance

of the GAPPA by the WHO. Recently, it has been seen that publications in the field of early childhood are carried out about technology, education, health, and sports. However, their frequency is low. ASD in early childhood is addressed by various disciplinary studies, emphasizing the need for interdisciplinary research.

Data Availability Statement

The data presented in this review article are obtained from previously published studies, publicly available datasets, and academic sources. All references to the sources are properly cited within the text and listed in the bibliography. As this review does not include original data collection or analysis, there are no additional datasets or materials to be made available.

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Bibliometrijska studija o istraživanju autizma u ranom detinjstvu

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Ova studija je imala za cilj da utvrdi trendove u istraživanju autizma u ranom detinjstvu i da predloži pravce za buduća istraživanja. Ukupno 4366 studija koje se odnose na poremećaj autističnog spektra (ASD) u ranom detinjstvu preuzeto je iz baze podataka Web of Science. Ukupno je za recenziju izabrano 2744 članka koji su ispunili sve kriterijume za izbor. Softver VOSviever i HistCite su korišćeni za sprovođenje bibliometrijskih analiza i analiza ko-pojavljivanja. Sprovedene su analize u vezi sa distribucijom kategorija na osnovu broja publikacija i distribucije publikacija i citata po godinama, geografske distribucije, aktuelnih tema i analize časopisa, autora i globalnih/lokalnih citata. Ovaj članak daje objektivan pregled nedavnih istraživanja između 1994. i 2023. kako bi se razmotrilo kako se ovo polje razvijalo i fokusiralo tokom vremena. Naša analiza je pokazala značajan porast članaka o ASD-u u ranom detinjstvu poslednjih godina. Teme kao što su „inkluzivno obrazovanje“, „inkluzija“, „primarna zaštita“, „raspored aktivnosti“, „mere ishoda“, „matematika“ i „motoričke veštine“ često se povezuju sa ASD u istraživanjima u ranom detinjstvu. Međutim, njihova učestalost je bila niska. ASD u ranom detinjstvu se bavi različitim disciplinarnim studijama, naglašavajući potrebu za interdisciplinarnim istraživanjem. Sadašnji nalazi imaju važan doprinos istraživanju i praksi.

Ključne reči: poremećaj autističnog spektra, poremećaji u razvoju deteta, neurorazvojni poremećaji, predškolska ustanova

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